FOETAL VALPROATE SYNDROME, DEVELOPING A NEW SERVICE

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Introduction

A Paediatric valproate clinic at CHI Crumlin was established to assess children who were exposed to sodium valproate antenatally in Ireland and to determine if this exposure is the contributing factor to their developmental delay, autism or skeletal malformations. Antiepileptic drugs (AEDs) have been associated with a 2-3 fold increase in major malformations in children exposed to AEDs in-utero compared to the general population. [1–2]Children exposed to sodium valproate have the highest level of risk of a malformation at 10.93%.[3]

Methods

A national referral service was established via HSE Valproate Support Team. GPs were advised to refer children <16years of age exposed to valproate antenatally. Thirteen children from six families were reviewed in the first six weeks. Background diagnosis, developmental history, maternal valproate history and clinical findings were noted. Data was collected and recorded via a proforma.

Results

Ages ranged from 2-15 years, mean age of nine years. Two were also exposed to lamotrigine. Valproate dosages ranged from 500mg- 1g twice a day. Only three mothers were counselled regarding potential side effects of valproate exposure antenatally. Dose was adjusted in four cases, increased on two occasions and decreased on two. Two children have been diagnosed with dyspraxia and dyslexia, one has ADHD and eight have Autism. All have some form of developmental delay. Slight facial dysmorphism was noted in 60% of these children. 30% children were breast fed for varying durations, while mums remained on valproate. All were referred to Geneticist after taking their blood samples for microarray and fragile X, for the final diagnosis of foetal valproate syndrome.

Conclusion

Valproate has a significant role in causing global developmental delay, autism and congenital malformation. There is an urgent need to take necessary actions in order to stop its use in women of childbearing age and especially in pregnancy.

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COMPLETE LACK OF PARENTAL KNOWLEDGE AND AWARENESS REAGRDING PAEDIATRIC VACCINE-PREVENTABLE DISEASES: POTENTIAL FOR IMPROVING UPTAKE RATES

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Background: The World Health Organization estimates that annually 1.5 million children die from vaccine preventable diseases; representing 17% of all deaths in children under five.[1] Vaccine refusal and hesitancy still exists throughout many Irish communities. Measles outbreaks persist in Ireland with suboptimal vaccine uptake, as low as 85% in some areas.[2]

Aims: To explore parental 1) knowledge relating to select vaccine preventable diseases 2) vaccine information source and 3) opinion re mandatory school vaccine requirement.

Methods: Following an initial pilot study, this descriptive, questionnaire-based study involved interviewing parents attending the paediatric Outpatient Department at University Hospital Galway. Galway Clinical Research Ethics Committee granted ethical approval; data analyzed using SPSS.

Results: Respondents, 300 in total, predominantly Irish (72.3%), aged between 25 and 34 years (55.0%). Majority second time parents (69.3%). Most (89.3%) displayed a poor level vaccine related knowledge with median score of 3/8.

Concerning vaccine related information: First time parents in order of preference: GP practise nurse or public health nurse (40, 43.5%). general practitioners (39, 42.4%) and antenatal clinics (42, 45.7%).

Second time parents in order of preference: 49.5% (103) GP practice nurse or public health nurse (103, 49.5%), antenatal clinics (68, 32.7%), GP (25, 12.0%), websites (6, 2.9%) and parents or grandparents (6, 2.9%).

Concerning opinion re preschool vaccination for all: 100% of the respondents believe that all children should be vaccinated prior to school.

Conclusion: Parental knowledge regarding vaccine-preventable diseases is very poor. GPs are a key target for education. All parents in our study support vaccine be completed preschool.

1. Effectiveness of interventions that apply new media to improve vaccine uptake and vaccine coverage. A systemic review Aanna Odone1,*, Antonio Ferrari1, Francesca spagnoli1, Sara Visciarelli1, Abigail shefer2, Cesira Pasquarella1, and Carlo Signorelli Department s.Bi.Bi.T.; Unit of Public Health; University of Parma; Parma, Italy; 2Vaccine-preventable Diseases and Immunization, World Health Organization Regional Office for Europe; Copenhagen, Denmark https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4514191/pdf/khvi-11-01-984112.pdf 2. Immunisation Uptake Report for Ireland: A report by HSE-Health Protection Surveillance Centre 2018. http://www.hpsc.ie/a-z/vaccinepreventable/vaccination/immunisationuptakestatistics/immunisationuptakestatisticsat12and24monthsofage/quarterlyreports/2018/Q1-2018%20Immunisation%20Report.pdf

DISRUPTION IN EXPRESSION OF CIRCADIAN RHYTHM GENES FOLOWING MILD TRAUMATIC BRAIN INJURY IN CHILDREN

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Aims

Traumatic brain injury (TBI) is a common occurrence in children. Patients recovering from TBI are prone to sleep-wake cycle disturbances, which indicates disruption of the circadian rhythm mechanisms that regulates sleep. It is crucially important to understand the interactions between sleep & TBI, and its impact on the developing brains of children. In this study, we evaluated the expression of circadian gene transcription following mild Traumatic Brain Injury (mTBI) to understand the processes involved in sleep disturbance following mTBI.

Methods

Whole blood was analysed from children with mild TBI within 24 hours of injury (baseline) (n=13) & at two weeks post injury (n=7) compared to healthy paediatric controls at baseline (n=17). Whole blood RNA was isolated, cDNA synthesized and analysed by quantitative PCR for the expression of CLOCK, CRY, BMAL & REVERBα.

Results

The mean (SD) age of Controls and mTBI cohorts was 7.9 (+/- 4.6), and 11.3 (+/-4.5) years, respectively. CLOCK expression increased between controls and mTBI, both at baseline & at 2 weeks post injury ($p = 0.00002$, $p = 0.006$). There was no change in CRY1 at baseline but an increase at 2 weeks ($p = 0.001$). REVERB-alpha expression decreased at baseline compared to controls ($p = 0.002$). BMAL expression increased at presentation compared to controls ($p = 0.02$).

Conclusion

We have shown significant disruption in circadian rhythm gene expression following mTBI. Injury-induced changes in the expression of CLOCK, CRY, BMAL & REVERBα imply that TBI disrupts the timing of the central master clock in the suprachiasmatic nuclei of the anterior hippocampus which controls circadian rhythm. Disruption of this mechanism is a key component of the long-term cognitive effects of TBI. Future study is warranted to evaluate the impact of a chronological regulator such as Melatonin on this patient cohort and may elucidate future treatment potentials.

OUR EXPERIENCE OF PROPRANOLOL IN THE TREATMENT OF COMPLICATED INFATILE HAEMANGIOMAS

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Aims: National guidelines about the optimum use and monitoring on propranolol treatment for infantile haemangiomas (IH) have been published. An IH clinic was established in the Mid-West in 2018. We analysed retrospectively the IH treated with propranolol prior to and after the advent of the dedicated clinic.

Methods: Patients were identified from our dermatology database.

Results: Twenty-eight patients with IH were commenced on propranolol. The indications for propranolol treatment were the potential for facial disfigurement 57% (n=16), vital structure involvement 21% (n=6) and ulceration 21% (n=6). The mean age of referral to dermatology reduced from 15.4 (SD+/-9.9) weeks to 12.5 (SD +/-5.8) weeks after the clinic was established. The mean duration from referral to dermatology review was1.8 (SD+/-2.9) weeks. The mean age of commencement of propranolol reduced from 19.4 (SD+/-11) weeks to 15.9 (SD+/-6) weeks after the clinic was established. The mean starting dose was 1.88mg/kg/day representing 82% (n=23/28) compliance with national guidelines. The mean peak dose was 2.5mg/kg/day representing 85% (n=23/27) compliance). Most patients (75%, n=21) were inpatients when propranolol was initiated which reflects that many had been admitted by paediatrics prior to initial dermatology review, 21% (n=6) started treatment on the day ward and 3.6% (n=1) started treatment in an outpatient clinic. All patients responded to propranolol. Adverse events (AE) were reported in 8 (29%) patients with one patient discontinuing propranolol treatment due to somnolence.

Conclusion: The development of a dedicated IH clinic has led to improved access and earlier initiation of propranolol treatment.

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INFANT FEEDING: HOW DO IRISH PARENTS PLAN TO WEAN ON FOOT OF IMPORTANT ADVANCES FOR PRIMARY PREVENTION OF FOOD ALLERGY?

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Aim: Current infant weaning evidence supports early introduction (c.4-6 months) of allergy associated foods (e.g., peanut), shown to protect against food allergy development (LEAP)1. Traditionally, Irish weaning habits exclude allergenic foods up to one year and beyond. On foot of this recent evidence, this study aimed to investigate parental intentions concerning introduction of allergy associated foods and possible influencing factors.

Method: Prospective, cross-sectional study based in the post-natal unit, University Hospital Galway. In total, 260 parents invited to complete a modified, validated questionnaire2. SPSS v25, Pearson's Chi-Square and Fischer Exact were used to explore associations between weaning practice and influencing factors. Clinical Research Ethics Committee (GUH) approved the study.

Results: Altogether, 200 parents completed the study; 156(78.4%) female, 180(90.9%) Caucasian, 90(45.3%) first time parents, 169(84.9%) with third level education. Mean knowledge score concerning food allergy was 39.37% (SD, 14.2%).
Most parents intend on introducing egg (135, 69.2%), fish (127, 65.5%) and wheat (147, 76.6%) into their infant's diet at 6-12 months. However, 141(75.4%), 143(76.2%), 154(81.5%) parents intend to wait until the infant is over 12 months to introduce peanut, tree-nut and shellfish respectively.
Most parents intend to include egg (161, 84.3%), fish (140, 73.7%) and wheat (154, 81.5%) regularly in their infant's diet. In excess of 80% of parents do not intend to include peanuts, tree-nuts or shellfish regularly.

Influences on weaning practice included infant development, infant interest and information from healthcare professionals. Some significant associations ($p<0.05$) between 'likeliness' to follow recommendations and allergy risk, parental education, knowledge, and experience were found but inconsistent.

Conclusion: Parental food allergy related knowledge is poor. Parents are 'likely' to introduce egg, fish and wheat before 12 months and include regularly. Parents remain hesitant to introduce peanut, tree-nut and shellfish, despite current recommendations. Appropriate education concerning allergenic foods needs prioritisation.

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NATIONAL ROTAVIRUS VACCINATION PROGRAM IMPLEMENTATION AND GASTROENTERITIS PRESENTATIONS: THE PAEDIATRIC EMERGENCY MEDICINE PRESPECTIVE

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Aims:

Throughout the developed world, the introduction of rotavirus vaccination (RV) has led to reductions in the incidence and severity of acute gastroenteritis (AGE) in young children[1]. RV was added to the Irish National Immunisation Schedule in November 2016.

In 2011 the Irish National Centre for Pharmacoeconomics produced a cost-benefit analysis regarding the potential benefits of universal rotavirus vaccination[2]. To estimate the burden of AGE on PEDs in Ireland, they estimated (based on adjusted international comparisons) a 1.66:1 PED presentation to hospital admission ratio for paediatric AGE. This study aimed to assess the impact of vaccine introduction on citywide PED attendances with AGE during rotavirus season.

Methods:

In an observational study, a retrospective search was performed of electronic records in three independent PEDs in Dublin. All presentations with a primary diagnosis of gastroenteritis were counted as cases of AGE. The seasons studied were weeks 1-30 in 2012-2016 (pre-vaccination), 2017 (peri-vaccination) and 2018-2019 (post-vaccination). Comparisons were made between ED presentations and hospital admissions in the pre- and post-vaccination seasons.

Results:

When 2018-2019 was compared to 2012-2016, a 33% reduction in total PED presentations with AGE was seen. The reduction was 53% in those under one year of age and 56% in those between one and two years. The reductions were seen consistently across all three PEDs. The PED presentation to hospital ward admission rate was 6.7:1.

Conclusion:

A significant reduction in PED presentations with AGE post vaccination introduction is demonstrated. The effect is greatest in the age-groups that have been vaccinated. The study identifies that the burden of AGE on PEDs is significantly higher in Ireland than in other developed countries. This highlights the need for public health estimates to use local emergency department data when extrapolating regarding the impact of future vaccinations and other public health initiatives on Irish PEDs.

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DELABELLING PAEDIATRIC PATIENTS OF THEIR 'PENICILLIN ALLERGY': OBSERVED ORAL PENICILLIN CHALLENGES IN A SECONDARY CARE CENTRE ALLERGY SERVICE: OUR EXPERIENCE

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Our aim was to evaluate our experience of penicillin de-labelling in day-case clinics in our unit with a view to improving care for our patients.

Our Penicillin De-Labelling Clinic (PDC) commenced regularly from July 2019. Patients are generally referred to the outpatient clinic where their history of allergy was taken; if deemed low-risk with the label of suspected penicillin allergy, children are referred to the PDC led by our Advance Nurse Practitioner (ANP). They are given an oral challenge of 10% the dose of the drug they reacted to & if tolerated, the full dose 1 hour later. Patients are observed for 4 hours & if well, are discharged to complete a full 5-day course of the drug. A progress phone call is made within one week & if the course of drug was tolerated, a letter is sent to the guardian as well as the GP removing the label of penicillin allergy.

We conducted a retrospective chart review of patients attending the PDC from July-September 2019 inclusive.

24 appointments were arranged, for 20 patients. 50% were female, with an average age of 6.54 years. For 13 (54%) appointments, patients were not brought (WNB), defined as not attended or notified within 24 hours, despite timely notification. 8 patients were offered 2nd appointments of whom 3 attended.

Of all 11 patients successfully tested, 1 had a reaction considered a possible true allergy. 91% tested in this time period were successfully delabelled.

Our high rate of WNB may represent a lack of perscieved importance of an incorrect label of penicillin allergy which is usually life long. We are exploring the use of text notifications going forward.

The rate of successful delabelling of this small, low-risk group suggests PDCs are useful to ensure children are not avoiding drugs to which they do not have a true allergy, in favour of less specific & more expensive alternatives.

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SETTING CORK ON BIOFIRE: A QUALITY IMPROVEMENT PROJECT

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Aims

CSF virology analyses in Cork university Hospital (CUH) are transported to and performed by National Virus Reference Laboratory (NVRL) in Dublin. Although our microbiology laboratory has equipment available to perform panelled molecular CSF analysis, staffing and funding issues delayed its inclusion in the workflow. Transporting and analysing CSF off-site in Dublin is time-consuming, costly and delays important results for patients. Thus, our aims were to calculate average time to NVRL CSF virology results, excess length of hospital stay and number of antimicrobial doses administered pending results, as well as a cost analysis extrapolating average savings if CSF virology were performed on-site with a turn-around time of 4 hours.

Methods

This was a retrospective study. All CSF samples sent from CUH to NVRL for virology between April to December 2018 were analysed (n=96). Patient charts and kardexes were reviewed, and time periods calculated from logged times of specimen receipt. A cost analysis was performed on length of inpatient stay and antimicrobial doses administered.

Results

The average time for NVRL CSF virology results was 66.7 hours (SD 30.2 hours). 40% of our sample could have had a shorter length of stay (LOS) if in-house diagnostics were available; avoiding 106 overnight stays and saving €98,850. In the 26 patients with positive virology results on CSF alone, 331 doses of antibiotics/antivirals and 74 nights admission could have been saved with a potential saving of €68,820.

Conclusion

Patients wait an average 3 days and up to 8 days for CSF virology results from NVRL, due to delays in logistics and transport, especially over the weekends. This results in prolonged hospitalizations and antimicrobial usage, and an avoidable financial expense. This data has aided the introduction of molecular in-house diagnostics which we expect to significantly reduce cost, LOS, and unnecessary antimicrobial usage.

VACCINE HESITANCY IN PAEDIATRIC OUTPATIENTS: PERCEPTIONS ABOUT CHILDHOOD VACCINES QUESTIONNAIRE AS A PREDICTOR OF VACCINE HESITANCY AND BEHAVIOURS

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Aim:

To administer the Parent Attitudes about Childhood Vaccines (PACV) questionnaire, a validated screen for vaccine hesitancy, among parents/caregivers of children attending outpatients. We aimed to use these results to quantify hesitancy, to determine whether the PACV predicts non-vaccination, and describe vaccine-related concerns.

Methods:

The PACV questionnaire was adapted for an Irish population and included questions on demographics, vaccination status, specific vaccine or side-effect concerns.

Each item in the 17-question survey was scored individually, and an overall score was then calculated from 0 to 34, with higher scores indicating increased hesitancy. A score of >17 was labelled as hesitant. Scores were compared by vaccination status. Univariate analysis was conducted to identify factors associated with higher PACV score and non-vaccination. Internal consistency was assessed using Cronbach's alpha.

Results:

In total 436 participants completed the PACV, and vaccination status was declared for 413. The median PACV score was 9. When classified as hesitant/non-hesitant 74 participants (16.9%) were vaccine hesitant. Overall, 22 participants (5.33%) were non-vaccinators.

The median PACV score was higher in the non-vaccinated (20 [15-25]) compared to the vaccinated (9 [5-14]) group ($p<0.0001$). Increasing age was associated with a lower PACV score ($p=0.0380$).

Overall, 95 participants (22.9%) had concerns about specific vaccines, 76 (17.4%) had side-effect concerns. The most frequently cited vaccines were HPV (11.5%) and MMR (6.65%), while the most commonly cited side-effect was autism (4.4%). Vaccine and side-effect concerns were associated with both a higher PACV score and non-vaccination ($p<0.001$). Cronbach's alpha for total PACV score was 0.8325.

Conclusion:

This is the first use of the PACV in an Irish population. Approximately 1 in 6 respondents were vaccine hesitant, and more than 1 in 20 respondents were non-vaccinators. PACV score was a good predictor of non-vaccination and could be a useful tool to screen for vaccine hesitancy.

LOST IN TRANSLATION: THE SECRET LANGUAGES OF IRELAND'S TRAVELLER PEOPLES

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Background and Aims

Disparities in health outcomes amongst Travellers and Roma are well described in medical literature

Cultural competency amongst doctors when dealing with different ethnic and marginalised groups is crucial in closing gaps in health outcomes.

Nomadic separateness, while part of their unique heritage, may contribute to this disparity.

We explore the concept of "Nomadic languages" which are shrouded in secrecy as another barrier to effective healthcare.

Methods

A review of the currently available literature on the languages of the two Traveller peoples inhabiting the Island of Ireland- Irish Travellers and Roma Gypsies was undertaken. Fields of medical, linguistic and anthropological literatures were searched.

Results

An "Argot" is a secret language created by a group, often employed to deceive or mislead outsiders, which uses reversal and substitution of native words to create a unique language.

Shelta is the language spoken by Irish Travellers, also known as The Cant, Tarri or De Gammon.

The origins of Shelta can be seen in the languages that surrounded Irish Travellers. The dialects of Shelta spoken in Ireland and England share a common core of 3000 words derived from Gaelic. When words enter Shelta they are changed from their original form to disguise their meaning. Several tools are used including reversal, metathesis, affixing and substitution. The Irish word for *kiss* is *póg,* using reversal this enters Shelta as *gop*. The Irish word for *father, athair*, becomes the Shelta word *gathair* by affixing g- at the beginning.

The Romani people colloquially known as "Roma Gypsies", an indo-Aryan ethnic minority group originating from the northern Indian subcontinent, traditionally itinerant and estimated to number 5000 in Ireland also use argot.

Conclusion

In Ireland, health outcomes amongst our nomads are worse than the broader population.

Effective communication is imperative. Awareness of their secret communication tools is helpful in the quest to improve outcomes.

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AN ASSESSMENT OF THE DIAGNOSTIC PATHWAY OF IRISH PATIENTS WITH DUCHENNE MUSCULAR DYSTROPHY

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Aims

Our study examined the age at diagnosis of Duchenne muscular dystrophy (DMD) in our centre and the factors contributing to an early or late diagnosis.

Methods

A retrospective case note review occurred to examine the patient clinical journey from time of first symptoms to time at which a definitive diagnosis of DMD was given. Patients with a genetically confirmed diagnosis of DMD between January 2014 to May 2019 were included in this study. Patients were stratified based on timing of diagnosis: diagnosed <4 years (early), diagnosed 4-5 years (benchmark), diagnosed >5 years (late).

Results

Twenty-five patients were included in the study. Ten patients were diagnosed early (<4 years), 4 of whom had a family history of DMD. Five patients were diagnosed at benchmark age (4 -5 years). Ten patients were diagnosed late (>5 years). Overall mean duration between first symptoms related to DMD and the time of definitive diagnosis was 12.4 (range 2-26) months (early), 34.8 (range 24-43) months (benchmark) and 51.4 (20-67) months (late).Mean time from first presentation to a healthcare professional who suspected DMD to ultimately receiving a definitive diagnosis was 2.6 months (Range 1-12 months)(n=20). It was not possible to calculate the number of visits to a healthcare professional from time of first symptoms of DMD to time of definitive diagnosis.

Conclusion

Despite improvements in care, delays still occur in diagnosis of DMD. This study suggests that a presentation delay to the appropriate healthcare professional occurs in most patients with a late diagnosis. Education should be targeted at community and primary care level which may reduce this presentation delay.

IMPROVING THE EMERGENCY DEPARTMENT JOURNEY FOR CHILDREN WITH AUTISM AND COMPLEX NEEDS.

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Introduction

Autism Spectrum Disorder (ASD) is a chronic, neurodevelopmental disorder that involves impairments in social communication and restricted, repetitive patterns of behaviour. The ED can be an extremely distressing environment for these children and those with complex needs. Simple measures can often improve their ED journey. Despite this, many EDs remain ill-prepared to look after these children

Aims

1. To ascertain staff experience levels in managing children with ASD and complex needs

2. To get feedback from parents on ways to improve the ED for their children

3. To improve the ED for these patients through staff education sessions and implementation of feedback received

Methods

The study is a prospective, questionnaire-based quality improvement initiative. Questionnaires were provided to ED staff and the parents of children with ASD and/or complex needs. Education sessions were conducted with ED and Paediatric staff regarding the care of children with ASD and complex needs.

Results

33 staff questionnaires were returned. These demonstrated that the majority of staff were not confident in caring for children with ASD or comfortable communicating with them. There was also infrequent use of sensory aids and techniques to minimise the sensory burden of children in ED. 125 parental surveys were returned (33.8% response rate) and demonstrated recurring areas which cause the most stress. These areas are: waiting times, small cramped waiting rooms and getting blood tests performed. They also had simple suggestions for improvements: patient passports, sensory toys.

Discussion

The ED is a stressful environment for all children and parents, but this is especially true for children with ASD and complex needs. Our staff and parent questionnaires identified specific areas for improvement. We have conducted staff education sessions with the above feedback in mind. We are also implementing changes and promoting awareness of these children in our ED on an ongoing basis.

NEW PUMPS, BETTER CHOICE AND BETTER HBA1C

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Aims

There is clear evidence from both DCCT and EDIC trials that good diabetes management in childhood translates positively into adulthood and decreases vascular complications and early mortality[1]. ISPAD recommend striving for HbA1c <53mmol/mol(7%), to minimize these complications, while avoiding severe hypoglycaemia[2]. The National Paediatric Diabetes Audit from RCPCH report a national UK mean HbA1c of 67.5mmol/mol(8.3%), with 23.3% achieving ISPAD goal HBA1c<53mmol/mol[3]. ISPAD also recommend intensive insulin regimens by MDI or pump as gold standard[4].We hypothesized that since the commencement of our pump service in 2016 and mandatory attendance at CHOICE, the mean HbA1c of 69mmol/mol(8.5%) in 2016 has improved and that more patients are using intensive insulin regimes.

Methods

We conducted a retrospective, anonymized review of case records of all patients attending diabetes clinic over a one-year period (August 2018-August 2019). We noted patient demographic, mode of insulin delivery and HbA1c levels.

Results

There is a total of 74 patients with type 1 diabetes attending our service. n=1<5years, n=29 5-12years and n=44>12 years. n=45 (60%) received insulin via multiple dose injection (MDI), n=27(36%) via pump and n=2(3%) via other regimes. Mean HbA1c of all patients was 64mmol/mol (8%), (excluding n=16 diagnosed in past year, mean HbA1c was also 64mmol/mol (8%)). Mean HbA1c for insulin pump was 57mmol/ (7.4%) and MDI was 67mmol/ (8.3%). 2016 data showed total 60 patients attending service. Mean HbA1c 69mmol/ (8.5%) and mode of insulin delivery 55% MDI, 5% Pump and 40% other.

Conclusion

We report an overall mean HbA1C of 64mmol/mol (8%) with 15% achieving ideal target of HBA1c <53mmol/mol (7%). Compared to 2016 data, mean HbA1c has decreased from 69mmol/mol (8.5%) ($p<0.0004$). 97% (n=72) of patients are on intensive insulin regime, compared with 60% in 2016. Our figures are comparable with international standards and have improved since previous audit. This improvement is likely contributable to increased diabetes MDT resourcing and availability of insulin pumps.

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PFAPA – THE IRISH EXPERIENCE IN A TERTIARY AUTOINFLAMMATORY CLINIC

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Aims:
Periodic fever, aphthous stomatitis, pharyngitis and cervical adenitis (PFAPA) syndrome is the most common autoinflammatory disorder in childhood.
This study examined the clinical features and management of children with PFAPA attending a tertiary Autoinflammatory Clinic.

Methods:
A retrospective observational chart review of all children with confirmed clinical or suspected PFAPA attending the autoinflammatory clinic at Our Lady's Children's Hospital, Dublin from January 2016.
Data were collected on basic demographics, route of referral, symptoms and signs and inflammatory markers during disease episodes (febrile) and non-episodes and therapeutic agents used.

Results:
Thirteen children were identified as having PFAPA.
The median age of disease onset was 16 months. The route of referral was via Immunology (4 patients), Rheumatology (6 patients) and Infectious disease (3 patients).

All children presented with episodic, recurrent febrile episodes with a range of associated features- aphthous ulceration in 7 children, tonsillitis in 5, pharyngitis in 3, stomatitis in 1, cervical adenitis in 7, lethargy in 6, rash in 4, anorexia in 4, abdominal pain in 5, vomiting in 3, loose stool in 4, joint complaints in 2 and 1 patient with bruising.
69% of patients had documented raised inflammatory markers during a flare, with 84% having high serum amyloid A levels.

11 patients had a significant response to an initial trial of corticosteroids. Colchicine was the treatment of choice (n=11). Tonsillectomy was performed in 5 patients. Biologic agents, Anakinra (n=2) and Adalimumab (n=1) were instituted in those refractory to colchicine.

Conclusion:
This study gives an overview of the burden of disease imposed by PFAPA on an Irish population.

The majority of patients had relief of symptoms with an initiation trial of corticosteroid. Colchicine was the most frequently used therapeutic agent to prevent disease flares. Tonsillectomy and biological agents are potential alternative options.

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INCREASED PRO- and ANTI-INFLAMMATORY CYTOKINES IN CHILDREN WITH DOWN SYNDROME

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Introduction & Aims:

Children with Down syndrome (DS) develop more infections, have an increased mortality from sepsis and an increased incidence of chronic inflammatory conditions. Cytokine dysregulation may underpin these clinical sequelae and raised pro-inflammatory biomarkers are a feature in adults with DS.

Methods:

In children with DS and age-matched controls we examined a comprehensive array of pro- (IL-2, IL-6, IL-8, IL-18, IL-1β, TNF-α, IFN-γ), and anti-inflammatory (IL-10 and IL-1ra) mediators, cytokines involved in inflammation in response to hypoxia (EPO), propagating angiogenesis (VEGF), and myelopoiesis (GM-CSF), by enzyme linked immunosorbent assay (ELISA), as well as discussing the potential impact of significant congenital heart disease (CHD) and Lipopolysaccharide (LPS) endotoxin on these mediators.

Results:

Children with Down syndrome (n=114) had significantly greater levels of pro and anti-inflammatory cytokines at baseline compared to controls (n=60); IL-2, IL-6, IL-10, IL-1ra, as well as increased Epo, VEGF and GM-CSF were observed. CHD was not associated with altered systemic cytokines beyond the acute surgical phase. Both cohorts had similar responses to LPS stimulation.

Conclusion:

Altered immune function and cytokine levels may explain the variation in clinical outcomes acutely in sepsis, and longer-term in chronic inflammation and autoimmunity in children with DS. Epo and VEGF are increased at baseline and may be implicated in the development of vascular remodelling and pulmonary hypertension in DS.

INSULIN PUMP VERSUS INJECTION THERAPY: MATCHED TIME SERIES ANALYSIS OF GLYCAEMIC CONTROL AT A TERTIARY PAEDIATRIC DIABETES CENTRE 2007-2019

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Aims: To investigate the impact on HbA1c of the commencement of continuous subcutaneous insulin infusion (CSII) therapy in comparison with injection regimens within an Irish tertiary diabetes centre.

Methods: Data was extracted from a database of clinical encounters including data on insulin regimen, demographics and HbA1c from 2007 to 2019. Patients commenced on CSII therapy were matched with patients who remained on injection therapy. Matching criteria included; gender, date of birth, age at diagnosis and HbA1c at CSII therapy commencement. A subgroup analysis of patients solely from the centre's own catchment area was analysed to account for any potential bias from referrals from peripheral hospitals/shared care arrangements for CSII therapy. Further subgroup analysis was performed based on diabetes control as measured by initial HbA1c; optimal (<7.5%), sub-optimal (7.5% - 8.5%) and poor control (>8.5%)

Results: From 989 patients 141 pairs fulfilled matching criteria; 53 pairs with data covering at least 5 years. Total sample analysis showed that CSII patients had a lower overall HbA1c 6 months after commencement [Difference in HbA1c 0.74% p <0.01 N= 138 pairs], this effect persisted beyond 7 years [0.85% p=0.01 N=30]. Catchment area only analysis remained significant at 6 months [0.84% p<0.01 N=34] with significance not persisting beyond 4 years [0.93% p=0.04 N=16]. Improvement in HbA1c was most significant in the sub-optimal control group [0.68% at 6 months p<0.01 N=18] with less persistent gains in the smaller poor control group [0.58% at 6 months p<0.01 N=9].

Conclusions: Patients commencing CSII therapy showed clinically and statistically significant improvement in HbA1c compared to matched peers, this was sustained for up to 7 years. Analysis of sub-samples based on optimal, sub-optimal and poor prior control showed qualitatively similar results with differences in persistence of the effect. These differences warrant further analysis.

VARIABLE AWARENESS OF PAEDIATRIC AND ADOLESCENT GYNAECOLOGY ISSUES AMONG NCHDS – A STUDY

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Aims:

We aimed to highlight a knowledge deficit of paediatric and adolescent gynaecological conditions amongst paediatric/GP trainees. This was based on the hypothesis that paediatric gynaecology is poorly understood and frequently misdiagnosed leading to increased morbidity. There is a limited paediatric gynaecology service in Ireland1.

Methods:

NCHDs were surveyed in October 2019. Answers were predefined from Crumlin and RCH guidelines.2,3 Data was analysed using excel. Topics included common presentations such as vulvovaginitis, labial adhesions, gynaecological anatomy and menorrhagia. Awareness of rare but serious conditions were also explored; genital ulceration, sexually transmitted diseases and Female Genital Mutilation (FGM).

Results:

Forty trainees were surveyed. 70% (28) were female. 60% (24) of people misdiagnosed vulvovaginitis as candidal infection suggesting inappropriate antifungal treatment. 80% (32) were unable to identify labial adhesions and 67% (27) misdiagnosed lichen sclerosis. Incorrect definition of menorrhagia was noted in 62% (25). Non-hormonal treatments for menorrhagia were poorly recognised. Although 98% (38) of respondents correctly identified the OCP as a potential treatment, only 63% (25) would feel comfortable prescribing it. 80% (32) of trainees considered HSV as a possible cause of genital ulceration however only 35% (14) were able to think of more than two correct causes. 75% (30) of candidates were unaware of correct referral criteria for referral of genital warts to child sexual assault services. STI screening was not considered by 52% (21) in a case of a symptomatic child. 70% (28) could not identify FGM. Anatomical knowledge was good overall. 60% (24) did not consider imperforate hymen as a cause of primary amenorrhoea. PCOS was incorrectly suggested as a diagnosis frequently.

Conclusions:

Further trainee education is required. Lack of knowledge leads to misdiagnosis, overtreatment of common presentations and inappropriate referrals to a limited paediatric gynaecology service. The potential to miss rare but serious gynaecological conditions was evident.

1. https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/paediatric-gynaecology.pdf 2. Crumlin Hospital Clinical Guidelines 3. Royal Children's Hospital Melbourne Clinical Guidelines

INCIDENCE OF SONOGRAPHICALLY NORMAL THYROID GLANDS IN INFANTS SCINTIGRAPHICALLY DIAGNOSED WITH ATHYREOISIS USING ^{99m}TC.

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Aim: To describe the incidence of sonographically normal thyroid glands in newborns who screened positive for congenital hypothyroidism (CHT) and were scintigraphically diagnosed with athyreosis using ^{99m}Tc.

Methods: Over a ten-year period (2007 to 2016) the newborn screening records of all individuals diagnosed with CHT in Ireland were reviewed. Newborns who screened positive had a whole blood TSH value of ≥ 15 mU/L at 72 to 120 hours of life; values between 8-15 mU/L required a repeat whole blood screening test. Screen positive infants underwent thyroid imaging. Where scintigraphy reported athyreosis, patients underwent a thyroid ultrasound scan.

Results: A total of four hundred and eighty-eight patients were diagnosed with CHT over the ten-year period in the Republic of Ireland (incidence 1:1538 live births). Of this group, 24.6% (18 out of 73) infants with absent uptake on scintigraphy had thyroid tissue visualised on ultrasound (3 hypoplastic thyroid gland, 15 normal gland). The median serum TSH concentration at diagnosis was significantly lower than in the cohort who had true athyreosis (no gland on ultrasound and no uptake on scintigraphy).

Conclusion: One quarter of infants with CHT who had no uptake on scintigraphy had a normal thyroid gland on thyroid ultrasound and CHT was transient in 60% of these infants. Incorporating ultrasound to the diagnostic evaluation of infants who demonstrate athyreoisis on scintigraphy can eliminate unnecessary life-long commitment to levothyroxine treatment, and facilitates parental counseling on prognosis.

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VITAMIN D: AN OVERVIEW OF INVESTIGATION AND MANAGEMENT IN A PAEDIATRIC POPULATION

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Aims:

Vitamin D deficiency is a significant global health issue. High risk groups include Europeans, dark-skinned patients and those with associated medical conditions[1]. Vitamin D is essential for bone growth and development in children and adolescents. Our aim was to assess the reasons for investigation, associated additional testing and management of vitamin D levels in our paediatric population.

Methods:

A retrospective review of hospital laboratory results and outpatient letters from January to December 2017 was carried out. All patients <14 years were included. Vitamin D deficiency was defined as a vitamin D level of <30nmol/L.

Results:

A total of 697 vitamin D levels were taken in paediatric patients in 2017. 105 (15%) of these were <30nmol/L, accounting for 96 patients. Each patient's lowest result was included. 25 were <20nmol/L (26%), with the remaining 71 (74%) between 20-29nmol/L. The months with the highest frequency of low vitamin D were February and March at 17 tests each (17% respectively). The mean age of patients was 10 years, with the highest proportion being between 11-14 years (59 patients, 61%). 36 patients had a documented reason for investigation however only 19 (53%) were indicated according to international guidelines. 31 patients (32%) received treatment and 23 (74%) of those patients had a subsequent test done. 17 (74%) of the follow up tests had a sufficient vitamin D >50nmol/L.

Conclusion:

Vitamin D has received a significant amount of attention in both medical communities and the media, however whether the amount spent on investigation rather than treatment is warranted is a topic for discussion. Only 1/3 of patients received documented treatment for vitamin D deficiency in our population, with 1/2 of patients investigated meeting criteria as per international guidelines. Clearer documentation of treatment is required in order to evaluate the cost of investigation compared to the cost of treatment.

1. Pearce S, Cheetham T. Diagnosis and management of vitamin D deficiency. BMJ. 2010;340(jan11 1):b5664-b5664.

"MULLIFLUCENT - MISTRESS OF MISERY" - INFLUENZA IN THE PAEDIATRIC EMERGENCY DEPARTMENT OF A REGIONAL HOSPITAL

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Aim: To review the 2018-2019 Influenza season as experienced in the Paediatric Emergency Department of the Midlands Regional Hospital, Mullingar (MRHM).

Methods: Our surveillance scientist provided us with data relating to positive Influenza results in MRHM for seasons 2017-2018 and 2018-2019. We looked retrospectively at a cohort of 100 children who tested positive in January and February 2019 to determine ages affected, symptoms at presentation, investigations carried out, other than Influenza swabs, management and outcomes.

Results: In the period October 2018 to the end of February 2019 519 children were tested for Influenza/RSV in MRHM, 200 children tested positive for Influenza A. A large increase in cases of Influenza A was noted in January and February 2019 compared with the previous year. Of 100 children testing positive a majority were in the age group 1-5 years. Presenting complaints included fever and lethargy, respiratory, gastrointestinal, neurological and musculoskeletal symptoms. All children were tested with Genexpert Dual test on-site which has an average turnaround time of 30 minutes. Eight children had blood tests and one child in the cohort had a chest x-ray. Antipyretic measures were required in almost 80% of cases, 1% got intravenous fluids and 1% received antibiotics. One child was admitted.

Conclusions: Influenza season began in October 2018 and peaked in January and February 2019 in MRH Mullingar. In a cohort of positive cases we observed that recognition of the symptoms and signs of Influenza along with rapid testing on-site and extended testing times allowed for clinician comfort in diagnosis (with due vigilance for sepsis), a reduction in unnecessary investigations and antibiotic use and presumed increase in parental satisfaction - this is not "the Viral infection story" but True 'Flu.

1. Impact of Rapid Molecular Respiratory Virus testing on Real Time Decision Making in a Paediatric ED - Journal of Molecular Diagnostics 2017-05-01,
2. Clinical decision making in the Emergency Department setting using rapid PCR - results of CLADE study group - Journal of Clinical Virology 2018-05-01 Medical Environmental Update 08/2019

CLINICAL ASSOCIATIONS WITH IMMUNE SCREENING FOR CHILDREN WITH DOWN SYNDROME

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Aims:

Children with Down syndrome (DS) are an immunodeficient cohort, clinically they are at increased risk of infections, particularly recurrent respiratory tract infections (RRTIs), pneumonia, and more commonly require hospitalisation. We aimed to evaluate the association of clinical immune function testing with adverse clinical outcomes.

Methods:

Children with DS had full blood count, T and B cell subsets, immunoglobulin levels, and antibody titres performed. All participants were clinically well, with no fever or evidence of recent infection. The results of our cohort were compared with international paediatric normative values. Binary logistic regression was used for statistical analysis using SPSS.

Results:

There were 164 children with DS with a mean (± SD) age of 5.2 ± 4.3 years (y), of which 47.9% were female. Almost a quarter of children with DS had reduced WCC and lymphocyte counts, and 12% had lower neutrophil levels. The most striking deficiency was seen in the CD19+ B cell, with over three quarters of children with DS having reduced counts. Overall T lymphocyte counts (CD3+, CD4+, CD8+) were markedly reduced in children with DS. Clinically, 34.7% of families reported their child had RRTIs, and 37.1% of children with DS required hospitalisation due to a RTI at least once. Those with lower WCC were more likely to have required hospitalisation in the past.

Conclusions:

We demonstrated significant differences in white cell count differentials and T and B cell subsets in children with DS compared to age matched norms. Children with DS who had lower WCC were significantly more likely to have required hospitalisation due to a RTI. Consequently, the WCC could serve as a predictor for poorer respiratory outcomes. Children with DS should be managed with a heightened sense of awareness and urgency in the setting of RTI.

CHANGING PATTERNS OF ORGANISMS CAUSING BACTERAEMIA IN A PAEDIATRIC TERTIARY CARE CENTRE (1999-2018)

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Aim:
To evaluate the prevalence of bacterial organisms in patients with single organism bacteraemia demonstrated with a positive blood culture over a 20 year timeframe in a tertiary level care centre.

Methods:

Positive blood culture results were evaluated from the laboratory electronic system - 1st January 1999 - 31st December 2018. This data set of 1439 results were extracted from the laboratory system and exported to an excel document which included only the laboratory specimen number and organism. Blood culture results which were repeated, had multiple organisms found or a pathogen which is usually a contaminant were removed from the data set. Using the laboratory specimen number; variables including month and year of culture, age in months, organism, full blood count, CRP and urea & electrolytes were extracted to a separate excel document. No patient details were collected to ensure irrevocable anonymity. This data was transferred to "R" by R foundation for analysis.

Results:

There were significant changes in the prevalence of organisms over the 20-year period. Organisms such as *Neisserria meningitidis* and *Streptococcus pneumoniae* showed a relative decrease from 51.1% to 13.5% and 28.8% to 8.1% patients respectively. *Staphylococcus aureus* demonstrated an increase in prevalence over this timeframe from 8.8% to 40.5% patients. Other organisms such as group A and B Streptococcus, Gram negative bacilli and non-haemolytic Streptococci have not changed significantly over this time.

Conclusion:

The results show an interesting trend in the prevalence of microorganisms over a 20-year period with a decrease in the number of patients presenting with meningococcal and pneumococcal bacteraemia. This likely coincides with the introduction of vaccinations for those organisms. The rise in the presentation of *S. aureus* bacteremia may be due to the increased use of medical devices such as PICC lines, central venous catheters and orthopaedic implants.

ALTERED CIRCADIAN RHYTHM GENES IN CHILDREN WITH DOWN SYNDROME

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Aims: Down Syndrome (DS)is associated with sleep disturbance and obstructive sleep apnea (OSA). Earlier studies suggest that circadian rhythm melatonin regulation appears normal in DS patients. However, electroencephalogram and polysomnography studies still show evidence of sleep fragmentation/disturbances that are not likely linked to OSA. We aimed to examine the expression of genes responsible for circadian rhythm in DS patients (CLOCK, CRY, BMAL & REVERBα).

Methods: Whole blood was analysed from children with DS (n=10) and compared to healthy paediatric controls at baseline (n=10). Samples were treated with and without lipopolysaccharide (LPS) and Melatonin. Whole blood RNA was isolated, cDNA synthesized and analysed by quantitative PCR for the expression of CLOCK, CRY, BMAL & REVERBα.

Results: BMAL is associated with an anti-inflammatory response and was significantly decreased in response to LPS and melatonin in children with DS compared to controls. There were no significant differences in CLOCK, CRY and REVERBα.

Conclusions: We have shown a dysregulation in genes associated with the regulation of circadian rhythm and this be associated with sleep disturbances seen in this cohort of patients. Melatonin may be effective in reducing the LPS response and may be beneficial as an adjunctive therapy in children with DS.

EFFICACY OF DIAGNOSTIC TOOLS IN DETERMINING APPENDICITIS IN A PEDIATRIC POPULATION AND ITS LONG TERM EFFECTS ON COST AND SAFETY

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Aims:

To compare efficacies of the ultrasound, CT and clinical presentation in diagnosing appendicitis in the Paediatric population.

Methods:

A retrospective cross-sectional study was carried out on patients (*n* = 540) aged between 2 to 17 years who reported to Cork University Hospital (CUH) with abdominal pain from January 2016 to September 2017. Data for this study was obtained from the HIPE reporting database of CUH in September 2018. The demographics, clinical presentation, types of scans received, and final diagnoses of the study population were analysed.

Results:

From the population sampled, the mean length of stay was 4.5 days (SD ± 2.35), with 56.2% receiving the scan the next day and 14.1% 2 days from admission. Only 29.7% received the scan the day of admission. The overall sensitivity of the Ultrasound was 64.6%, with a higher sensitivity for children below 10 years (67.5%). CT scanning was the most sensitive in determining appendicitis (97.1%). The comparison of the specificities of the ultrasound (96.9%), CT (96.6%) and clinical presentation (MANTREL's > 5) (96.7%) indicated that the ultrasound was the most specific. In children below 10, clinical presentation had a sensitivity lower than the total sensitivity.

Univariate analysis was conducted to identify the most sensitive symptoms. The findings suggest that nausea, migration of pain to RLQ, peritonitis, maximal tenderness in RLQ, Rovsing's sign and ANC (6.75x103 µL,) were significant indicators ($p < 0.001$).

Conclusion:

CT scanning can be eradicated in many instances where the ultrasound, clinical presentation and Mantreal's score are used hand in hand. This reduces length of stay, cost and radiation exposure. Point of care ultrasound should be used in the below ten age group due to the difficulty in determining diagnosis using clinical presentation alone. The results of this study will aid the development of future protocols in Ireland for Paediatric Appendicitis.

A STITCH IN TIME SAVES NINE:AN AUDIT ON THE IMPACT OF A SHIFT-WORK ROSTER ON PHYSICIANS' EMOTIONAL WELL-BEING AND BURNOUT

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Aim: To determine the emotional well-being and burnout level of non-consultant hospital doctors (NCHDs) who work a rolling shift pattern in a tertiary-care paediatric emergency department (PED).

Method: Our roster consists of 15 NCHDs.It contains two and a half cycles, spanning ten weeks each over six months.

An online survey was designed to analyse the first cycle of the roster. Five factors of emotional well-being (happiness, motivation, tiredness, irritability and sleep quality)were highlighted and the survey was circulated to all NCHDs at the end of their shift each week for 10 weeks. Answer options were framed using a Likert-scale ranging from 1-7[9].The results were then compiled into a multi-line graph.

The Maslach Burnout Inventory (MBI) was also distributed after the first cycle of shift-work to determine the level of burnout for physicians[3].

Results: Happiness and Motivation followed a similar trend, peaking at Week 2 and then dipping slowly touching their lowest points between Weeks 7–9. Irritability levels were at an all-time high during this timeframe.

Sleep quality followed a zig-zag pattern, peaking at the end of Week 2. It troughed at Weeks 4,6,8 and 10, reaching a record-low at Week 1(night shift).

Physicians steadily lost their energy levels after being very energetic at the end of Week 2. Tiredness then stagnated at Weeks 7-9,where energy levels were at their lowest.

The results of the MBI further confirmed that 85% of physicians were facing moderate-high level burnout.

Conclusion: Burnout is a growing problem among physicians and can possibly lead to devastating consequences therefore requiring immediate interventions[1,2 , 3, 4, 5, 6, 7, 8.]The results revealed that the first half of the cycle was better tolerated emotionally with less burnout as compared to the second half due to more breaks and shorter shifts.

A group meeting was called to discuss the findings and possible interventions. An agreed proposal was presented to the consultants who implemented changes at the primary level[8].

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VIRTUAL CLINICS: ARE THEY WORTH IT, AND WHAT DO PARENTS THINK?

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Introduction:

Long waiting lists are a significant challenge in the Irish Healthcare System. In July 2019, 47,255 children were waiting to see a Paediatrician in one of the three Children's Health Ireland hospitals[1]. Virtual clinics are a new clinic model in which parents of patients waiting a long time are called to assess whether they still require a clinic appointment. Parents are texted in advance to inform them of a time period in which they will be called by a Consultant or Clinical Nurse Specialist (CNS). A template is used to record the clinical data and outcome.

Aims:

To assess whether virtual clinics result in reduction in unnecessary clinic appointments, whilst maintaining a high parental satisfaction rate.

Methods:

Clinic outcome data was quantified to see if there was a reduction in unnecessary appointments with resultant shortening of the waiting list. A mixed quantitative and qualitative phone survey of a random sample of parents was undertaken to assess their satisfaction with the virtual clinic experience.

Results:

233 parents of parents were rung as part of the clinic. 154 (66%) no longer required appointments and were removed from the waiting list.

20 parents from virtual clinics in Temple Street from April-Aug 2019 were surveyed:

- 40% felt adequately prepared for the virtual clinic.
- 55% recalled they had received a text message prior to being rung.
- 90% agreed/strongly agreed that they had enough time to speak to the Consultant/CNS.
- 75% agreed that their concerns/questions were adequately addressed.
- 80% reported they were satisfied with the telephone consultation.
- 35% highlighted their frustration at not being contacted sooner.

Positive remarks made by parents included the:

- Personal nature of phone consultations.
- Reassurance their children hadn't been removed from the waiting list.

The main disadvantage that emerged was the:

- Lack of warning and inability to prepare for the phone call.

Conclusion:

Virtual clinics demonstrate clear advantages with reduction in unnecessary appointments, with resultant shortening of waiting lists, whilst maintaining a high level of parental satisfaction with the service.

Irish Hospital Consultant's Association Publication 22nd July 2019. (Accessed 30th September 2019). Available at: http://www.ihca.ie/news/consultant_recruitment_crisis_leads_to_over_47000_children_waiting_to_see_a_specialist_in_childrenand%238217%3bs_health_ireland_hospital_group.446.2516.html

COMPARING THE KNOWLEDGE AND ATTITUDES OF STAFF TOWARDS BREAST MILK FOR PRETERM INFANTS; PRE AND POST EDUCATIONAL INTERVENTION

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Background/Aims:

Benefits of breast milk (BM) for preterm infants include a reduced risk of necrotizing enterocolitis (NEC) and sepsis.[1] Early and frequent expression of milk are key components to ensure availability of maternal BM for preterm infants. A hospital-wide education programme (**PR**eterm **I**nfants need **M**ilk **E**arly (PRIME)) was initiated 18 months ago following a staff survey. Since the implementation of the PRIME initiative, the number of preterm infants receiving milk in the first 24 hours of life has doubled. Results have been sustained over 18 months. In this study we aim to re-evaluate knowledge and attitudes of staff towards BM 18 months after the initial intervention.

Methods:
We conducted a cross-sectional survey at our tertiary maternity hospital in September 2019 and compared results to those recorded in February 2018. An anonymous questionnaire was distributed amongst a convenience sample of staff. Data were analysed using SPSS.

Results:
Ninety-one staff completed the survey. All (100%) participants agreed that BM was important for preterm infants and provision of advice to mums about BM was part of their role. Most (88%), compared with 72% in 2018, responded that infants should receive BM within 6 hours of birth. A majority of staff (78%), compared with 56% in 2018, responded that mums should express every 2-3 hours after delivery. When asked what was most helpful to promote milk supply on the night following delivery, 83% (vs 77%) reported expressing was the most important factor.

Conclusion:
This survey illustrates an improvement in the knowledge and attitudes of our staff towards BM for preterm infants since the implementation of PRIME. Attitudes are maintained and knowledge improved despite a high rate of staff turnover. This may reflect a cultural change in the hospital. Identified knowledge deficits will be addressed through short educational sessions, tailored to various roles and working areas.

1. Patel AL, Kim JH. Human milk and necrotizing enterocolitis Seminars in Pediatric Surgery 27 (2018) 34–38

A Snapshot of The Paediatric Training Experience in Ireland

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Introduction

Paediatrics is a satisfying specialty albeit a difficult one with a high workload and poor work-life balance. Internationally, paediatric training is associated with high rates of attrition. We aimed to guage the current Irish trainees' experience.

Methods

An anonymous paper-based survey was distributed to Basic- (BST) and Higher-Specialist Trainees (HST) at their training days in September 2018. Responses were analysed using SurveyMonkey®.

Results:

Demographics

Sixty-one paediatric trainees (29 (48%) BST, 32 (52%) HST) with 1-8 years of paediatric experience, completed the survey. Of respondents, 87% were aged 26-35 years, 75% were female and 7% had children.

Work-Life Balance

Two-thirds (65%) reported working over 50 hours per week. While 72% were 'never' or 'rarely' required to work beyond 24 hours continuously, 28% were 'occasionally' or 'frequently' required to do so. Most trainees could take annual leave (80%) and found time for activities outside work (69%).

Working Environment & Wellbeing

Fifty-nine percent of trainees reported adequate breaks while 35% reported difficulty meeting basic needs during working hours. Performing non-clinical tasks was a frequent requirement for 59%.

Significant chronic illness was reported by 3% of trainees and 21% reported a significant life event in the previous year. Sixty-one percent felt at risk of complaint and/or litigation, while 16% had received a complaint.

Eighteen percent of trainees experienced physical violence at work, while 62% reported exposure to psychological abuse from patients/relatives.

Training Programme & Opportunities

Most trainees were satisfied with their choice of career (93%) and training (84%). Eighty percent of trainees had attended conferences, 49% had participated in an international scientific meeting, and 51% had participated in original scientific research. Sixty-two percent of trainees had considered leaving paediatrics on at least one occasion.

Conclusion:

Although most trainees were satisfied with their career choice and training, ongoing efforts are needed to support paediatric trainees and improve working conditions.

HAEMOFILTRATION IN A PAEDIATRIC INTENSIVE CARE UNIT

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Aims

The aim of this study was to review the indications and use of Therapeutic Plasma Exchange (TPE) and Continuous Veno-Venous Haemofiltration (CVVH) in a tertiary Paediatric Intensive Care Unit (PICU) over a 2.5 year period.

Methods

This study is a retrospective review of all patients, between January 2017 and June 2019, who received TPE and/or CVVH during their PICU admission. Data was collected from a paper database, the computer-based chart system (ICCA) in PICU and hospital laboratory system (i-Lab). It included patients' demographics, weight, indication for haemofiltration, duration of treatment and renal recovery as defined by normal renal function, bloods and completion of treatment. The information was transferred to a computer database, anonymised and analysed using Microsoft Excel.

Results

Over a 2.5 year period, twenty five children required haemofiltration as part of their acute management in PICU. The median age was 6years (3days – 13years) and 52% of the study population were male. Forty four percent of all patients had a diagnosis of sepsis; this was the most common indication for commencing CVVH. Almost one quarter of patients were initiated on TPE as a result of refractory seizures or encephalitis. Patients received TPE and/or CVVH for over 9000 hours during the study period, with median treatment duration of 363 hours (2-1022hours) per patient.

Conclusion

Therapeutic Plasma Exchange and Continuous Veno-Venous Haemofiltration are commonly used in our PICU. The majority of our cohort had a successful outcome. The need for TPE and CVVH in patients can be unpredictable; therefore appropriately trained staff must be available at all times. Currently, there are no local or national guidelines in the paediatric population on the indications for commencement and duration of treatment. This study has highlighted the need to address these deficits going forward, with the aim to develop a national policy.

LEAPING FORWARD: OPPORTUNISITC TESTING OF HIGH-RISK INFANTS FOR PEANUT SENSITISATION; IMPLEMENTING THE LEAP STUDY FINDINGS

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Aims: Recently published data demonstrates that early introduction of food allergens in high-risk infants can prevent food allergy (1, 2). One of the main barriers to early introduction of peanut is delay in accessing skin prick testing (SPT) due to limited resources. However, introduction without testing may trigger an allergic reaction. The aim of this study was to identify all infants at high risk of developing peanut allergy referred to our service over a two-year period.

Methods: A retrospective audit of all infants under 18 months of age attending the allergy service from July 2017-June 2019 was performed. Reasons for referral included clinical egg reaction, moderate to severe eczema and/or positive family history. Those who had a clinical reaction to peanut were excluded.

Results: Over a two-year period 129 infants were referred to the allergy service. 108 were referred with suspected egg allergy, 18 for family history. 79 children (76%) had atopic dermatitis, of which 41% (n=32) was moderate to severe.

The mean referral pathway intervals for children with egg reactions were as follows; reaction to referral 4.8 weeks (range 0-38.2), referral to receipt 1.7 weeks (range 0-41.7), referral receipt to date of clinic 5.2 weeks (range 0.9-18.3).

122 (95%) children had SPT performed. 80 (62%) had a negative SPT to peanut and were advised immediate home introduction. 23 (18%) had an SPT result of 1-4mm and were listed for an inpatient hospital challenge. 19 (15%) had an SPT above 4mm and were advised to avoid peanut. Of 12 children who had inpatient challenge, 5 passed and 6 had a positive challenge, advised to avoid peanut. 11 children (8.5%) were prescribed adrenaline autoinjectors.

Conclusion: Peanut allergy prevention is now a reality and is feasible in our economically stretched public hospital system but requires prompt referral from primary care. A delay of 5 weeks from reaction to referral needs improvement.

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MAJOR EMERGENCY PLANNING AND EDUCATION: STAFF PREPARATION AND PREFERENCE

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Background:
Major emergencies have the potential to overwhelm existing medical systems. Major emergency plans (MEP) are developed with a growing focus on man-made, mass casualty incidents (MCI). With increasing numbers of MCIs, well developed, rapidly coordinated MEPs are necessary. These plans must be available to staff, and staff must have appropriate education. Paediatric emergency departments (PED) face even more complex issues with MEP activation, and as such, staff education is an essential component to MEP application.

Aims:
To identify existing education for staff in PEDs and assess desire for further and future education.

Methods:
A multicenter survey of clinical and non-clinical, PED staff was carried out. Data regarding demographic information, existing education, and recommendation for further education for MEPs were collected. The survey was designed with Likert-scale questions, dichotomous questions, free text response, and demographic information; required 10 minutes to complete; and were administered, on paper, over a two-week period, in spring 2018.

Results:
The majority of respondents (91.7%) received information on their local MEP; 62.5% believe they have received adequate information; but only 41.7% feel they have been provided adequate training; 89.6% would like further education. 73.7% indicated simulation as their most preferred format, an additional 10.5% of respondents recorded simulation as their second most preferred format of future education. 78.6% of respondents indicated the desire for simulation training.

Discussion:
This study demonstrates that frontline staff orientation to MEP activation has room to improve through increased education. Nearly half of staff would like further information/instruction. With the majority of MEP education provided through lecture, staff desire training with a preference for simulation. Ideally, future training will be standardized, collaborative, and cross-profession. Currently, there is a unique opportunity to enhance the existing MEP education programme, to include further training modalities and increase learning sessions before a paediatric MCI occurs locally.

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TRISOMY 21 INCREASES PERIOPERATIVE MORBIDITY IN INFANTS WITH CONGENITAL HEART DISEASE

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Aims: Down Syndrome (DS) is the most common chromosomal abnormality of live born infants. The incidence in Ireland is 1:546 which is the highest in Europe. This study sought to characterise the additional burden that DS places on children with congenital heart disease (CHD).

Methods: We performed a prospective observational study of the pre-operative, early post-operative and pre-discharge cardiorespiratory parameters of children with DS requiring surgical repair of CHD and compared them with a control group of children matched for the lesions who had a normal karyotype.

Results: 34 infants with DS and CHD; mean gestation 37.9 weeks (36-2-38.2 weeks), birth weight 2900g (2390-3220g), age at surgery 5.0 months (4.0-6.0 months) and weight at surgery 5.4 Kg (5.0-5.9Kgs) were prospectively recruited and compared with 17 controls; mean gestation 38.6 weeks (37.0-39.6 weeks), birth weight 3170g (2460-3455g), age at surgery 4.5 months (4.0-5.3), weight at surgery 5.4 Kg (4.0-5.3Kgs). CHD included VSD (33%) and AVSD (67%) in DS infants. Controls had VSD in 88% and AVSD in 12%. Pre-operatively, infants with DS and CHD had a lower oxygen saturation 96% (93-97%) vs 98% (97-98%) than controls P<0.01. Early post-operatively in PICU infants with DS required more inotropic support, vasoactive inotropic score 12 (9-16) vs 5 (5-9) in the non-DS infants P<0.01. Duration of inotropic support was significantly longer in DS infants at 2 (1-4) vs 1 (1-2) days P<0.01 The total duration of PICU stay was increased in the DS babies at 5 days (3-7 days) vs 2 days (2-6 days) in the group with a normal microarray P<0.01. Chylothorax was seen exclusively in the DS population 53% vs 0%.

Conclusion: Patients with DS and CHD have increased burden of post- operative support, length of PICU stay and complications vs non-DS controls. We are currently undertaking further studies to explain these findings.

1. Ni She R, Filan PM. Trisomy 21--incidence and outcomes in the first year, in Ireland today. Ir Med J. 2014;107(8):248-9. 2. Espinola-Zavaleta N, Soto ME, Romero-Gonzalez A, Gomez-Puente Ldel C, Munoz-Castellanos L, Gopal AS, et al. Prevalence of Congenital Heart Disease and Pulmonary Hypertension in Down's Syndrome: An Echocardiographic Study. J Cardiovasc Ultrasound. 2015;23(2):72-7. 3. Weijerman ME, van Furth AM, van der Mooren MD, van Weissenbruch MM, Rammeloo L, Broers CJ, et al. Prevalence of congenital heart defects and persistent pulmonary hypertension of the neonate with Down syndrome. Eur J Pediatr. 2010;169(10):1195-9. 5. Joffre C, Lesage F, Bustarret O, Hubert P, Oualha M. Children with Down syndrome: Clinical course and mortality-associated factors in a French medical paediatric intensive care unit. J Paediatr Child Health. 2016;52(6):595-9.

THE QUICK WEE METHOD OF INDUCING FASTER CLEAN CATCH URINE COLLECTION IN PRE-CONTINENT INFANTS - A RANDOMISED CONTROL TRIAL

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Aim

Urinary tract infection (UTI) affects 5-7% of febrile children under the age of 2 (1). Timely diagnosis is important due to the potential development of urinary sepsis and renal scarring. Although there are many methods available, the collection of non-contaminated samples remains a challenge. A study by Kaufman et al (1) evaluated the Quick Wee Method for urine collection which utilizes a hypothesis that cold, wet stimulation triggers a voiding reflex. This found a statistically higher rate of voiding within five minutes (31% vs 12%). Our aim was to recreate the Quick Wee study to confirm the validity of the results.

Method

A randomised, non-blinded trial was carried out over 5 months. Eligible infants were between 1 month and 12 months. Infants with anatomical or neurological abnormalities affecting voiding were excluded. Participants were randomly allocated to intervention (Quick Wee) or control (usual care) arms. The primary outcome measured was voiding of urine within 5 minutes (binary yes or no).

Results

148 infants were recruited, 138 were included in a per-protocol analysis. 73 were in the intervention group and 65 in the control group. Baseline characteristics were similar.

Regarding the primary outcome, in the intervention group, 24.66% passed urine in the 5-minute trial period, compared with 16.9% in the control group (risk ratio 1.24, risk difference 0.12). The number needed to treat is 8. The method was accepted well by both parents and clinical staff. On a five-point Likert scale, 86% of parents were satisfied or very satisfied with the intervention. 88% of clinicians were very satisfied or satisfied. 98.6% of clinicians were willing to try the quick wee method again.

Conclusion

The Quick Wee method, a simple and inexpensive intervention, which is well accepted by both parents and clinicians shows a clinically useful increase in urine samples obtained in pre-continent infants.

1. Kaufman et al, faster clean catch urine collection (Quick-Wee Method) from infants: randomised control trial, BMJ, April 2017

DIMINISHED SCHOOL-BASED SUPPORT FOR MANAGEMENT OF TYPE 1 DIABETES IN ADOLESCENTS COMPARED TO YOUNGER CHILDREN

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Aims

To date, publications regarding school-based management of type 1 diabetes have included small numbers of adolescents and report limited separate data for this age cohort. Our objective was to evaluate diabetes management at school among a large cohort of adolescents with type 1 diabetes and to compare the level of support with that provided to younger children.

Methods

Questionnaires were distributed to adolescents with type 1 diabetes attending nine regional and tertiary paediatric diabetes services in the Republic of Ireland. Data sought included patient demographics, treatment regimens and supports for self-care management. Results were compared to a similar cohort of primary school children with type 1 diabetes studied using similar methodology.[1]

Results

There were 405 adolescent participants with a median age of 15 years. Two hundred and fifteen (54%) were on multiple daily injections (MDI) and 128 (32%) on pump therapy. Eighty-five percent of pump users bolused in classrooms, whereas 76% of those on a MDI regimen injected outside the classroom ($p<0.001$). Girls were less likely to administer insulin in an office (10% vs. 19%) and more likely to administer in the bathroom (50% vs. 34%) ($p=0.01$). Twenty-five (12%) adolescents on MDI regimens did not bolus at school. One fifth of adolescents reported receiving assistance from school staff for care needs. Compared to primary school children with type 1 diabetes, adolescents were less likely to use pump therapy, have an emergency treatment plan (64% v 26%, $p<0.001$) and have a designated staff member responsible for care needs (52% v 10%, $p<0.001$).

Conclusion

This study demonstrates that there is currently a deficit of supports for adolescents with type 1 diabetes within Irish secondary schools. Implementation of national policies and possible changes to legislation are required to ensure that the care needs of these adolescents are adequately met.

1. McCollum DC et al. Management of type 1 diabetes in primary schools in Ireland: a cross-sectional survey. Ir J Med Sci (2019):188(3);835-841

THE INVISIBLE EPIDEMIC, ANALYSING THE DEMOGRAPHICS OF CHILDREN LIVING IN HOMELESSNESS PRESENTING TO A TERTIARY EMERGENCY DEPARTMENT 2017-2019

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Introduction

Children living in homelessness are at a risk of a multitude of biopsychosocial effects as a result of their accommodation status, developmental delay, low birth weight, poor dietary habits.

This population of vulnerable children are largely hidden in society and little data exists in Ireland to understand the health impact of their accommodation status. There has been a 400% increase in children living in homelessness in the past 5 years in Ireland. Adverse childhood events are strongly linked to adults in homelessness and associated problems.

Methods

Data was collected at registration in the Emergency Department in Children's Hospital Ireland Temple St (CHITS) to capture these children. All children living in known emergency accommodation addresses were included. Children were also included if their family were 'couch surfing' or temporarily living with family members as an emergency measure. Results were analysed using Microsoft excel.

Results

N= 651 presented to CHITS ED in 2017; this had risen to n=842 in 2018; results from 2019 are pending but to August are n=746. Reattendances were high in this population, n=96 in 2017.Majority of complaints were medical in 2018 n=604, followed by trauma n=174, plastics n=30. In 2017 medical n=478, trauma n=131, plastics n=19. Majority did not have a Public Health Nurse (PHN) referral in 2018, n=759, 2017 n=605. 6 children in 2017 had complex medical needs requiring tertiary specialist management, examples being severe autism, cystic fibrosis and a ventriculoperitoneal shunt.

Conclusion

Homelessness is a problem that is rapidly progressing to epidemic levels in Ireland and needs a dedicated paediatric approach to protect this vulnerable cohort of children from life long consequences as a result.

OUTCOME AT THE EXTREME OF VIABILITY: A SINGLE CENTRE EXPERIENCE

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Background:

There is limited recent Irish data describing the survival and neurodevelopmental outcomes of extremely preterm infants delivered at less than or equal to 26 weeks gestation

Aim:

To examine the survival of infants born under 26weeks' gestation in an Irish tertiary maternity hospital over a 10 year period from 2007 – 2016. Neurodevelopmental outcomes were examined over an eight year period from 2009-2016.

Methods:

Retrospective review. All infants born under 26 weeks' gestation. Baseline demographics, maternal history, use of steroids, co-morbities including chronic lung disease, patent ductus arteriosus, necrotising enterocolitis, intraventricular haemorrhage and retinopathy of prematurity were reported. Bayley Scales of Infant Development III assessments were performed at 2 years corrected gestational age to assess neurodevelopmental outcomes.

Results:

There were 132 infants born at less than 26 weeks during this time. There were 49 deaths (37%). Of the 83 surviving infants, 51 (61%) Bayley III assessments were performed. The overall survival rate was 39% (11/28) at 23weeks, 50% (22/44) at 24weeks, 83% (50/60) at 25weeks. Survival at 23 weeks' gestation, increased over the 10-year period, from 20% (2/10) in 2007-2011, to 50% (9/18) surviving in 2012-2016. Survival at 24weeks increased from 39% (7/18) in 2007-2011 to 58% (15/26) in 2012-2016, and at 25weeks gestation, increased from 75% (18/24) in 2007-2011, to 89% (32/36) in 2012-2016.

For surviving infants born at 23 weeks, 55% (5/9) had normal cognitive and language scores, 78% (7/9) demonstrating normal motor scores. For infants born at 24weeks gestation, 86% (12/14) had normal cognitive and language scores, 78% (11/14) having normal motor scores. At 25weeks, 82% (23/28) had normal cognitive scores, 84% (22/26) had normal language and 68% (19/28) having normal motor scores.

Conclusion:

Survival of extremely premature infants has increased significantly over the past 10 years. Survival rates with normal neurodevelopmental outcomes are comparable with international standards, and reflect positive changes in attitude and practices in neonatal intensive care.

Survival and Impairment of Extremely Premature Infants: A Meta-analysis Myrhaug et al., PEDIATRICS Volume 143, number 2, February 2019

DIALYSIS IN PATIENTS WITH MAPLE SYRUP URINE DISEASE IN THE ERA OF NEWBORN SCREENING: EXPERIENCE OF A NATIONAL CENTRE

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Aims: Maple Syrup Urine Disease (MSUD) is an autosomal recessive disorder caused by deficiency of the branched-chain α-ketoacid dehydrogenase complex which leads to the accumulation of branched-chain amino acids (BCAA), particularly leucine, and respective keto acids. The clinical spectrum varies; however, the accumulation of toxic metabolites can lead to metabolic crisis, encephalopathy, neurological sequelae or death (1,2). In the acute phase of establishing treatment it can be difficult to lower toxic leucine concentrations sufficiently through conservative, dietary management alone (1). While a number of dialysis strategies have been described in the literature, these studies have been limited by the rare nature of the illness (1,3,4).

Methods: We performed a single-centre retrospective cohort study in MSUD patients identified on newborn screening in Ireland since the 1970s. The study was approved by the local ethics committee, informed consent was obtained.

Results: 18 eligible and genotyped patients were identified with 12 patients (72%) requiring some form of dialysis despite newborn screening. Peritoneal dialysis (PD) was the starting modality preferred at the time with 2 more recent patients receiving exclusively haemodialysis (HD). HD produced a greater drop in leucine concentration compared with PD (Median 702 vs. 25 uM/hr). Clinical outcomes regardless of the modality chosen were overall good, however, three diagnosed patients died later in life.

Conclusions: Haemodialysis is an effective means of reducing leucine levels in neonates/infants with MSUD. Despite early diagnosis through newborn screening, the majority required dialysis as neonates, underlining the life-threatening nature of the condition.

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SERUM GLIAL FIBRILLARY ACIDIC PROTEIN (GFAP) RESPONSE TO PAEDIATRIC MILD TRAUMATIC BRAIN INJURY

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Aims

Glial fibrillary acidic protein (GFAP) is a component of the cytoskeleton of astrocytes and released in response to brain injury. We examined the utility of GFAP in the evaluation of Paediatric Traumatic Brain Injury (TBI), both mild and severe. We evaluated the magnitude of GFAP release at baseline in TBI compared to controls and in response to both lipopolysaccharide stimulation (LPS) and melatonin therapy. Melatonin has anti-inflammatory effects which has therapeutic implications.

Methods

Whole blood was sampled from the following children: mild TBI, severe TBI (initial GCS <8), 2 weeks post-TBI and compared to healthy age-matched controls. Whole blood was stimulated with bacterial endotoxin (LPS) (10ng/ml) and melatonin treatment (10^{-3}M). GFAP was determined by enzyme linked immunosorbent assay (ELISA).

Results

The mild TBI cohort (n=98) had a median (IQR) age of 12.3 (9.0- 14.8) years and 66% males compared to controls (n=97) 8.3 (4.3-11) years and 56% males. GFAP was elevated in the mild TBI compared to controls, ($p = 0.002$). GFAP was markedly elevated in the severe TBI cohort compared to controls and mild TBI ($p< 0.0001$). LPS and Melatonin did not alter circulating GFAP levels in any cohort.

Conclusion

GFAP is a discriminating marker between controls and mild TBI. The elevation is marked in the severe cohort and is a biomarker of severity in TBI.

ATTITUDES AND EXPERIENCES OF NON CONSULTANT HOSPITAL DOCTORS AND NURSES USING THE IRISH PAEDIATRIC EARLY WARNING SCORE (PEWS) SYSTEM

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Aims: The PEWS system seeks to identify patients at risk of deterioration by using predetermined parameters and guided responses. It relies on non-technical skills such as teamwork, communication and input from families. This study aims to ascertain the experiences of paediatric non-consultant hospital doctors (NCHDs)' and nurses' using the PEWS system.

Methods: NCHDs and nurses in tertiary paediatric Dublin hospitals were surveyed in October 2019 via email and hard copies. Themes included user experience, perceived usefulness in patient safety, clinician autonomy and communication.

Results: Preliminary data collection yielded 25 NCHD and 21 nursing responses, with data collection on-going. The majority of NCHDs (74.1%) and nurses (95.2%) felt PEWS made care safer. Similarly, 74.1% of NCHDs and 85.7% of nurses felt it helped to prevent serious deterioration events. 88.8% of NCHDs and all nurses felt comfortable and trained in its use. Surprisingly, over half of NCHDs (74.1%) and 85.7% of nurses had at least one case within the last three months where they felt the PEWS score did not reflect the severity of illness, and highlighted the importance of clinical experience. Whilst nurses felt there was enough autonomy to exercise judgement (61%) only 23.1% of NCHDs agreed. According to nurses, 57% felt that use of PEWS did not increase their clinical workload, 22.2% of NCHDs agreed. Most NCHDS (51.8%) and nurses (85.7%) agreed that it improves communication. Only 14.3 % of nurses and 19.2% of NCHDs felt that the PEWS system frequently contributed to tension between staff.

Conclusion: NCHDs and nurses agree that the PEWS system is useful in terms of improving care and safety. There is a divergence regarding its impact on clinical workload and the level of autonomy in clinical decision making. Further studies are required to investigate the complexity of PEWS with a focus on teamwork and communication.

INTEGRATED CARE FOR 22q11 DELETION SYNDROME- MEETING CHILDREN'S NEEDS THROUGH ENHANCED CARE CO-ORDINATION

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Background

22q11 Deletion Syndrome is a complex, multi-system disorder. Affected children may present with a diverse range of medical conditions and they are extremely vulnerable to a range of physical and intellectual disabilities as well as psychiatric illness. Consensus surveillance guidelines were developed in the U.K. to establish “a comprehensive and universally agreed lifelong care plan”. Medical care for this population is frequently fragmented, and a need for a dedicated clinic in Ireland was identified.

Aim

To review the needs of children with 22QDS at the time of their first dedicated tertiary clinic and establish if a dedicated clinic can identify and address unmet needs.

Method

The outcomes of all first clinic appointments since the establishment of the new clinic in October 2017 to January 2019 were reviewed. Previous specialty input along with referrals made and investigations requested were recorded.

Results

Overall 43 were seen in the first 14 months. Following their first assessment 82% required surveillance investigations, including: blood testing (66% of children), renal ultrasound (30%) and X-Ray spine (9%). Specialist referrals were needed in 73% of children, to a variety of services, most commonly to mental health (30%), dental (20%), cardiology (18%), immunology, cleft team and ophthalmology.

Conclusion

We have identified multiple areas of unmet need in this dedicated clinic. It is hoped that we can improve care co-ordination by engaging other specialists to run clinics on the same day, appoint a nurse specialist and adopt a clear care pathway, using a life course approach to ensure the regular monitoring and anticipation of issues and early intervention that helps in maintaining health, well-being and quality of life.

Max Appeal! Consensus Document Development Committee. Consensus Document on 22q11 Deletion Syndrome (22q11DS). 2017

AN EVALUATION OF STRESS LEVELS IN CARERS OF CHILDREN WITH AUTISM SPECTRUM DISORDER

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Autism Spectrum Disorder (ASD) is an umbrella term for a range of neurodevelopmental disabilities that affect social interaction and communication skills. Previous studies have demonstrated the physical, psychological and financial strain that full time care of a child with ASD, can put on a family, but no such studies have been done in Ireland.

Objectives

1. To evaluate stress levels of parents/care providers to children with ASD.
2. To highlight how stress levels effect positive and negative outlooks
3. To establish evidence to support the need for services and practical guidelines to improve the health and wellbeing of care providers to children diagnosed with ASD.

Methods

An online survey using the Parental Stress Scale (PSS), was advertised on ASD support group websites across Ireland. Over 300 participants answered the survey, n=289 were analysed (96.3% Caucasian, 1.4% Asian, 1.4% Irish Traveler, 0.9% Multi racial and 1% High, 19.4% Upper Middle, 44.3% Lower Middle and 35.3% Low socioeconomic financial brackets).

Inclusion: parents/guardians/full-time care providers to children <18 years, with a previous diagnosis of ASD. Exclusion: child was not <18, no previous diagnosis or if they did not complete the full survey.

Results

Average stress; PSS: 63.5/100 (Std=8.5) Self-rated: 7.9/10 (Std=1.5). Strongest positive correlation for stress; worry and being overwhelmed ($p<0.01$). Strong negative correlations; good support and closeness to the child ($p<0.05$). Linear regression: Good support, financial situation and positive outlook showed to be protective against stress levels (B=-0.3; 0.5; -0.4; -0.24, $P<0.01$). Worry and poor mental health increased stress levels (B=-0.662; 0.947, $p<0.01$).

Conclusion

This survey demonstrates that carers of children with ASD experience high stress levels. It highlights the impact of positive and negative factors on stress levels. It demonstrates the need for further evaluation of these stress levels, to create support services to help cope with this stress and improve overall health of these carers and better care for children with ASD.

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SITTA: A PROSPECTIVE PRE-RCT SHORT AND INTENSIVE ENURESIS ALARM TREATMENT QUALITY IMPROVEMENT STUDY

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Aims: Optimising the "Short and Intensive enuresis Treatment with one of Two Alarms" (SITTA) RCT protocol, and obtaining preliminary outcomes of the SITTA program during a two year study period.

Methods: Prospective non-randomised paperless study, testing the effectiveness of two different high-quality enuresis alarms, in a maximum 12-week intensive (2-weekly appointments) bedwetting treatment programme, using the SITTA protocol. Either a body-worn (Malem024) or mat alarm (Ramsey-Coote, RCA) was used. Study protocol, contemporaneous clinical data and outcomes were recorded electronically. ICCS standardised outcome measures use were enuresis type, Initial Success (IS), Complete Response (CR) based on percentage reduction in wet nights, and Relapse Rate (RR) at 6 months. A comparison was made with the established local enuresis clinic outcome measures.

Results: The study population was 34 children with monosymptomatic enuresis (ME) or non-monosymptomatic enuresis (NME). The mean time to achieve IS was 53 days versus 87 days in the local clinic. Overall mean time to IS was 48 days with RCA and 60 days with Malem024. 97.1% achieved IS compared to 59.5% in the local clinic. 91% achieved CR at 12 weeks. Overall RR was 24%; 17% for ME and 31% for NME. IS and RR were not affected by alarm type. As the study progressed, the protocol was refined to improve patient engagement with the intensive treatment program. DNA rate was close to 0% and dropout 0%. All equipment was returned when the treatment was completed.

Conclusion: The SITTA protocol achieves a very high rate of IS, within a shorter time-frame than the established local clinic. The relapse rates compare favourably with other studies (Ref 1). Alarm type does not affect Initial or Continued Success rates. A randomised study with larger numbers and limited to ME to confirm this initial result is required and feasible with the now adjusted SITTA RCT study protocol.

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CORRELATION OF VALIDATED MRI SCORING SYSTEMS IN NEONATAL ENCEPHALOPATHY

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Aims

Predicting long term outcomes in neonatal encephalopathy (NE) remains challenging. Magnetic Resonance Imaging (MRI) is the gold standard of neuroimaging that best defines the nature and extent of brain injury in NE. A number of different validated MRI brain scoring systems exist to predict long term outcome in neonatal brain injury. The scoring systems have different levels of complexity and detail. Different patterns of injury seen on MRI have been correlated to neurodevelopmental outcome. These scoring systems have never been analysed and it is unclear if they are comparable.

Methods

Infants with NE Sarnat Grade II and III (n=35) were prospectively recruited into an observational study. All underwent therapeutic hypothermia (TH) and had early MRI scan. MRI scans were scored by paediatric radiologists using three validated scoring systems – Barkovich, NICHD and de Vries. The strength of association between the scoring systems was assessed using the Spearman rank correlation.

Results

Adequate MRI images were available for 31 patients. A high proportion of patients had normal imaging using all 3 systems (13/31). There is a high level of correlation between all scoring systems. The strength of association between both NICHD vs Barkovich and de Vries vs Barkovich, as measured by Spearman rank correlation (SRC), was 0.93 (95% CI of 0.86 to 0.97). The strongest correlation found was between de Vries vs NICHD scores, with a SRC of 0.96 (95% CI of 0.92 to 0.98). P values for each comparison was <0.001.

Conclusion

There is significant variability in complexity between the scoring systems and consequently level of time and detail required to complete each one. Our study suggests that the scores are comparable. Barkovich scoringsystem requires the least time resource and is as informative as the others. Correlation between with the infant's neurodevelopment will be done when infants are aged 2.

EVER CHANGING TIMES: FIFTEEN YEARS OF NEONATAL EXCHANGE TRANSFUSION IN THE NATIONAL MATERNITY HOSPITAL, DUBLIN

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Aims:

1. To produce a descriptive analysis of Exchange Transfusion (ET) in a tertiary neonatal unit over the last fifteen years
2. To perform an audit of the management of Haemolytic Disease of the Newborn (HDN) in infants who underwent ET against the current local protocol

Methods: We performed a retrospective study of infants who underwent ET from January 2004 to December 2018 at The National Maternity Hospital (NMH), Dublin. Data was collected through maternal and neonatal chart review.

Results: A total of 13 ETs were performed in 12 infants during the 15 year period (0.87 per year). The indication for ET was severe Rhesus HDN in 10 infants (83%), while one infant had ABO incompatibility and one had severe non-immune hyperbilirubinaemia. All infants received IVIG and phototherapy. Six (50%) received a platelet transfusion for thrombocytopenia secondary to ET. All five (45%) of the infants followed up in NMH had reassuring reviews at six months. The mortality rate was 0%.

For the eleven infants with HDN, there was varying compliance with the local protocol. Seven (63%) had antibody quantification at 28 weeks gestation. Two of the infants were outborn; they were not admitted to NICU or commenced on phototherapy immediately post-delivery; cord blood was not sent in one case. Weekly FBC was performed in all infants post-discharge. Three (27%) were not discharged on folate as recommended.

Conclusions: The rate of neonatal ET has declined dramatically in the 21st century[1]. However, it remains an important emergency intervention in the management of HDN[2] amongst other pathologies. The cohort of infants who underwent ET in NMH over the last fifteen years had very low morbidity and mortality. Given the infrequent and complex nature of ETs, it is essential that care is delivered in a tertiary neonatal unit, with adherence to local guidelines.

1 Chitty HE et al. Neonatal exchange transfusions in the 21st century: A single hospital study. Journal of Paediatrics and Child Health 2013; 49: 825-832. 2 Murray NA & Roberts IA. Haemolytic disease of the newborn. Archives of Disease in Childhood, Fetal and Neonatal Edition 2007; 92(2): F83-F88.

CLOSING THE GAP – A COMPARISON OF GROWTH ASSESSMENT PROTOCOL (GAP) CUSTOMIZED BIRTH CENTILES AGAINST WORLD HEALTH ORGANIZATION BIRTH CENTILES.

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Foetal Growth Restriction is associated with stillbirth, neonatal death and perinatal morbidity. The Growth Assessment Protocol (GAP) was introduced in OLOL Hospital, Drogheda to improve antenatal detection of small for gestational age (SGA) babies and postnatal care. GAP involves assessment of foetal growth by customised growth and birth centiles, as opposed to population-based centiles such as WHO centiles.

To determine which centiles are more accurate at detecting babies which display both clinical and placental pathology suggestive of IUGR, a retrospective chart review of all babies born between July-December 2018 was undertaken (n=1547). 211 SGA babies (13.6%) measuring <9th centile on either WHO or <10th centile on GAP were investigated. Multiple births and congenital abnormalities were excluded.

Clinical criteria included hypothermia, hypoglycaemia and NICU admission for jaundice requiring phototherapy. The performance of both birth centiles were examined and compared regarding their predictive value of pathological IUGR.

79 were defined as SGA by both GAP and WHO (37.4%). 44 babies were defined as SGA by their WHO centile only (20.9%). 67 were defined as SGA by GAP only (31.8%).

Of these babies, 133 had placental and paediatric data available for study. 52 (39%) presented clinical features or abnormal placental pathology. Of note, 4 were missing GAP centiles and therefore excluded (7.6%). 26 (54.1%) were detected antenatally on both centiles. 8 (16.7%) were detected by WHO centiles only and 14(29.1%) were detected by GAP centiles only.
In conclusion, GAP appears to detect a higher proportion of IUGR babies based on placental pathology and neonatal condition.

1. Clausson, B. , Gardosi, J. , Francis, A. and Cnattingius, S. (2001), Perinatal outcome in SGA births defined by customised versus population-based birthweight standards. BJOG: An International Journal of Obstetrics & Gynaecology, 108: 830-834. doi:10.1111/j.1471-0528.2001.00205.x 2. De Jong C.L.D., Gardosi J., Dekker G.A., Colenbrander G.J., van Geijn H.P.. Application of a customised birthweight standard in the assessment of perinatal outcome in a high risk population. Br J Obstet Gynaecol 1998; 104: 531– 535.

THE INCIDENCE OF FEVER IN A COHORT OF EXTREEMLY PREMATURE INFANTS RECEIVING 8-WEEK VACCINATIONS WITH CO-ADMINISTERED PROPHYLATIC PARACETAMOL

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Aims:
Meningitis B vaccine (4CMenB) was introduced into the Irish national childhood immunisation schedule in 2016. 4CMenB is particularly reactogenic, with rates of fever post-vaccination of up to 51%[1]. A reduction in fever post-vaccination is seen when paracetamol is co-administered[2]. The Irish National Immunisation Advisory Committee recommends that three doses of paracetamol should be given prophylactically in the 24 hours post-vaccination[3].
Concerns have been raised that the co-administration of paracetamol can impair the immune response to vaccination[2]. Also, vaccination in pre-term infants is shown to induce lower antibody responses than in term infants[4].

This study aims to describe the incidence of fever, in the 48 hours post-vaccination, in a cohort of extremely premature infants.

Methods:
A retrospective review, of the online medical records of all infants born before 28-weeks' gestation in the National Maternity Hospital, Dublin, over the period December 1st 2017 to May 1st 2019 was performed. Infants that received 8-week vaccinations as inpatients and were observed for 48 hours post-vaccination, were included in the analysis. Data extracted included baseline characteristics, age at vaccination, frequency of temperature measurements and maximum temperature in the 48 hours post-vaccination.

Results:
Total sample size was 31 infants. Mean gestational age at birth was 25.9 weeks, mean birthweight was 819 grams and mean age at vaccination was 60 days. All infants received three doses of paracetamol in the 24-hours post vaccination. There was a mean of 14 temperature measurements per infant in the 48-hours post vaccination. No infant had a recorded temperature of 38.0 degrees Celsius or higher.

Conclusions:
The incidence of post-vaccination fever is lower in the extremely premature infants studied than in historical cohorts of term infants, receiving vaccinations with co-administered paracetamol. This suggests that the immune response to vaccination may be impaired, in extremely premature infants, when paracetamol is co-administered.

1.Gossger N, Snape MD, Yu L et al. Immunogenicity and tolerability of recombinant serogroup B meningococcal vaccine administered with or without routine infant vaccinations according to different immunization schedules: A randomized controlled trial. JAMA 2012; 307: 573–82. 2.Prymula R, Siegrist CA, Chlibek R, Zemlickova H, Vackova M, Smetana J, Lommel P, Kaliskova E, Borys D, Schuerman L. Effect of prophylactic paracetamol administration at time of vaccination on febrile reactions and antibody responses in children: two open-label, randomised controlled trials. Lancet. 2009;374:1339–50 3.Irish National Immunisation Advisory Committee. Immunisation Guidelines. Available from https://www.hse.ie/eng/health/immunisation/pubinfo/pcischedule/ Accessed on 26.01.19 4.Gagneur A, Pinquier D, Quach C. Immunization of preterm infants. Hum Vaccin Immunother. 2015;11(11):2556–2563. doi:10.1080/21645515.2015.1074358

DEVELOPMENTAL DYSPLASIA OF THE HIP - SCREENING WITHOUT RADIOGRAPHS; IS IT TIME?

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Aim

This study aims to determine the sensitivity of the new National Selective Ultrasound Screening Programme for Developmental Dysplasia of the Hip (DDH) in Infants[1] (January 2017) through a retrospective analysis. The new national guidelines restrict DDH screening to hip ultrasound screening (USS) only.

Methods

All infants referred for DDH imaging between September 2017 and March 2018 were included in the study. Infants with a normal USS at 6 weeks were followed-up with a pelvic radiograph (XR) at 6 months. A chart review of all infants with normal USS, but abnormal or concerning XR was conducted to determine their clinical outcomes.

Results

Based on clinical exam and current risk factors (breech presentation, family history, postural foot deformity, torticollis), 716 infants were referred for imaging. Of these, 655 infants (91.5%) had normal USS. At 6 months, 158 (24.1%) of the infants with normal USS had an abnormal or concerning XR. Serial surveillance (more than one XR) was carried out on 91 (57.5%) of these infants.

Of the 158 infants: 76 (48.1%) were discharged with no treatment, 48 (30.3%) remain under surveillance, and 13 (8.2%) required bracing. Twenty-one infants did not attend follow-up appointments. To date (December 2018), no infant with a normal USS has required surgical intervention.

This study found that the use of USS only identified a potential 17.56–50% false negative rate and a sensitivity of 50–82.43%.

Conclusion

The findings of this retrospective analysis imply that a 13–61 infants per six-month period (1.8–8.5%) will be identified as having no hip pathology. Despite this, we did not identify any infant requiring surgical intervention, meaning that these patients did not have significant pathology. We found that the acetabular angles of all patients in the study normalized by 18-24 months of age.

Yes - it is time for screening without radiographs.

1. National Selective Ultrasound Screening Programme for Developmental Dysplasia of the Hip (DDH) in Infants; National Clinical and Integrated Care Programme, HSE.

COMPARISON OF LEFT VENTRICULAR ROTATIONAL MECHANICS BETWEEN TERM AND EXTREMELY PREMATURE INFANTS OVER THE FIRST WEEK OF AGE

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Introduction: Developmental differences in left ventricular (LV) myofibre architecture between term and extremely premature infants are significant. Postnatal adaptation over the first week of age because of those developmental differences warrants further study. LV twist supports ejection during systole while untwist augments early diastolic filling. We compared LV rotational mechanics between those two populations over the first week of age. This has not been previously studied.

Methods: A historical cohort of extremely preterm infants (<29 weeks gestation) was compared to a prospectively recruited group of healthy term infants (37 – 42 weeks gestation). Echocardiography was carried out on Days 1, 2 and 5 – 7 to measure basal rotation, apical rotation, LV torsion (twist indexed to LV length), and LV untwist rate.

Results: Thirty term infants (mean ± SD gestation: 39.7 ± 1.1 weeks, birthweight: 3667 ± 443 grams) and 51 preterm infants (gestation 26.7 ± 1.5 weeks, birthweight 1011 ± 233 grams) were included. In preterm infants, basal rotation was positive on Day 1, changing to negative by Day 5-7. Torsion in preterm infants was higher than term infants on Day 1 and continued to increase by Day 5-7. There was a significant increase in LV untwist in preterm infants over the study period. Apical rotation was no different between the two groups and did not change over time. There was no change in term rotational mechanic parameters over the study period with minimal twist.

Conclusion: Extremely preterm infants demonstrate increasing torsion over the first week of age. This is predominantly driven by an increasing negative basal twist. LV untwist is also augmented in premature infants. There is no change in rotational parameters in term infants. An augmentation of torsion in premature infants is likely to represent an adaptive response to compromised longitudinal systolic and diastolic function in the preterm population.

THE NEONATAL EARLY ONSET SEPSIS CALCULATOR (NEOSC); ITS CLINICAL ROLE

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Aims

The aim of this study was to determine the clinical impact of applying the NEOSC to evaluate term infants at risk of neonatal sepsis.

Methods

We conducted a retrospective review of all liveborn infants (all gestational ages (GA)) that had blood cultures taken as part of the standard septic workup at the NMH between January 2015 - April 2019. We analysed changes in total blood culture rates before and after the introduction of the NEOSC.

The NEOSC (Kaiser-Permanente) has been in use at the NMH since January 2018. This tool, using a composite of risk factors (gestational age, highest maternal antepartum temperature, Group B Streptococcus carriage status, duration of rupture of membranes, intrapartum antibiotic administration, clinical examination) [1, 2] determines whether an infant > 35 weeks GA requires a blood culture/IV antibiotics.

Results

Between January 2015 - April 2019, there were 37, 514 infants born and 4,674 blood cultures drawn (all GA).

Prior to the introduction of the NEOSC the total blood cultures taken per year were: 1,312 (2015), 1,149 (2016), 1,319 (2017). The blood culture rates per 1,000 live births: 140/1,000 (2015), 127/1,000 (2016), 153/1,000 (2017).

After the introduction of NEOSC total number of blood cultures drawn were: 702 (2018), 192 (Q1 2019). The blood culture rate per 1,000 live births was 89/1,000 (2018), 76/1,000 (Q1 2019).

There were similar rates of culture-confirmed GBS sepsis in term infants before and after the introduction of the NEOSC: 0.8/1000 (2015), 0.71/1000 (2016), 1/1000 (2017), 0.68/1000 (2018), 0.84/1000 (Q1 2019).

Conclusion

The introduction of the NEOSC has resulted in an average 41% reduction in the number of blood cultures drawn and concomitant IV antibiotic use in our unit. This has been achieved without any increase in infection rates. The tool reduces unnecessary investigation, antibiotics, infant discomfort and clinical and laboratory workloads.

1. Kuzniewicz MW, Puopolo KM, Fischer A, Walsh EM, Li S, Newman TB, et al. A Quantitative, Risk-Based Approach to the Management of Neonatal Early-Onset Sepsis. JAMA Pediatr. 2017;171(4):365-71. 2. Escobar GJ, Puopolo KM, Wi S, Turk BJ, Kuzniewicz MW, Walsh EM, et al. Stratification of risk of early-onset sepsis in newborns ≥ 34 weeks' gestation. Pediatrics. 2014;133(1):30-6.

NEURODEVELOPMENTAL OUTCOMES OF NEONATES WITH ENCEPHALOPATHY REQUIRING THERAPEUTIC HYPOTHERMIA

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Aim

To describe the neurodevelopmental outcomes and MRI brain findings of infants requiring Therapeutic Hypothermia (TH) for neonatal encephalopathy.

Methods

This was a retrospective, descriptive study of neonates who received TH at a single, level 3 NICU over an eight-year period (January 2009 – December 2016). Neurodevelopmental outcomes were assessed using The *Bayley Scales of infant and toddler development-III* (BSID-III). MRI brain reports were classified using the Barkovich MR Scoring System.

Results

In total, 127 neonates (n=127) received TH. A total of 115 infants (n=115) survived and were included. Sixty-five percent (n=75) were male. The median birthweight was 3.54 Kg. Mean Apgar scores were 2 at 1 minute, 4 at 5 minutes and 5 at 10 minutes. Mean cord gases: ph 7.06/712, BE -11/-10. Forty-seven percent (n=54) had clinical seizures. Forty-six percent (n=53) had electrographically detected seizures. Thirteen percent (n=15) had a mild encephalopathy, 76% (n=87) a moderate encephalopathy and 8% (n=9) a severe encephalopathy based on Sarnat assessment. Sarnat grade was not recorded for 3.5% of infants (n=4).

A BSID-III assessment was available for 108 infants (n=108, 94%). Of this cohort, 84% (n=91), 66% (n=71) and 86% (n=93) had average or above average cognitive, language and motor scores respectively.

Seventy-nine percent of infants (n=89) had a normal MRI brain. Eleven percent (n=13) had basal ganglia abnormalities, 15.2% (n=17) had watershed abnormalities and 18.8% (n=21) had combined basal ganglia/watershed abnormalities. If an infant had normal brain imaging, their chances of having normal cognitive, language and motor outcomes were 85%, 67% and 85% respectively.

Conclusion

In this series of 115 surviving babies requiring TH, the outcome was encouraging in each of the core developmental domains. The majority of infants had a satisfactory BSID-III score and a normal MRI brain report. Diffusion-weighted MRI was predictive of a normal BSID-III assessment at 2 years corrected gestational age. Early referral to Speech and Language therapy is advised.

MATERNAL ATTITUDES TO SAFE INFANT SLEEPING PRACTICES

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Aims

In the past 30 years, Sudden Infant Death Syndrome has reduced by 50-75%, with Irish rates reduced from 2.2 to 0.33/1000 live births. However, SIDS still accounts for 40% of Irish post-neonatal infant mortality (1).

Risks include prone or side sleeping, co-sleeping, soft bedding, prematurity, low birth weight and smoke exposure. Protective factors include breastfeeding, room-sharing and immunisations. Sleeping bags and monitors don't reduce SIDS, and sleeping pods are harmful.

In 2000, 60% of Irish mothers smoked, 13% co-slept, and 54% of infants slept supine (2). We wished to reassess maternal knowledge and demographics regarding safe infant sleeping practices.

Methods

A cross-sectional survey was completed with mothers prior to discharge. Exclusion criteria included previous miscarriage or SIDS, and infants admitted to the neonatal unit.

Results

450 mothers were recruited. 9.4% were <25 years, and 8.9% >40 years. 45.3% were primigravida, and 22.4% ≥gravida 3. 61.4% were married, 15.3% co-habiting, and 21.5% single. 76% had completed further education, 15.3% Leaving Certificate, 5.2% Junior Certificate, and 1.6% only primary school. 44.4% had health insurance, 20.2% had a medical card.

62% were breastfeeding, 10.2% combined feeding and 27.8% formula feeding. 8.9% smoked antenatally, with 20% of infants exposed to household smoke.

84.6% of infants slept supine, with 15.4% sleeping either side or prone. 67.4% had a monitor. Bedding options included sleeping bags (26.8%), cot bumpers (11.7%), pillows (9.5%) and pods (5.5%). 31.7% used a soother.

Mothers <25 years were more likely to smoke (31% Vs 6%, $p<0.001$), and less likely to breastfeed (50% Vs 75%, $p<0.01$). Age had no interaction with sleeping position. Further analysis on the effect of age, education, health insurance and ethnicity is pending.

Conclusion

While SIDS has reduced and safe sleeping practices improved, deprived families are over-represented, and public health campaigns need to target this cohort (3). Parents must be educated that many devices marketed to reduced SIDS don’t have any proven benefit, and others are harmful.

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STAYING COOL ON THE MOVE: THERAPEUTIC HYPOTHERMIA STARTS FROM THE DECISION TO COOL

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Aim: Therapeutic hypothermia (TH) is the only intervention shown to improve outcomes in Hypoxic Ischaemic Encephalopathy (HIE). To be successful, TH must begin within 6 hours of birth, which can pose logistical problems for infants born in our fifteen regional centres, some of whom are >3 hours by road from one of the four tertiary neonatal centres that provide active TH. The NNTP, in conjunction with the TH centres, created a national model of care including guidance on achieving target temperatures using passive cooling before NNTP arrival. The aim of this audit was to assess the efficacy of the enhanced model of care and identify areas for improvement.

Methods: This was a retrospective review of NNTP records using cases identified using the NNTP database. Results were compared to a similar audit undertaken in 2014 (n=30).

Results: 30 babies were transported by the NTS from 13 non-tertiary centres to the four TH centres over the period. 29 (97%) were ground transfers utilising active TH and one (3%) by air where passive TH was used.

On NNTP arrival all babies were undergoing passive TH, 63% (n=19) already at target temperature (33-34 degrees Celsius), compared to 57% (n=17) in 2014. The median time to initiation of active TH by NTS from arrival was one hour (range: immediately to 3.25 hours).

By six hours of life 87% (n=26) babies were within target range, also an improvement from 77% (n=23) previously.

All (100%) babies were in the target range on arrival at receiving centre compared to 93% (n=28) in the previous audit.

Conclusions: The provision of passive TH in referring units is improving. Referring units are a key part of the continuum of safe TH provision. We have identified a few areas towards which to target future education.

SCREENING FOR DEVLOPMENTAL DYSPLASIA OF THE HIP: AN AUDIT OF SCREENING TOOLS

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Background:
As per HSE guidelines, in babies with high risk but negative clinical exam an ultrasound should be performed at 6 weeks to out rule Developmental Dysplasia of the Hip (DDH) and at 2 weeks in cases of positive clinical exam [1]. X-Rays are performed after 5-6 months [1] One of the key performance indicators of the integrated care programme for children is X-Ray pelvis used as the first radiological investigation for DDH, especially if it results in a positive diagnosis [2].

Aim:
The aim of this audit is to investigate the number of babies being screened of DDH with X-Ray and their outcomes.

Method:
This was a retrospective, cross-sectional, observational study using NIMIS for babies who had screening for DDH via X-Ray in June 2019 at University Hospital Limerick. Age, sex, clinical indication of investigation, need for repeat X-Ray, reason for repeat imaging, previous ultrasound imaging of hip, findings of the X-Ray and whether the findings were referred for orthopaedic opinion were all recorded.

Result:
112 X-rays were audited, with most common indications being asymmetrical hip creases (51), breech presentation (31) and positive family history of DDH (16). 14 hip dysplasia were diagnosed, 12 in females and 2 in males with average age being 7.2 months. 17 were referred for orthopaedic evaluation. 34 cases required repeated imaging; 19 of which were due to delayed ossification and 11 for orthopaedic follow-up. None of them had ultrasound imaging done previously.

Conclusion:
The audit demonstrated that X-Ray pelvis is being routinely used as a primary screening and diagnostic imaging modality for DDH. A high percentage screened required orthopaedic referral due to positive findings on imaging. Subsequently, ultrasound hip should be used instead as the primary imaging for screening and early diagnosis of DDH, to prevent unnecessary delay in diagnosis and treatment [2].

Reference: 1. HSE, The Newborn Clinical Examination Handbook, Version 1, October 2018, The National Healthy Childhood Programme

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DOCTOR'S DOCUMENTATION IN MEDICAL RECORDS IN PAEDIATRIC UNIT

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Background:

Documentation is essential for communication between health professionals and the provision of quality care to patients. Doctors must be accurate and make sure the document is legible. All entries must be timed and dated along with the Name, Signature and medical council registration number.

Aim of the study:

The purpose of the study is to ensure that a comprehensive medical record is maintained to support effective clinical management of the patient and protect data integrity and patient confidentiality and comply with legal requirements

Method:

50 medical charts have been randomly selected from all the medical admissions in the paediatric ward during the period from15/07/2018 to 15/09/2018.

The audit targeted the most recent admission

Results:

It can be seen clearly that there are some parts of the documentation were done completely while other parts are very weak. To start with, all the entries were timed and dated correctly, most of the entries have been followed by a clear IMC registration number and signature. 7 out of 50IMC registration numbers of admitting doctors were unidentifiable due to poor hand writing. Regarding documenting the name of the admitting doctor, Only 6 out of 50 had a clear name written on admission.

Conclusion:

Satisfactory documentation on Date, time, IMC registration number and signature was obtained. Very poor documentation regarding writing the admitting doctors name on medical charts. Re audit in 6 months.

1. Irish medical council guidelines for documentation, 2. Bon Secours Hospital Tralee poly for documentation on medical notes.

SWEET ORAL SOLUTION (e.g. SUCROSE 24%) AS PAIN CONTROL FOR MINOR PROCEDURES IN INFANTS, WHAT IS OUR CURRENT PRACTICE AT (CHI) AT CRUMLIN?

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Aim:

As untreated pain in infancy has negative consequences, such as increased sensitivity and responses to subsequent pain, it is imperative that widespread sustained practice changes are made to reduce the burden of pain to infants receiving medical care (5). Sucrose 24% has been widely recommended for use during painful procedures in newborns and infants, yet these recommendations have not been translated into consistent use in clinical practice. (1)

The aim of our study is to evaluate the current practice among medical and nursing staff in our hospital with regards to using Sucrose 24% as pain control for minor painful procedures in infants.

Methods:

A specifically designed questionnaire was completed by doctors, nurses, phlebotomists, and IV team members. Data was compiled and analyzed.

Results:

100% of participants reported that they are aware of the use of sucrose as a method of pain control during minor procedures. 96% of participants reported that they think it is an effective method of pain control during minor procedures. Despite this, less than 50% of respondents reported using Sucrose 24% sometimes for venipuncure and IV canulation . Only 20% of participants reported that they are aware that there is a correct sucrose dosage on the Crumlin drug formulary. 84% of participants reported that they are aware that sucrose should be given 2 minutes before and during minor painful procedures. Awareness of its use during venepuncture and IV cannulation was good, however awareness of its use during other minor painful procedures such as NG tube insertion and immunisation was poorer. 60% of participants reported the need to prescribe sucrose as the major barrier to its regular use.

Conclusion:

The results of this survey demonstrates good staff awareness regarding the use of sucrose, its efficacy, and the timing of its use, for management of pain during minor procedures. Despite this it is not widely used. Further training is needed to support our staff in improving sucrose use within our institution.

1. Harrison, D., et al. (2010). "Strategies for the prevention and management of neonatal and infant pain." Current Pain And Headache Reports 14(2): 113-123. 2. Harrison, D., et al. (2012). "Sucrose for procedural pain management in infants."Pediatrics 130(5): 918-925. 3.McCall, J. M., et al. (2013). "Oral sucrose for pain control in non neonate infants during minor painful procedures." Journal of the American Association of Nurse Practitioners 25(5): 244-252. 4.Stevens, B., et al. (2010). "Sucrose for analgesia in newborn infants undergoing painful procedures." The Cochrane Database of Systematic Reviews (1): CD001069. 5.Chen, S., et al. (2017). "What is the Best Pain Management during Gastric Tube Insertion for Infants Aged 0-12months: A Systematic Review?" Journal Of Pediatric Nursing 34: 78-83

SEVERE NEUROLOGICAL IMPAIRMENT: TOWARDS AN INTERNATIONAL CONSENSUS-BASED DEFINITION

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Aims

There is inconsistency in the use of the term Severe Neurological Impairment (SNI) in the literature.[1] We aimed to develop an international, consensus-based definition of this term.

Methods

The Delphi process was chosen to achieve consensus on the definition of SNI. We collaborated with experts in 5 countries to disseminate an invitation to other colleagues in neurodisability in their own region. We specified that a multi-disciplinary panel was required. Those who wished to participate were asked to email us, as facilitators of the process, to confirm their desire to take part. Participants were asked to further disseminate the invitation to other colleagues.

The Delphi process proceeded over 3 rounds. Round 1 used free-text responses where panellists provided insight into their understanding of the term SNI. Responses were used to generate themes. In rounds 2 and 3 panellists were asked to rate their agreement with these themes in the definition of SNI. During round 3 participants were provided with feedback on the previous round, including anonymous information on how the other panellists had voted as well as selected written feedback to provide an opportunity to consider other points of view. Items were included in the final definition if they achieved >70% agreement. After round 3, a working definition of SNI was created. Further refinements were made based on comments from parent representatives and experts at an international conference.

Results

Thirty-four panellists participated in round 1 of the process falling to 31 in round 3. Fifteen themes were generated from responses in round 1. Seven items were brought forward for inclusion in the final definition.

Conclusion

We have created an international, multi-disciplinary, consensus-based definition of SNI. This definition can be used to improve consistency in reporting of research, ultimately leading to improved outcomes for this unique and vulnerable cohort of children.

1. Allen, J. , Molloy, E. and McDonald, D. (2019), Severe neurological impairment: a review of the definition. Dev Med Child Neurol. doi:10.1111/dmcn.14294

PETERS ANOMALY, RARE CAUSE OF ANTERIOR CHAMBER DYSGENESIS

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Background: Peters' anomaly (PA) is a rare form of developmental malformation which involves anterior segment of eye and many other body organs and systems. Anterior chamber dysgenesis is characterized by corneal opacity and various other anomalies which results into certain degree of amblyopia or congenital blindness. Early recognition and treatment may help to prevent these complications in some of these patients.

Case presentation: We report 8-month-old female infant who was noted to have at birth some dysmorphic facial feature, bilateral corneal opacity, left eye proptosis, left megalocornea and bilateral cataract. Dysmorphic features included depressed nasal bridge, mid facial hypoplasia, low set ears, hypertelorism. There was mild generalised hypotonia otherwise normal systemic examination. On day of life two, she was seen by ophthalmology in tertiary care centre and was started on topical stroids and mydriatics with suspicion of peters anomaly. Her CGH array showed loss of aprox 2.4 Mb in short arm of chromosome 6 at band 6p25.3-p25.2 between basis pairs 163083 and 2527433.This loss includes FOXC1(OMIM 601090) gene which has strong association with abnormal eye development and peter anomaly. Her other tests including urine for CMV, TORCH screening and homocysteine level were normal. She got bilateral corneal grafts and lenses extraction. She can perceive light but still there is concern about her vision at the moment. Her development to date is appropriate.

Conclusion: Role of genetic testing is becoming more and more significant in confirmation of rare diseases. We recommend genetic testing to be considered earlier while investigating the cause of peter anomaly.

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COUGH AND CONFUSION IN A SCHOOL AGE CHILD, MYCOPLASMA PNEUMONIA ENCEPHALITIS

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Background: Mycoplasma pneumonia is an important pathogen in school age children mainly causing a respiratory illness.

Extrapulmonary manifestations are also common. It is easy to overlook nervous system involvement especially in very young children.

Aim: Our aim is to report a case of an acute confusional state in a nine-year-old boy which was found to be due to infection with mycoplasma pneumonia.

We suggest that this be considered early in the paediatric diagnostic algorithm of such clinical scenarios facilitating early and appropriate treatment.

Methods: We describe the clinical presentation, results of investigations, treatment and outcome of our patient.

A literature search on current thinking in relation to this infection in children was conducted.

Results: We report a nine-year-old boy who presented to our Paediatric Emergency Department (PED) with a short history of cough, fever, sore throat, headache, vomiting and abdominal pain. He was described as a previously well and neurodevelopmentally normal with no prior hospital admissions, no known contact with illness and no family history of note. A diagnosis of tonsillitis was given. He was admitted to hospital for rehydration, analgesia, antipyretic, anti-emetic and penicillin antibiotic therapy. His mental state and neurological assessment were considered normal at presentation. After 24 hours he became confused, was irritable and hallucinating and exhibited violent and aggressive behaviour towards his mother and staff. The diagnosis was suspected by the Neurologist due his abnormal EEG, normal brain imaging, otherwise normal infection screen and the continuous presence of a cough. His mental state returned to normal after 48 hours of treatment with an oral macrolide antibiotic. He was found to be perfectly well at follow up one year later.

Conclusion: Mycoplasma pneumonia deserves early consideration as a cause of acute encephalopathy in children. We are pleased to report a good outcome for our patient.

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MUMMY SMILE WHEN TUMMY SMILE: *Why Investigations are vital to aid the diagnosis in a child with constipation?*

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Aim:

Constipation is one of the most common complaint encountered by health care professionals in the primary and secondary care setting especially amongst the paediatric population. Aim of the project was to highlight the significance of detailed history taking, examination and investigations to aid the early diagnosis in a constipated child.

Method:

In total 1549 articles were selected from PubMed. On the basis of exclusion, inclusion criteria and full text screen, 48 articles published within the last 15 years were carefully reviewed and included to formulate a concise flow chart for clinicians to consult.

Results:

History and examination are the most important aspects of the interaction with a child with constipation. Poor history taking and irrelevant investigations can delay the diagnosis in a child which can lead to serious complications. Usually the presentation in constipated children are similar most of the times but some patients warrant further investigation due to red flags which can only be picked up with structured history, examination and investigations. All this can help clinicians to make an accurate diagnosis in a child which would also aid in identifying sinister sign and symptoms in a high-risk child at an earlier stage, minimizing the risk of missing a serious underlying medical condition.

Conclusion:

It is important to establish that constipation is present and to distinguish those with an underlying cause from idiopathic, a structured approach such as a flow chart can be useful in primary and secondary setting when consulting a child.

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Retrospective assessment of blood culture sampling practice in a regional Paediatric Emergency Department.

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Aims:

Blood culture (BC) sampling can be a challenging process in paediatrics. Cultures are often taken without correct indications and using a sub-standard technique. We wish to assess compliance with correct indications for blood culture sampling, results of cultures taken and subsequent management of same.

Methods:

We obtained records of all blood culture results sampled over a four week period in September and October 2019. We included all patients attending our paediatric Emergency Department (ED) who were reviewed by a paediatric medical doctor. We cross-referenced BC records and results with patient attendance notes, to determine what proportion of the cultures were taken under correct indications.

Results:

A total of 110 blood cultures were tested during the study period. Only 21 patients (19%) had a fever of 38 degrees Celsius or higher at time of assessment. 59% of our patients sampled were tachycardic at time of assessment (referenced by age-appropriate PEWS charts). 86% of patients had no documentation of skin appearance on presentation, with the remaining patients described as 'mottled' (n=1), 'pale' (n=1), 'non-blanching' (n=3), 'blanching rash' (n=9) and 'pink' (n=1). 27% had clinically significant indications for blood cultures documented in notes (n=30). This included suspected sepsis (n=5), urinary tract infection (n=8), and suspected meningitis (n=4) amongst others. The remaining 80 patients sampled had no documented reason for BC sampling. 10 (9.1%) of BC samples grew bacteria consistent with contamination from skin or mouth flora. 32 patients (29%) were started on antibiotics.

Conclusion:

Blood culture sampling technique is poor, and this is evident from our high rates of contaminant growth in culture bottles (9.1%). Blood culture samples being taken where no indication is found. This results in important patient-care and cost implications. We require further guidelines on indications for blood culture sampling, and education on correct sampling technique in our paediatric ED.

USING THE NICE GUIDELINES FOR STRATIFYING THE RISK OF SEVERE ILLNESS IN CHILDREN WITH SEPSIS

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Aims:
To evaluate the clinical signs and lactatemia in children with positive blood culture and compare with the NICE Guidelines for recognition and diagnoses of sepsis. [NG51]

Methods:
Retrospective study of patients from 19 days to 16 years of age with positive blood cultures presenting to the Emergency Department in CHI at Tallaght between January 2018 and July 2019 was conducted.

Results:
NICE Guidelines for recognition of sepsis involves categories: behaviour, respiratory rate, circulation, temperature. Patients were divided into 5 age groups as per NICE Guidelines. 4367 blood cultures were taken and 99 microorganisms were isolated in 88 patients, 47 were males and 41 females.

There was incomplete data with respect to lactate.

Of the positive 88 patients:

Under 1 year: 23 patients, three were classified at high risk for RR(≥60),eight for HR(≥160),six for temperature(>38),three for lactate(≥2),four for CRT(≥3),one was responsive to pain.

1-2 years: 20 patients, one was at high risk for RR(≥50),nine with HR(≥150),seven with temperature(≥38),seven with lactate(≥2),four with CRT(≥3),two were responsive to verbal stimulation.

3-4 years: 10 patients, four were at high risk for RR(≥40),six for HR(≥140),three for temperature(>39),two for lactate(≥2),none for CRT(≥3),one was responsive to verbal stimulation.

5-7 years: 9 patients, one was at high risk for RR (≥29), six for HR (≥130), three for lactate (≥2), none for temperature (<36) and CRT (≥3).

8-15 years: 26 patients, three were in high risk category for RR (≥25), seven for HR (≥120), four for lactate (≥2), one was responsive to painful stimulation, none for CRT, temperature and BP.

Conclusion:
Only 36 out of 88 patients met the high-risk criteria for sepsis recognition and 22 qualified for moderate risk category. Incomplete data confirms that these guidelines are not being followed. Therefore, clinical diagnostic model like National Paediatric Sepsis Form could improve decision making by increasing sensitivity for detection of sepsis and optimizing treatment.

Sepsis: recognition, diagnosis and early management NICE guidelines [NG51] September 2017

PRESCRIPTION ERROS IN A REGIONAL PAEDIATRIC UNIT – CLOSING THE AUDIT LOOP

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Background:

Prescription errors are a common cause of adverse events in hospitalised patients. An audit of prescription charts on the paediatric ward in PUH in 2016 revealed a high rate of prescription errors. There has since been increased education regarding paediatric prescribing for incoming NCHDs. Another initiative has been the appointment of a pharmacist covering the paediatric and maternity units. This has been shown internationally to reduce the frequency of prescription errors and improve patient outcome.

Objectives:

To complete the audit cycle and assess the effectiveness of the above interventions by re-auditing the rates of prescription errors and comparing with the 2016 figures.

Methods:

Retrospective review of prescription charts of patients admitted to the paediatric ward between 02/10/19 and 10/10/19. 16 charts (10 medical and 6 surgical) were chosen at random in order to match the original audit population. 10 different categories of prescription error were assessed.

Results:

There was an overall reduction in the number of prescription errors with 38 errors identified compared to 51 in 2016 (23% reduction). Certain areas showed a marked improvement, in particular, 100% of patients had allergy status recorded compared to only 32% in 2016. 6% of prescriptions were written in incorrect units compared to 31% in 2016. 62.5% of prescriptions were not written in capital letters, a decrease from 75% in 2016 but still a common source of error. Two areas showed an increase in errors compared to 2016; failure to use generic names (62.5% vs 31% in 2016) and dosage errors (37.5% vs 12% in 2016).

Conclusions:

There has been an overall reduction in prescribing errors in our unit with increased educational initiatives and the appointment of a paediatric pharmacist. This is in keeping with previously reported outcomes. This audit also identifies further areas for improvement and on-going quality improvement strategies.

BILIOUS VOMITING IN INFANCY – WHAT IS THE OPTIMAL WORK UP

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Aim

The purpose of this review was to analyse and summate the current literature surrounding bilious vomiting in the infant and create a basic algorithm for its diagnostic workup when presenting through the emergency department.

Method

A literature search was performed using PubMed to find articles that investigated the strategies being employed to produce optimal workup for infants with bilious vomiting. Altogether, 194 articles were found, of which 174 articles were excluded because they were of either irrelevant, non-English publications or there was no access to full text and a total of 20 articles were included. Key words used for the search were "bilious" and "vomiting" and "infant" and "diagnosis".

Results

Upon appraising the 20 articles in full detail, an algorithm was created as a basic guideline to the optimal workup on diagnosing bilious vomiting in infancy. History and clinical examination were 100% recommended. Plain Film Abdomen was used across 13 studies while Upper GI Contrast was used across 10 studies. 25% recommended Ultrasound of the abdomen while 15% suggested barium enema exclude lower GI pathology.

Conclusion

There are various causes of bilious vomiting some of which are potentially life threatening if not diagnosed and treated promptly. Due to the potential consequences of an undiagnosed malrotation and volvulus all cases of bilious vomiting should be treated as malrotation until proven otherwise.

CASE REPORT: CASE OF PLASMIDUM FALCIPARUM MALARIA IN IRELAND WITHOUT RECENT TRAVEL TO A MALARIA -ENDEMIC COUNTRY.

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We report a case of a 1 year and 4 months old female from the Nigerian community born in Ireland. She presented to Midland regional Portlaoise hospital (MRPH) due to sustained fever and cough for 10 days prior to admission. She was treated in the community for a LRTI. Her appetite was normal, she had no jaundice, vomiting or diarrhoea. She had no history of underlying diseases and her birth history was unremarkable. She had no known drug allergies and her vaccination history was up to date. She had never been abroad. Her father had recently returned from Lagos (Nigeria) and had received both pre and post malaria vaccines.

Clinical assessment revealed a high-grade fever (39.1°C), heart rate 167 bpm, oxygen saturation 98% and respiratory rate 67 breaths/minute. She looked unwell, irritable, and had mildly enlarged tonsils. Her breath sounds were normal. Her liver was non-tender, mildly enlarged with sharp margins. Her spleen was normal. There was no petechiae. Neurological examination was normal.

Laboratory studies showed a haemoglobin concentration of 7.7g/dL, a haematocrit 38.0% and a white cell count 4.10cells/mm3 with 70% neutrophils, 11.2% lymphocyte, reticulocyte 1%. The platelet count was 77 cells/mm3. Her peripheral blood smear showed normochromic red blood cells with several target cells and few basophilic stipplings, and few ring-form trophozoites of P falciparum in normal-sized red cells, parasitaemia (1.3%). Her C reactive protein level was 44 mg/dl.

The patient received artesunate as an antimalarial medication intravenously 3mg/kg for 3 doses. Then artesunate was switched to an oral Riamet for 3 days. She was discharged home well and continued anti malaria treatment. She is for a review in 3 months.

This case report emphasises that Physicians should be aware of the possibility of P. falciparum infections in patients who have been in contact with travellers who recently returned from malaria-endemic area (luggage, airport, local transmission).

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SKIN FOLD THICKNESS MEASEUREMENTS AT BIRTH: SEX AND ANTHROPOMETRIC INFLUENCE

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Introduction:

Measurement of skin fold thickness (SFT) is a fast and non invasive method that may also help us to explore infant nutritional status.

The aim of study:

Analyze whether anthropometry: weight, length, head circumference and gestational age, determine the variability in subcutaneous fat store at birth in relation to sex variability.

Methods:

We measured weight , length , head circumference and skin fold thickness on (triceps ,biceps, subscapular and supraillic regions) from 502 single tone Libyan who were born in Jamhouria Maternity hospital with gestational ages 38-42 weeks and birth weight intervals between 2.25 and 4.5kg were presented during first 24h after birth from January 2017 to July 2018 . Newborns with major congenital, chromosomal, metabolic abnormalities or diabetic mother and preterm babies were excluded.

Results:

502 babies were included, females (237) and males (265). We found that Female infants had greater skin fold thickness than males, and male infants were taller than females . Weigh and head circumference were equal. The sex difference of skin fold thickness in both boys and girls was not significant after 40 week. Skin fold thickness have a significant correlation with all parameters $P < 0.05$.

Conclusion:

This is the first study in Libya to evaluate skin fold thickness measurement and other anthropometric measurement in paediatric setting. weight, length, head circumference and sex are both important determinants of neonatal subcutaneous fat, and sex also influences its distribution. Body weight by itself, length, and gestational age do not determine the subcutaneous fat variability at birth. However, neonatal fat store and its distribution may reflect perinatal nutritional status.

Interestingly, skin fold thickness females were greater than males at birth despite equal weight and head circumference. Therefore, distribution of fat among girls are higher than boys regardless site of skin fold thickness.

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MIGRATION FOR A YOUNG CHILD CAN BE HAIRY!

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Introduction:

A trichobezoar is defined as a foreign body resulting from accumulation of ingested hair. Trichobezoars occur in patients with trichotillomania and trichophagia. The most common presentation is in the older child or adolescent. Bezoars in the gastrointestinal tract may lead to several complications including perforation, peritonitis and constipation. We describe a case of a 4-year-old girl who presented with abdominal distension and poor oral intake and was subsequently diagnosed with a large trichobezoar. Recent immigration and anxiety were important factors in this case.

Case:

A 4-year-old girl presented to ED with an 8 week history of reduced oral intake, intermittent abdominal pain and increasing abdominal distension. The family had recently immigrated to Ireland. A history of trichophagia was noted by the mother. On examination there was a large 9cm non tender mass felt in the left upper quadrant of the abdomen. Blood tests revealed a hypochromic microcytic anaemia and normal renal/liver/bone profile. Our patient went on the have imaging of her abdomen. Ultrasound and X-ray showed her stomach was distended with a solid material. CT abdomen showed a markedly distended stomach with ingested debris, most likely representing a trichobezoar. A laparotomy was performed removing a large trichobezoar measuring 7.5 x 15cm. Re-feeding, nutritional intervention and anxiety management is on-going in this case.

Discussion:

Trichobezoars are rare in the paediatric population, especially in children as young as our patient. In most cases surgical excision is the mainstay of management but following the acute management a multi-disciplinary approach is needed, with input from general paediatrics, dietetics, medical social workers and psychology services. This case highlights the importance of recognising psychological causes of illnesses. In this case chronic anxiety was observed as the cause of the trichophagia and the child requires on-going psychological treatment to prevent recurrence.

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SPOTLIGHT ON ADENOVIRUS

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Introduction

Adenoviruses are a group of viruses that cause febrile illnesses among the paediatric population. They are most frequently associated with upper respiratory tract syndromes, such as pharyngitis or coryza. Most adenoviral diseases are self-limiting but since adenoviruses are associated with a variety of clinical syndromes and nonspecific manifestations, diagnosis based upon clinical criteria alone is difficult any may result in prolonged hospital admissions and unnecessary antibiotic use.

Aim

The aim of our audit was to carry out a retrospective review of all patients with confirmed adenovirus from September 2018 to September 2019. We looked at demographics including male: female ratio, those requiring admission, sample site only patients with URTI symptoms, and a positive NPA or throat swab were included. As a secondary outcome we are currently reviewing the number of patients requiring antibiotics and their length of stay.

Results

Overall a total of 191 patients were included in the review which showed the following. The Female: Male ratio was 1:1.51 with 73 (38%) being female and118 (62%) Male. The mean age 1.9 years (1 year 11 months), Standard deviation 2, Youngest 1 month, oldest 11 years. Of the 191 patients 166 required admission to the paediatric ward with 1 admission to high dependency unit. Sample type: Pharyngeal/throat 117 (61%), NPA 74 (39%).

Conclusion

Adenovirus related URTIs are viral infections that can often be confused with bacterial infections due to length of fever and high acute phase reactants. A number rapid access test including film array are becoming more commercially available for the detection of adenovirus. These can offer sensitive, specific rapid method diagnosis of the virus and over all reduce unnecessary antibiotic use and prevent prolonged hospitalisations.

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AUDIT OF A CLINICAL GUIDELINE FOR THE MANAGEMENT OF NEONATAL NEONATAL HYPOGLYCAEMIA

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Aim

The aim of our study was to recognise at risk infants and evaluate adherence to local clinical practise guideline.

Healthy term babies may feed infrequently during the first 24-48 hours of life. These babies have the ability to cope with low glucose supply through a process of counter-regulation for the first few hours of life, which prevents them from becoming unwell. In some babies, these counter-regulation mechanisms will not function as well, so they are in danger of becoming short of energy supplies. The gold standard for glucose monitoring is a laboratory sample; however, haemacue is used as a screening method, but should be confirmed.

Method

Retrospective chart review of infants identified and or admitted to the SCBU unit in MUH was carried out. Expanding across a time period of June 2019- August 2019, a total of 20 neonates were identified as requiring haemacue testing to confirm hypoglycaemia. Outcomes were protocol entry and adherence with hypoglycaemia treatment strategies within the neonatal setting.

Results

20 infants were noted to have been identified and the protocol was assessed for adherence

In 55% (11) cases the protocol was followed correctly,35% (7) cases where the protocol was violated at various points,5% (1) where there was no protocol documented. Overall there was 60% admission rate to the SCBU

Conclusion

At risk infants with hypoglycaemia were correctly identified during the post natal period. However, our compliance levels with are local guidelines were unsatisfactory

Hypoglycaemai Algorithm- infants at risk of hypoglycaemia, MUH CPG Cornblath, M.et al. Hypoglycemia in the neonate. Semin Perinatol. 2000; 24: 136–149

THE PRINCES AND THE PEE: A COMPARISON OF TWO CASES OF PELVICOURETERIC JUNCTION OBSTRUCTION

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Introduction: Pelvicoureteric junction obstruction (PUJO) is a partial blockage of urine flow where the ureter meets the renal pelvis. The majority are congenital, presenting as hydronephrosis on antenatal ultrasound; however, some present later with an abdominal mass, urinary tract infections (UTI), haematuria, or renal calculi [1]. We present two cases of late-presenting PUJO and discuss limitations of current management guidelines.

Case Studies: A 7-year-old male was referred for 2 episodes of frank haematuria. Urine dipstick showed haematuria and proteinuria. ASOT was positive. He was diagnosed with post-streptococcal glomerulonephritis and treated. Outpatient ultrasound showed moderate left hydronephrosis. Further imaging demonstrated left PUJO with a blood vessel crossing the renal pelvis but bilaterally normal kidneys. Urology were consulted and suggested watchful waiting.

A 3.5-year-old male born outside of Ireland had a proteus positive UTI a year before presentation. Two previous ultrasounds, the first abroad, were unable to locate his left kidney. His third ultrasound found a small left kidney with hydronephrosis and a dilated proximal ureter. DTPA showed 17% split function on the left with minimal uptake and no significant excretion. He was diagnosed with chronic PUJO. He is awaiting review for possible nephrectomy.

Discussion: Management of PUJO involves either observation or surgery. The European Association of Urology offers recommendations, but there is only strong evidence for two of their six and neither of these define which patients require surgery [2]. Though PUJO is not uncommon, little research has been done into its management. A Cochrane Review in 2016 found only two studies and they were unable to make recommendations for practice based on the evidence [3]. Our first patient may never require intervention. Our second, however, might have been identified sooner and likely has irreparable damage. These cases offer no guidance but demonstrate the diversity of disease course and the importance of timely identification and management.

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PSYCHOLOGICAL MORBIDITY AMONG FORCIBLY DISPLACED CHILDREN – A LITERATURE REVIEW

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Background and Aims: In 2018, nearly 75 million people were displaced from their place of origin of which 20.4 million are considered as refugees. Children constitute over half of this population. Forcibly displaced children endure a great deal of psychological trauma in their home country, during transit and while re-settling into a host country. Current literature has elucidated the negative psychological morbidities of war, difficult transit and post-migration difficulties that could lead to Post Traumatic Stress Disorder (PTSD), depression and anxiety. This review is designed to understand the factors contributing to the manifestation of mental health issues in young refugees.

Methods: Literatures regarding the psychological impact of forced displacement on children was performed using the MeSH tool on PubMed. The concept is examined under three stages of flight: pre-migration, intra-migration and post-migration. The resilience of children despite adversities is also discussed.

Results: PTSD, depression and anxiety are the most commonly studied effects of forced migration on children. Rates of PTSD, depression and anxiety ranges from 20-52.7%, 23-44.1% and 38.3-69% respectively. PTSD is associated with pre-migration disturbances such as witnessing violent death or torture of a loved one, physical assault and separation from family. Intra-migration difficulties relate to length of detention, type of facility and failed asylum application. Post-migration difficulties highlighted are insecure asylum status, housing worries, multiple relocations, poor parental mental health and poor acculturation technique and are more related to depression and anxiety. Despite these challenges and the tremendous horror that they have witnessed, the majority of children report good functionality in schools and within peer groups in their host countries in the long-term.

Conclusion: Health and social care providers must understand the complex interplay between the damaging effects of displacement, and the innate protective factors that persecuted children possess. Management should involve a holistic approach that considers the children, their families and their communities.

SEIZE THE DAY; A FITTING AUDIT

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Background and Aims

Prescribing errors can impact patient morbidity and mortality. This risk is augmented by the complexity of anti-epileptic drugs (AEDS) whereby patients may be on multiple medications with known interactions. The aim of this audit was to assess the prescribing practices of AEDS in our Department.
The quality of prescribing was compared against the Standard-The Joint Guidance of the Medical council and PSI's "Safe Prescribing and Dispensing of Controlled Drugs" Guidelines.

Methods:

The medication records of 10 inpatients on AEDs admitted during February-March 2019 were examined.
Inpatient prescriptions were evaluated for number of correctly prescribed AEDs, MRN, allergy status, signature, start date, dose, frequency, route, generic name, milligrams, solution concentration and charting of rescue medication including dose, frequency and indication.

Results

In total, 10 medication records were examined with 35 AED's prescribed, 57% (20) correctly. All (100%) prescriptions had correct doses, frequency and route while 60% (21) were in capital letters. Rescue medication was prescribed in 50% with correct dose and route in 40%. On completion of the first cycle, an education session was held at our medication safety meeting, the "DRUGgle. Awards were given to doctors who made the best effort to successfully adhere to the prescribing guidelines.
Re-audit was conducted in April-May 2019. Nine medication records were evaluated. During reaudit, there were 26 AED prescriptions of which 80% (21) were correctly prescribed, a marked improvement (23%) from baseline. 100% compliance was noted for inclusion of patient demographics, allergy status, dose, frequency and route. There was an improvement in legibility with 73% (19) of prescriptions in capital letters. Eight of nine medication records included rescue medications.

Conclusion

There is a large evidence base to support the use of educational interventions in improving prescribing competency amongst doctors. This was reflected in the 23% improvement in prescribing practice of AED's in our centre after our audit.

Do educational interventions improve prescribing by medical students and junior doctors? A systematic review S. Ross, Y.K. Loke J Clin Pharmacol, 67 (2009), pp. 662-670, Educational interventions to improve prescribing competency: a systematic review G. Kamarudin, J. Penm, B Chaar, R. Moles, *BMJ Open* 2013;3:e003291
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HEPATOPULMONARY SYNDROME (HPS); A CASE REPORT

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Background and Aims

HPS is a rare lung complication of liver disease. The disorder is characterised by abnormal arterial oxygenation as a result of intrapulmonary vascular dilatations (spider naevi in the lungs) associated with portal hypertension and portosystemic shunts.[2]
Pulmonary vascular dilatation leads to ventilation-perfusion mismatch causing hypoxemia. [3]
Diagnosis is made on bubble echo.
The only known treatment is liver transplant.
Our aim is to report a case of this unusual condition.

Methods

Phenotype is described with parental consent.

Results

An eleven-month-old girl, a member of the Irish Traveller Community, presented to the Emergency Department with a febrile convulsion secondary to pyelonephritis. Her renal Ultrasound unexpectedly identified a grossly abnormal liver. The youngest of four siblings, family history of illness was denied, she was described as a previously and otherwise well child with normal neurodevelopment and growth parameters. Liver biopsy showed findings consistent with focal nodular hyperplasia (FNH) of the liver.
Initial differentials included storage disorders, infections, autoimmune disease or malignancy.
FNH of the liver was an unexpected etiology. It is normally a benign entity, non-progressive, typically associated with adolescent females and not reported in younger children. [1]
A surveillance program was implemented.
At a clinic visit, 4 years later she was noted to be cyanosed with oxygen saturation levels 90%. She had stigmata of liver disease with clubbing, facial telangiectasia and hepatomegaly. The changing phenotype resulted in hepatopulmonary syndrome (HPS) and hereditary haemorrhagic telangiectasia being considered. Genetic testing outruled the latter. A bubble echo confirmed the former. Over the next 12 months, her condition deteriorated. She required home oxygen therapy.
Our patient received a living donor liver transplant from her mother age six. She has since had a remarkable recovery, and now aged eight years, is perfectly well again.

Conclusion

We add our case to the literature on this rare disorder.

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THE USE OF LIQUIDISED/BLENDED DIET IN PERCUTANEOUS ENDOSCOPIC GASTROSTOMY (PEG) FED CHILDREN WITH SEVERE NEUROLOGICAL IMPAIRMENT

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Background: Percutaneous endoscopic gastrostomy (PEG) tubes have been used in children since the 1970's, with severe neurological impairment (SNI) being the largest indication. Blended home-cooked food or formula have traditionally been used for nutritional provision. Benefits of PEG feeding are well-documented but there is little evidence to the most beneficial diet in children with SNI. Current European guidelines do not recommend the use of blended feeds.

Objective: Our aim was to evaluate the evidence for blended tube feeds in children with SNI in hopes to maximise the nutritional outcomes in this population.

Methods: A literature review of studies providing data on the outcomes of utilisation of blended diets for children with SNI was performed using databases MEDLINE, CINAHL and EMBASE. All literature in the past 30 years were included, and non-original researches were excluded. This resulted in 7 included articles to be reviewed out of the initial 877 screened citations.

Results: Blended diets were examined from four angles; nutritional intake, anthropometric measurements, psychosocial aspects of feeding, and changes in gastrointestinal symptoms. Nutritional intake had shown that a blended diet requires a higher caloric intake than formula feed, with inconsequential differences in nutritional value. Anthropometric measurements (including height, weight, and BMI) for blended diets had inconclusive results across the board. There was an improvement in symptoms of gastric distress when given a blended diet, including decreased rates of gastroesophageal reflux, emesis, and bloating. Studies on psychosocial aspects indicated a significant improvement in satisfaction and engagement, making it the preferred choice of feed amongst most caregivers.

Conclusion: Blended diets can potentially match the nutritional composition of commercial formula feeds with professional dietician input and the provision of a standardized nutritional guidelines. Combination diets may be the way forward. More studies are encouraged in the SNI cohort to actively compare formula, blended, and combination feed of varying composition based on the four aspects proposed in this review.

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MONITORING COMPLIANCE OF ANNUAL TESTING IN DIABETIC PATIENTS IN SLIGO UNIVERSITY HOSPITAL: A DEPARTMENTAL STUDY FOR 01/07/2017-31/08/2017

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Aims of this audit is to determine the compliance of annual testing in diabetic patients in Sligo University Hospital as monitoring the blood profile in patients with diabetes is very important to prevent acute and chronic complication of the disease. The patients included received an appointment in the outpatients clinic every 3 months, but only once per year their blood profile was performed. Our focus was to verify that every one of these patients are up to date with their investigations.

Methods: This is a prospective study, for a 2 months period. All the charts of the patients attending outpatient clinic during this period have been analysed to see if all the information required was available: HbA1c, coeliac screen, TFT's, LFT's, renal profile, lipids, urine.

Results: Sligo University Hospital takes care of 72 patients from Sligo and the areas around it. Out of these, 4 patients are part of the share programme with other centers, like Dublin and Galway. 44 patients attended the diabetic clinic in these 2 months (61%). HbA1c was tested for all 44 patients (100%), urine was also tested for all 44 patients (100%). Caeliac screen was performed for 29 patients (65%). TFT's were done for 37 patients (84%), LFT's were tested for 21 patients (47.7%). Renal profile was done for 27 patients (61%). Lipids performed for 25 patients (56.8%).

Conslusions: Although this audit showed a good compliance rate for HbA1c and urine testing, there is still place for improvement for the other tests, especially LFT's and lipids, with numbers less than 60%.

1-NICE guidelines- Diagnosis and management of type 1 diabetes in children, young people and adults, https://www.nice.org.uk/guidance/cg15 2- HSE guidelines- Diabetes type 1, https://www.hse.ie/eng/health/az/d/diabetes,-type-1/

AUDIT OF CURRENT PRACTICE IN THE MANAGEMENT OF ACUTE GASTROENTERITIS IN SLIGO UNIVERSITY HOSPITAL

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Aims: Acute gastroenteritis continues to be a common paediatric presentation and our aim is to assess the current practice of management of children admitted with gastroenteritis.

Methods: 1. Retrospective chart review of children with gastroenteritis analysing age, documentation of level of hydration and appropriateness thereof, method of rehydration in the ED and appropriateness thereof and admission rate. Additional data was obtained to evaluate the sending of stool samples, the use of anti-emetics and antibiotics as well as the measurement of blood glucose levels. 2. Survey of medical and nursing staff from the paediatric and emergency departments on the management of gastroenteritis. 3. Comparison of results obtained from the above to similar data collected in 2012.

Results: 17 charts were included for analysis. The mean age was 3.1 years. 65% of cases had a level of dehydration documented and 81% were classified appropriately. 71% of patients had a documented oral fluid trial, an improvement from the 44% in 2012. 29% patients were given iv fluids inappropriately. Admission rate 12%. Only one patient had stool sample sent. 29% received a sublingual anti-emetic and blood glucose was measured in 41% of the cases. 48 staff members answered our questionnaire. 60% identified correctly signs and symptoms compared to 25% in 2012. 45% identified the most appropriate route of rehydration. 46% could give advice on a suitable oral rehydration solution, compared to 18% in 2012.

Conclusions: We noticed that there are no hospital guidelines for the management of gastroenteritis. Consequently variations in the consistency of patient management exist, which does not seem to conform to the international guidelines reviewed, so our recommendation would be to develop a hospital clinical practice guideline to support staff treating gastroenteritis and to develop an intravenous fluid administration guidelines to ensure safe and appropriate iv fluid management.

A CASE OF POTT'S PUFFY TUMOUR IN AN 11-YEAR-OLD BOY

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Case Report:

CH presented to Cavan General Hospital with a one day history of erythema and swelling over the right eye with associated fever, lethargy and pain. CH was unable to open the eye fully. There was normal visual acuity and eye movements. Diplopia was not a feature. The initial differential was periorbital cellulitis.

CT brain showed no evidence of intracranial pathology or bone lesions. Pansinusitis was shown. WBC was 22.9 (neutrophils of 20.6) with a CRP of 110.

CH was started on antibiotics as per local guidelines (ceftriaxone and clindamycin).

On day 4 of admission CH developed diplopia on lateral gaze. Repeat CT showed increased inflammatory changes of the maxillary and frontal sinuses, infraorbital soft tissue density under the superior orbital wall and proptosis suggestive of orbital cellulitis. It also showed subcutaneous soft tissue swelling suggestive of abscess formation. MRSA was grown on a nasal swab with Vancomycin started to cover.

MRI brain showed soft tissue oedema around the right orbit, osteomyelitis of the frontal bone, as well as small subperiosteal collections extending into the right medial orbit and an intracranial subperiosteal collection. These findings confirmed a diagnosis of Pott's Puffy tumour.

Treatment involved adding metronidazole and rifampicin. Functional endoscopic sinus surgery with drainage of the orbital abscess was performed in Temple Street Children's Hospital. IV antibiotics were stopped one month from presentation and CH was discharged home on PO antibiotics for a further 3 weeks having made an excellent recovery.

Pott's Puffy tumour was first described by Dr Perival Pott in 1760. It is characterised by osteomyelitis of the frontal bone with associated subperiosteal abscess. This presents as a fluctuant, tender swelling over the forehead. It is a life-threatening complication of infectious sinusitis.

Complications include intracranial extension with epidural abscess, subdural empyema, meningitis and cerebral abscess. Treatment is through surgical drainage and prolonged IV antibiotics.

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DEFINING CEREBRAL PALSY- CONSENSUS OR CONTROVERSY?

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Introduction: Cerebral Palsy (CP) is a well-recognised neurodevelopmental disorder beginning in early childhood and persisting through life [1]. CP registries from developed countries suggest its prevalence is 2–3 per 1000 live births [2]. It has consistently proven a challenge to define CP, as documented by the numerous attempts[1]. This review aimed to investigate both the consensus and controversy surrounding the definition of CP and to investigate which definition is currently the mostly widely accepted and applied.

Methods: A literature search was conducted using EMBASE, CINAHL and SCOPUS. The search was limited to articles available in English and peer-reviewed journals. Articles were screened in four stages by two independent reviewers and the Preferred Reporting Items for Systematic Reviews (PRISMA) was used.

Results: 375 articles were identified, and 41 full-text articles were included in the study. The literature outlined numerous definitions of CP. Most recently, a new consensus definition was proposed by Rosenbaum et al. which emerged from an international workshop on the definition and classification of CP, held in Maryland, July 2004[1]. However, while widely accepted, this definition still faces criticism[3].

Conclusions: Overall, there has been a marked evolution from the first definition of CP by Little to the current consensus definition of Rosenbaum et al[1.4]. Use of epidemiological data collected by CP registers[5,6] and modern diagnostic techniques[7-10] has paved the way for adjustments of previously scrutinised definitions. However, there is a need for a worldwide consensus to maintain a high accuracy rate of diagnosis and management.

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EVALUATION OF INPATIENT CLINICAL DOCUMENTATION PRACTICES - A QUALITY IMPROVEMENT PROJECT

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Aims: Good clinical documentation practices are integral to the delivery of safe, high-quality healthcare. The Health Service Executive (HSE) has published clear standards for clinical documentation.[1] We aim to assess clinical documentation practices in a tertiary level teaching hospital and evaluate the impact of simple interventions on improving compliance with HSE guidelines.

Methods: Baseline audit data was collected from retrospective review of all inpatient clinical record entries (n=126) in a 24-hour period. Simple interventions including feedback of initial audit data to healthcare record users and educational posters were implemented. Audit process was repeated 2-weeks post-intervention to assess for improvement (n=127).

Results: Baseline audit data demonstrated variable compliance with HSE standard criteria. Full compliance with date of entry, use of black ink and inclusion of author signature was observed. Adequate patient identification details were present in 75% of entries, with author's printed name and identification number documented in 73% and 76% respectively. Poorer compliance with time of entry (55%), job title (61%) and bleep number (67%) was noted.

Re-audit post-intervention demonstrated improved documentation of time of entry (64%), patient identification details (81%), job title (67%) and printed name (84%). Full compliance with date of entry, use of black ink and author signature was again observed. Decreased compliance with identification number (71%) was noted on re-audit.

Only 25% of clinical records pre-intervention fulfilled all HSE criteria, compared with 33% post-intervention. Interestingly, rates differed by healthcare user with Allied Health Professionals demonstrating higher rates of full compliance (46%), compared with Consultants/NCHDs (33%) in the post-intervention group.

Conclusions: This data highlights poor baseline compliance with HSE guidelines, with significant variability in adherence to individual criteria. We have shown that simple interventions can improve compliance, in the short-term. Further studies with longer follow-up period are necessary to evaluate sustained impact of simple interventions, with perhaps a more targeted approach by user group.

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Poster No: 26
Sub-Specialty

HNF4A MUTATIONS CAUSING PERSISTENT HYPERINSULINAEMIC HYPOGLYCAEMIA - A CASE SERIES

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Aim: Loss of function mutations of the human hepatocyte nuclear factor 4 alpha (HNF4A) gene cause maturity onset diabetes of the young (MODY1) which may present with hyperinsulinaemic hypoglycaemia in the early neonatal period. We report five cases.

Methods: A retrospective chart review of all cases of hyperinsulinism with identified HNF4A mutations diagnosed in Children's Health Ireland at Temple Street since 2004.

Results: All patients presented with hyperinsulinaemic hypoglycaemia in the early neonatal period (median age 1 day) and required high glucose infusion rates at presentation (median of 12.7mg/kg/min), with one patient additionally requiring glucagon infusion to maintain normoglycaemia. All patients were diazoxide-responsive, with an initial median dose requirement of 7.5mg/kg/day. Three patients successfully discontinued diazoxide therapy at a median age of 8.42 years (range 4.5–13 years), while two younger cases (19 weeks and 2.58 years) have an ongoing diazoxide requirement. To date, no patients have developed clinically evident MODY. Two cases arose from de novo mutations while three had an affected parent and all were heterozygous.

Conclusions: This case series expands upon a previous publication[2] and provides further insight into the clinical spectrum of HNF4A hyperinsulinaemic hypoglycaemia. This data highlights the importance of inclusion of HNF4A in genetic panels for the investigation of cases of persistent hypoglycaemic hyperinsulinism. Identification of HNF4A mutations informs early management in relation to diazoxide-responsiveness, prognosis and the need for follow-up screening for MODY diabetes in young adulthood.

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AN AUDIT OF INITIAL PAEDIATRIC ASTHMA OUTPATIENT CONSULTATIONS AND DEVELOPMENT OF A PAEDIATRIC ASTHMA NEW PATIENT PRO-FORMA

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Aims: This audit looked at the consistency of recordkeeping within the Paediatric Asthma Assessment Clinic in Portiuncula Hospital, Co. Galway. The aim was to determine if essential criteria were recorded within the patient notes from these consultations. From this, a Pro-forma was designed in line with the British Thoracic Society/Scottish Intercollegiate Guidelines Network criteria for the diagnosis of Asthma to ensure consistency within consultations.

Methods: All new Paediatric patients attending the Outpatients Asthma clinic from January - June 2019 were investigated (total 18 patients).

Criteria recorded:

1. If the Probability of the Asthma diagnosis was recorded i.e. High, Intermediate, Low
2. Home/Environmental Risk Factors discussed and recorded
3. Lung functions tests carried out and recorded during the consultation
4. If the treatment plan was recorded using the BTS/SIGN Step-wise management process
5. If an Asthma Action plan was recorded as given and discussed
6. If the consultation included the Asthma nurse specialist

Results: The results showed that no patients were identified correctly as having a high, intermediate or low probability of Asthma. 61% discussed potential triggers for Asthma symptoms. 95% of patients did not undergo any objective lung function tests during the consultation. There was no evidence of any patient's treatment plan defined using the step-wise approach by BTS/SIGN. 11% of patients brought home an Asthma action plan and 77% of consultations included the asthma nurse.

Conclusions: The concept of adjustment and review of symptoms can only be achieved if the initial assessment criteria are accurate for the patient. Without this, there is no basis to move forward and the future outcome of the condition is halted. This research shows that in many cases, the basis of the diagnosis, education and treatment are not adequate.

1. British Thoracic Society/Scottish Intercollegiate Guidelines Network (SIGN), 2019. British guideline on the management of asthma (SIGN publication no. 158)

BRUGADA SYNDROME IN A TODDLER: A CASE STUDY

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Background and Aims

Brugada Syndrome is an autosomal dominant genetic disorder characterised by an increased risk of ventricular tachyarrhythmias or sudden cardiac death and characteristic ECG findings in a structurally normal heart[1]. BS involves inherited mutations in cardiac sodium channel genes[2] SCN5A/10A. It is infrequently seen in paediatric populations and usually detected during genetic screening after a first-degree relative suffers an event. Arrhythmic events are rare even in children with genetically confirmed BS although they may be precipitated by fever, where they can be mistaken for febrile seizures[3]

Our aim is to report the clinical, biochemical and molecular findings in a female toddler with a family history of BS in whom cascade screening identified her as having the Familial mutation and who also had abnormal EEG findings following several seizure-like events.

Method

Clinical presentation, neurological examination, cardiovascular and neuroradiological findings, natural history including management and outcome to date, in addition to genotype of a 3-year-old girl with genetically confirmed BS is described.

A review of the current available literature on BS in children was undertaken.

Results

A 3-year-old girl underwent cascade genetic testing for BS and tested positive for the SCN5A mutation after her father suffered an out of hospital cardiac arrest aged 31. At time of testing she was completely asymptomatic with a normal ECG. She subsequently experienced two episodes of unresponsiveness with atonia and staring. Subsequent EEG demonstrated “Slowing and dysthymic activity in the right temporal region”. MRI Brain was unremarkable. An Implantable Loop Recorder was inserted in September 2019. A provisional diagnosis of epilepsy was made and Levetiracetam started prophylactically.

Conclusion

BS in children is underrepresented in the literature but raises a host of diagnostic and management challenges when suspicion is raised. This case brings to light the diagnostic conundrum of distinguishing between syncopal and epileptic events in a paediatric population.

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CLINICAL PROFILE OF INFECTIOUS MONONUCLEOSIS IN CHILDREN.

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Aims:

1. The epidemiology of infectious mononucleosis in children in Lithuania.

2. To review literature regarding clinical features, laboratory findings, modes of diagnostics and methods of treatment of infectious mononucleosis.

3. Complications of infectious mononucleosis.

Methods:

PubdMed and UptoDate, were utilized. Search terms including “Infectious Mononucleosis”, “EBV”, and “Kissing disease” were used. These were then put into an advanced search engine to include other relevant terms such as “Children”, and “Peculiarities”. After extensive review, a number of articles were deemed appropriate. The final step was to assess the relevance of the topic to the specific objective by thoroughly analyzing.

Results:

From the 23 selected articles: 18 were used to evaluate complications, 3 were used to evaluate atypical cases of IM and 2 were used to represent different diagnostic methods and future in vaccine development.

From the 1507 reported cases of IM in Lithuania over the previous 5 years, the highest incidence was among the 0-9 years old age group (73.5%) and the rest were in the 10-17 years age group (26.5%) (CI 95%, $P<0.05$). Among all cases 828 were male (54.94%), while the remaining 679 were female (45.06%) (M: F 1,22:1).

Conclusion:

1. The incidence of IM in Lithuania is higher among boys than girls (54.94% of boys) particularly among the younger children (< 9 yrs. old).

2. The most common clinical features in IM were sore throat, lymphadenopathy and fatigue. Diagnosis was confirmed with a combination of serological tests. Majority of IM cases were managed conservatively. Further research into vaccine development may serve as the future in decreasing complications associated with EBV.

3. Literature showed that complications could be further categorized according to their disease course (acute and chronic). Certain complications revealed a possible pathophysiological development leading from EBV (e.g. splenic rupture, encephalitis, pharyngitis, respiratory obstruction, Burkitt lymphoma). Atypical cases of EBV and hemolytic uremic syndrome and Henoch-Schonlein purpura have been reported.

BROADENING OUR UNDERSTANDING OF THE DEVELOPMENTAL TRAJECTORY IN THOSE BORN WITH NEONATAL ENCEPHALOPATHY

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Aims

The core aim of the project is to better understand the psychological and neurodevelopmental trajectory of those born with Neonatal Encephalopathy (NE). Current literature suggests that the use of standardised assessment tools alone yields a limited understanding of the complex developmental profile of those who have suffered from NE (Brito et al., 2019; Conway et al., 2018; Murray et al., 2016). The study of parent-infant interaction in the context of neurodevelopmental difficulties, such as NE yields important insight into the behavioural repertoires of these children, and into how they elicit certain responses from parents. Thus, the aim of the current study is to characterise parent-child interactions in the context of NE, with the goal of furthering our understanding of the predictors of developmental outcomes.

Methods

Developmental assessment will be conducted with infants born with NE from the age of one up to 4 years of age. The study protocol involves standardised assessment, questionnaire battery and observation of parent-infant play interactions. The Bayley Scales of Infant and Toddler Development (Bayley, 2006) will be administered to assess outcomes in a range of developmental domains. A set of questionnaires exploring infant and parent characteristics will be completed. Parents will also be video-recorded in naturalistic free and structured play with their child. Behaviours of interest will be identified and analysed.

Conclusions

The quality of parent-infant interaction has been found to mediate the relation between neonatal risk and child development (Poehlmann & Fiese, 2001). Due to the biological impact of NE during the neonatal period and beyond, patterns of parent and infant behaviour may be disrupted within the context of NE with a subsequent impact on development. Analysis of these patterns can contextualise the findings from standardised tools and inform family based, early intervention.

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PERCEPTIONS OF FEEDING IN A POPULATION OF CHILDREN ATTENDING A DEVELOPMENTAL OUTPATIENT CLINIC

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Background:

This study involved asking parents attending a developmental paediatric outpatient clinic to complete the Behavioural Paediatric Feeding Assessment (BPFA) survey, which was developed by Dr. Crist, in order to identify the presence /extent of feeding issues in this patient group. The BPFA survey is a comprehensive and widely used measure of behavioural and skill-based feeding problems. It is a reliable and valid measure that effectively distinguishes children with clinically significant feeding problems in normative and clinical populations[1].

Aim & Objectives:

To identify the extent of feeding issues in this overall patient group.

To identify the extent of feeding issues specifically in patients with a diagnosis of ASD attending this clinic.

Methods/Intervention:

Parents of children attending a developmental clinic were surveyed using the BPFA survey consisting of 35 items. The first 25 items focus on child behaviour and the last 10 which focus on parental feelings about strategies for addressing mealtime and feeding problems. Surveys were distributed in paper form, and then collected for analysis using Excel.

Results/Findings:

50 parents of children attending a developmental paediatric outpatient clinic completed the BPFA survey. Full analysis of the results is pending but of note 36% of parents reported frustration when feeding their child and that their child sometimes chokes or gags at meal times, while 40% report that meals take longer than 20 minutes.

Conclusions:

In the tertiary hospital used for this study, there is no dedicated dietetic service for this patient group. It is fair to say that this represents an area in which parents feel their needs are not being met. We hope that this study will be useful in informing future service planning.

1. Crist, W. & Napier-Phillips, A. (2001) 'Mealtime behaviors of young children: A comparison of normative and clinical data.' Journal of Developmental and Behavioral Pediatrics, 22 pp.279-286

NOT JUST A COUGH

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This is a case report of an 8-week old baby, with confirmed pertussis PCR, re-admitted due to parental concern regarding cough and possible starring episodes. On admission he was noted to desaturate with coughing spells and was struggling to breastfeed. He was commenced on NG feeds of EBM. Overnight he had a generalised tonic-clonic seizure, requiring buccal midazolam. IV access was obtained, revealing an initial Na-119. He was given 2ml/kg 2.7% NaCl and intubated and transferred to PICU for management of electrolytes. He was also noted to be hypertensive prior to admission and during admission to PICU. His electrolytes slowly corrected over 48hours and anti-hypertensives were required. Diagnosis was of hyponatraemia due to SIADH secondary to pertussis. He has since made a full recovery.

Since the outbreak in 2012, incidence of pertussis has remained high in the general population and especially in young children and infants. In this instance, the child's mother did not receive the pertussis vaccine in pregnancy. There are 2 previously documented cases of seizures secondary to SIADH with pertussis pneumonia (2003, 1986). Main differential is pertussis encephalopathy; however, in this case MRI brain was normal and diagnosis of SIADH confirmed on laboratory testing. There is limited literature regarding the association between pertussis and SIADH. This case is a reminder of the importance of electrolyte monitoring in children with pertussis, especially those with neurological signs.

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Poster No: 33
General Paediatrics

THE PSYCHOLOGICAL IMPACT OF CHILDHOOD HOMELESSNESS - A LITERATURE REVIEW

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Background and Aims: In August 2019, 3848 children in Ireland were faced with Emergency Homelessness.[1] In recent years, lack of affordable housing, unemployment and shortage of rental properties have been the primary driving factors of the relatively new and potentially devastating phenomenon of familial homelessness in our society.[1]

Our aim was to evaluate current knowledge on the psychological impact of Paediatric homelessness.

Methods: Using the PRISMA model, a review of the currently available literature regarding the psychological impact of homelessness on children was performed with the concept examined under two different categories- transgenerational and new-onset homelessness. Hidden homelessness is also explored.

Results: Our literature review revealed several psychological morbidities which were unique to children. (1) Developmental and Academic delay - homeless children on average score poorly in vocabulary and have numerous developmental issues.[4,6] (2) Violence and Aggression - homeless children were found to express increased levels of anger when compared to their non-homeless counterparts[2,7] (3) Anxiety - described by the children as highest during the time of dispersion than when settled in a stable home.[5] (4). Depression - children living in unstable housing situations were more likely to have a poorer outlook on life and a lower mood than children in stable households.[3]

Conclusion: Our study highlights violence, aggression and poor academic learning outcomes as some of the key findings in our review of the sequelae of childhood homelessness worldwide. There are however no studies published in the medical literature on Paediatric homelessness within the context of the Irish population. We anticipate this review to be the first chapter in a multi-part series investigation to evaluate the psychological morbidity of Paediatric homelessness within the Irish Society.

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COLLAGENOPATHY AT THE NEUROLOGY CLINIC: A CASE SERIES

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Aims: The collagenopathies are a diverse group of heritable connective tissue disorders caused by defects of collagen biosynthesis.[1] They may present elusively if the clinician is not on the "look out", and patients may experience severe complications if left undiagnosed. We describe three, of a series of collagenopathies, presenting to the neurology clinic for suspected neurological disorder.

Results:

Case 1: An 18-month-old male with hypotonia and gross motor delay referred for investigation of underlying neuromuscular disorder. He had a herniotomy/orchidopexy at 16 months, with sutures noted to be "difficult to insert". Examination revealed macrocephaly with frontal bossing, low set ears, translucent, soft, doughy skin with easy bruising, acrogeric peripheries, vertical talus and pectus excavatum. There was significant joint hypermobility but no muscle weakness. Ehlers Danlos syndrome was suspected. Exome sequencing revealed a *de novo* dominant mutation in *COL3A1* verifying grave diagnosis of *vascular* Ehlers-Danlos.[2]

Case 2: A five-year-old male was referred for investigation of staring episodes which were non-epileptic. He was noted however, to have a background of mild sensorineural hearing loss and high myopia. Family history was significant for retinal detachment (Mum). Examination revealed joint hypermobility. Genetic testing of both revealed a splice mutation in *COL2A1* confirming a diagnosis of Stickler syndrome.[3]

Case 3: Female full-term infant born to consanguineous Traveller parents noted at five months to have right-sided hemiplegia. MRI brain revealed left-sided porencephaly. Male sibling, born full-term had antenatal ventricular dilatation, MRI revealed right-sided porencephaly. Due to familial porencephaly, molecular analysis of *COL4A1* was investigated (negative), but *COL4A2* analysis revealed a missense mutation, predicted pathogenic.

Conclusion: Collagenopathies affect multiple organ systems with phenotypic variability and can therefore present to a wide variety of specialities, leading to significant diagnostic challenges. The importance of early recognition enables parental and genetic counselling, and significantly aids supportive treatment and anticipatory care.[1]

1. Jobling R, D'Souza R, Baker N, Lara-Corrales I, Mendoza-Londono R, Dupuis L, Savarirayan R, Ala-Kokko L, Kannu P. The collagenopathies: review of clinical phenotypes and molecular correlations. Current rheumatology reports. 2014 Jan 1;16(1):394. 2. Malfait F, Francomano C, Byers P, et al. 2017. The 2017 international classification of the Ehlers–Danlos syndromes. Am J Med Genet Part C Semin Med Genet 175C:8–26. 3. Robin NH, Moran RT, Warman M, Ala-Kokko L. Stickler syndrome.In: Pagon RA, Adam MP, Bird TD, et al. editors. GeneReviews™ [Internet]. Seattle (WA): University of Washington, Seattle; 1993–2013. 2000 June 9 [updated 2017 Mar 16]. http://www.ncbi.nlm.nih.gov/books/NBK1302/

A RARE CASE OF PTERYGOID ABSCESS IN A 14 YEAR CHILD PRESENTING WITH TRISMUS

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Aim

We describe the case of an abscess in the left lateral pterygoid muscle, one of the muscles of mastication, in a 14-year-old boy who presented to the Paediatric Emergency Department with acute onset trismus.

Methods

A retrospective chart review was performed. All blood tests and imaging were reviewed using iLAB and NIMIS PACS respectively.

Results

A 14-year-old boy presented to ED with acute onset trismus. Clinical examination revealed an enlarged left submandibular lymph node with associated tenderness. Differentials included infectious and malignant aetiologies. Blood tests revealed a CRP of 14, WBC count of 12.28 with a mild neutrophilia of 8.09. Remaining bloods were essentially normal including normal LDH, uric acid, coagulation profile, ESR and negative monospot screen. Orthopantomogram (OPG) xray was normal. Maxillo-facial review was not convincing for significant pathology in the setting of normal inflammatory markers, normal imaging and an otherwise well child who was persistently afebrile. His trismus, however, did not improve after 48 hours triple antibiotics intravenously. Nasoendoscopy was unremarkable and subsequent CT evaluation revealed a 1.5cm abscess of the left lateral pterygoid muscle. He underwent urgent incision and drainage with postoperative free drainage. Owing to his significant trismus, he required awake fiber-optic nasal intubation. 2 cc of fluid was drained and culture revealed *Rothia mucilanginosus*, *Strep oralis*, *Strep mitis* and *Abiotrophia defectiva*. He received broad spectrum antibiotic coverage for 14 days.

Conclusion

This case highlights the challenges in diagnosing deep neck abscesses in a patient with significant symptoms in the setting of normal inflammatory markers.

A REVIEW OF NEONATAL ADMISSIONS, WITHIN THE FIRST 7 DAYS OF LIFE, TO THE PAEDIATRICS WARD AT UHL

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Aim

We aim to review the admissions of neonates within 7 days of life to our Paediatrics ward over a 7 month period (January – October 2019). We specifically wish to review the reason for admissions to our hospital which is located at a separate site to our maternity hospital in Limerick City.

Method

We used our Integrated Patient Management System (IPMS) to identify admissions of all neonates aged 7 days or younger to our Paediatrics ward in UHL, who were born in the University Maternity Hospital Limerick, between January and October of 2019. We retrieved the associated discharge summaries (paper or electronic) for these babies to identify the reason for admission.

Methods

49 neonates, aged 7 days or under, were admitted to UHL between the specified time periods. 31 were male and 18 were female. Jaundice was the indication for admission in a majority of cases. Specifically, it represented 30 (61.22%) of cases with 24 of these patients requiring phototherapy. 3 (6.12%) were admitted with concerns regarding sepsis, 7 (14.28%) neonates were admitted with feeding issues and 2 (4.08%) were admitted with vomiting. The remainder of cases were due to individual cases of irritability, choking/aspiration, torticollis, jitteriness, an infected umbilicus and a confirmed HSV positive contact requiring appropriate work up, each representing 2.04% of admissions.

Conclusion

Jaundice is the most common reason for admission of neonates to UHL with a significant proportion requiring phototherapy. There is also a significant proportion of admissions for feeding issues. The figures highlight the resource requirements and utilisation between the two sites.

PAEDIATRIC ORAL FOOD CHALLENGE SERVICE IN MIDLAND REGIONAL HOSPITAL PORTLAOISE (MRHP)- A RETROSPECTIVE REVIEW OF THE SERVICE

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Oral food challenges are the gold standard in diagnosing food allergy[3]. The primary aim of the food challenge is to prove or disprove a patient is allergic to a particular food. Research has shown that only 50% of food challenges in patients thought to have food reactions are positive; thus, it is vital to identify the correct population[3].

A regular food challenge service was set up by the PART in June 2018, performing weekly food challenges in the paediatric population. We have conducted 75 oral food challenges from June 2018 to June 2019. Our criteria for a food challenge is based on the patient's history of either a previous likely reaction, a history suggestive of a reaction, but unlikely, or a history of sensitivity and no known exposure[1]. Additional tests warranted before conducting an oral food challenge in MRHP are serum food-specific IgE and/or skin prick tests, which can indicate the presence of IgE sensitisation to specific food and can provide useful information and guidance in selecting the appropriate population for a food challenge[2].To avoid severe reactions, patients receive the food they are being challenged to in titrated doses ranging from 3mg to 3,000mg, at set intervals. Food challenges are ceased if objective symptoms are observed, or the last dose is consumed without clinical symptoms[3]. From our food challenge data, 66% have subsequently passed their oral food challenge (31 Peanut, 12 Egg, 20 Tree Nut, 5 Milk, 7 other -salmon, chicken, soy, pea, coconut, wheat).

Our aim in MRHP is to enhance the lives of children and their families living with food allergy and provide a specialist service close to their home. We aim to identify the correct cohort of allergic patients and provide them with the tools they need to live safely with food allergy. Additionally, we strive to encourage the identified non-allergic patients to enjoy a varied and wholesome diet previously restricted by possible food allergy.

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49XXXXY SYNDROME: A CASE REPORT OF A RARE GENETIC DISORDER

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Introduction

Boys with 49XXXXY have an additional three X chromosomes, giving them a total of 49 chromosomes. The most common features of 49XXXXY syndrome include: learning and speech difficulties, hypotonia, underdeveloped sex organs and infertility. The diagnosis can be made by karyotyping and CGH array.

Case Summary

A male infant born at 36 weeks' gestation by elective C/S for severe IUGR, prematurity and breech. His mother is a 26 years old Irish lady, and she had no antenatal issues. His birth weight was 2.28kg. He was admitted to NICU after delivery for mild respiratory distress. On examination he was hypotonic and had micropenis. On day of life (DOL) 2 his sodium level was found to be 147, and continued to be raised until DOL 3 with high serum osmolality. He had a cranial USS on DOL 3 which showed several sub-ependymal cysts in the frontal lobe suspicious for a congenital cyst formation. He also had a renal USS which was normal.

At 4 weeks of age he had an MRI Brain which showed connatal cysts adjacent to the frontal horns of both lateral ventricles.

He was discharged on DOL 16 from the NICU. He had 4 monthly pediatric outpatients follow up as well as physiotherapy follow up.

T.O. had recurrent chest infections requiring admission. On his admission at 8 months of age he had genetic and metabolic work up, and a diagnosis of 49XXXXY was reached. An early intervention referral was made for his persistent central/peripheral hypotonia and his developmental delay.

Conclusion

Rare diagnosis like 49XXXXY can often be missed or diagnosed late due to lack of sufficient features. Features such as underdeveloped genitalia and hypotonia should always raise concerns of underlying cause.

NEW GUIDELINES IN PREVENTION, DETECTION AND MANAGEMENT OF NEONATAL SEPSIS: AN AUDIT OF PRACTICE

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Introduction

Early onset sepsis in our institution is defined as sepsis which occurs before the first 72hours of life and late onset that which occurs after 72hours of life.
The purpose of this guideline is to guide obstetric, pediatric and midwifery/nursing staff at OLOLH on how to prevent detect and manage neonatal infection.
The guideline was implemented on the 5th November 2018.

Aim

Assess the compliance of our staff with the new guideline.

Methods

-Retrospective chart review
-All babies born in January 2019
-Inclusion criteria: - Babies admitted directly to postnatal.
-Exclusion criteria: - Babies admitted directly to NICU from delivery.
-Data collected: - Gestational age, risk factors, mode of delivery, need for IAP and whether it was given or not, appropriate observation for babies, appropriate administration of IV Abx.

Results

-Number of babies admitted directly to postnatal = 217 babies

-17% of babies admitted directly to postnatal had septic risk factors.

-50% of the risk factors were PROM.

-8 mothers out of 27 did not receive IAP despite presence of indication.

-2 babies out of 49 were not on NEWS despite presence of septic risk factors.

-2 babies received IV Antibiotics despite adequate maternal IAP.

-No positive blood cultures.

-1 baby required LP for Maternal GBS in blood culture.

-Inadequate Information in notes = 14 charts

Recommendations

-Follow the sepsis algorithm carefully.

-Adequate maternal IAP commencement in presence of septic risk factors.

-Adequate notes in baby's charts.

-Re-audit in 6 months

PERSISTING STRIDOR IN A CHILD? - ALWAYS CONSIDER NSIDER FOREIGN BODY ASPIRATION.

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Introduction

We present a case of a delayed diagnosis of foreign body aspiration in a 9 month old girl presenting with a history of stridor and cough with no history of choking where a diagnosis of croup was initially made, the child was referred to ENT services 4 months after her initial presentation because of persisting symptoms of stridor. A foreign body was identified and removed from the larynx on microlaryngobronchoscopy.

Case History

A 9-month-old girl was referred by her GP with an acute history of inspiratory stridor. The GP had an initial impression of viral croup but to possibility of foreign body aspiration.
An initial diagnosis of viral croup was made. The child was admitted overnight for observation. She was treated with steroids and oxygen supplementation. She remained stable overnight and appeared clinically improved the following day when she was discharged home. After one week she returned to her GP with symptoms of wheeze. A three day course of steroids was advised. Over the following two months the symptoms appeared to vary but never completely resolved. On the fourth attendance the GP referred her back to the Paediatric emergency service for reassessment. A differential of laryngomalacia versus possible foreign body aspiration was made. An urgent outpatient consultant Paediatrician review was arranged and the child was discharged pending this review. One month later, the child's GP referred her for an urgent ENT assessment because of persistence of her stridor. Four months after her initial presentation her ENT consultant advised a microlaryngobronchoscopy which revealed a star-shaped hard plastic sticker lodged between her vocal cords. The foreign body was removed and at her 2 weeks ENT follow up she was asymptomatic, and her mother reported that she was essentially back to normal.

References 1.T Hilliard, R Sim, M Saunders, S Langton Hewer, J Henderson; Delayed diagnosis of foreign body aspiration in children, Emerg Med J 2003;20:100–101. 2.L Gallardo, M Barragán, M Sánchez, A García; Delayed diagnosis of foreign body aspiration, Bol Med Hosp Infant Mex 2011;68(3):202-205. 3.L Colavita, C Gelli, L Pecorari, D Peroni; A history of recurrent wheezing can delay the diagnosis of foreign body aspiration in a Paediatric emergency department, BMJ Case Rep 2015. doi: 10.1136/bcr-2015-211946. 4.Itaru Iwama; Overlooked radiographic finding results in delayed diagnosis of a retained oesophageal foreign body, BMJ Case Rep 2014. doi: 10.1136/bcr-2014-204856. 5.H Rodríguez, G Cuestas, H Botto, M Nieto, A Cocciaglia, D Passali, D Gregori; Complications in children from foreign bodies in the airway, Acta Otorrinolaringo lEsp. 2016; 67:93---101.

ENTEROVIRUS MENINGITIS CASES OVER A 6 YEAR PERIOD IN A REGIONAL HOSPITAL, CAN ON-SITE FILM ARRAY IMPROVE CASE DETECTION?

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Background

Enterovirus Meningitis (EV) is the most common cause of meningitis worldwide but often clinically indistinguishable from bacterial meningitis. CSF interpretation can pose a diagnostic challenge as cytology can often be normal. The introduction of RT-PCR testing of CSF samples on-site in UHW with rapid turnaround of results approximately within 60 minutes, sensitivity and specificity both > 95%, should impact favourably on patient care. We report our enterovirus positive CSF cases in the last 6 years, looking at the impact of in-house PCR in the 3 years before and after its introduction in April 2016.

Methods

Retrospective data review of all enterovirus positive PCR's from CSF in patients 0-16 years of age in University Hospital Waterford, April 2013 to April 2019, inclusive.

Results

13 cases of EV meningitis identified by PCR, 6 cases identified via the NVRL between April 2013 and March 2016, 7 cases diagnosed in UHW using BioFire® FilmArray® ME Panel between April 2016 and April 2019. 8 patients were male. Median age 35 days [range 9 to 5459 days], 7/13 patients were under 2 months of age. 4/13 patients had a normal CSF WCC, 3/10 patients had no pleocytosis on CSF differential, 3/9 patients had normal CSF protein [reference range 0.15-0.45g/L], 7/9 patients had a CRP < 10mg/L [median 3.8mg/L, range 0 to 82mg/L], 11/13 patients had a normal serum WCC and 1/13 had lymphopenia.

Conclusion

The availability on on-site Film-array for PCR testing of CSF has lead to rapid identification of EV meningitis cases particularly when there was high clinical suspicion but often normal CSF cytology and low inflammatory markers. This is likely to lead to improved antimicrobial stewardship, saved inpatient bed-days and targeted developmental and audiology follow up.

INCREASE IN <6-YEAR-OLD EMERGENCY DEPARTMENT ATTENDANCES FOLLOWING THE INTRODUCTION OF FREE GP VISIT CARDS: ACUTE HOSPITAL EXPERIENCE

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Aims: To compare the number of patients aged <6 years attending the Emergency Department (ED) at Wexford General Hospital (WGH) before and after the introduction of free GP visit cards for under 6's. To identify reasons for attending ED and not seeking primary care.

Methods: Retrospective search of the hospital patient database to assess numbers of patients <6 years attending ED in WGH. A prospective anonymised survey of parents over 2-week period to explore reasons for attending ED.

Results: There was a year-on-year increase in attendances of children aged <6 years to WGH ED from 2014 to 2018 (3500 attendances in 2014, 4919 attendances in 2018). The largest increase (861) occurred between 2014 and 2015 - following the introduction of the under 6's free GP visit card. 54 parents completed the survey. Of these, 48 were aware of Caredoc (Out of hours GP service) and 30 had sought to attend Caredoc first. Caredoc telephone triage directed 15 to ED and 2 were unable to obtain an appointment. 25 of the 54 parents felt their child's problem did not require a visit to the ED and could have been solved with a GP appointment.

Conclusions: Free GP care to all children <18 years is proposed (Taoiseach's office, 2016); our data suggests this will lead to an increase in ED visits beyond the yearly average and will have implications on resource burden in EDs in Ireland. Improved access to out-of-hours GP services and/or better telephone triage at these services could mitigate the impact of this increased demand on Irish EDs. 25 parents did not feel an ED visit was not necessary. A potential cost saving to the hospital of €6700 can be calculated for these patients (€174,200/year) based on a cost to the HSE of €268 per ED attendance (Asthma Society report 2019).

Department of the Taoiseach, 2016. A Programme for a Partnership Government, Dublin, Ireland: Department of the Taoiseach. Asthma Society of Ireland, 2019. Easing the economic burden of asthma: Dublin, Ireland

PERIMENSTRUAL RHINITIS - A CASE REPORT.

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Aims:

Rhinitis is defined as the presence of one or more of: sneezing, anterior/posterior rhinorrhea, nasal congestion/itchiness. The most common causes of rhinitis are allergic, nonallergic and mixed[1], however there are a number of others including hormonal rhinitis seen in pregnancy[2]. There is also an identified link between menstruation and worsening of asthma symptoms, often referred to as perimenstrual asthma. Our aim is to report the case of a teenage girl who presented with symptoms and signs of perimenstrual rhinitis.

Methods:

We describe the clinical presentation, management and outcome to date of a teenage girl with rhinitis associated with menstruation.

Results:

A fourteen-year-old girl was referred to the general paediatric outpatients with a presenting complaint of excessive clear rhinorrhea occurring with menstruation. She described producing copious amounts of clear nasal discharge for approximately six days around menstruation which was regularly associated with vomiting. Her symptoms were ongoing since menarche at age eleven. She denied any other respiratory symptoms and had no history of asthma, eczema or hayfever. She had previously trialled an antihistamine at night from which she noted some improvement. She was otherwise well with no significant birth, past medical or family history. She had baseline bloods done which included Total IgE and IgE specific to dust mite, dander, grass and trees. Her Total IgE was slightly raised at 244.7 but all other investigations were normal. Following her appointment she was commenced on the oral contraceptive pill. She was seen six months later and noted a significant improvement in her symptoms since commencing the OCP.

Conclusion:

Rhinitis secondary to pregnancy has been described well in the literature, however there are only a handful of cases which describe menstrual related rhinitis. This case outlines a clear history with resolution of symptoms following regulation of the menstrual cycle with the OCP.

1. Wallace D et al. The diagnosis and management of rhinitis: An updated practice parameter. Journal of Allergy and Clinical 2. Ellegård E, Hellgren M, Torén K, Karlsson G. The Incidence of Pregnancy Rhinitis. Gynecologic and Obstetric Investigation. 2000;49(2):98-101.3.

A CASE OF SCLERAL YELLOWING SECONDARY TO TREATMENT OF CHRONIC IMMUNE THROMBOCYTOPENIA

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Aims:

Chronic immune thrombocytopenia (ITP) is a common disorder affecting children[1]. In the United States (US) Thrombopoietin Receptor Agonists such as Eltrombopag are now being used as treatment for patients with ITP[2]. Our aim is to present the case of an eight-year-old American boy visiting Ireland who presented to our Paediatric Emergency Department (PED) with a complication of Eltrombopag.

Method:

We describe the presentation, management and outcome of a boy presenting with yellowing of his sclera secondary to Eltrombopag.

Results:

An eight-year-old boy presented to the PED with a two-day history of scleral yellowing, associated with three episodes of vomiting and mild coryza. He had a history of ITP diagnosed in June 2018, for which he was taking Eltrombopag 75mg daily, and coeliac disease. He had significant autoimmune family history with maternal hypothyroidism and paternal ankylosing spondylitis. He was on holidays in Ireland from the US and was due to leave for Italy in five days. On examination the only abnormal finding was yellowing of his sclera. Our differential diagnosis included hepatitis or hepatic thrombus. Bloods showed raised platelets (686 $X10^9$/L(140-400)), abnormal coagulation, raised ALT (187U/L(10-55)) and AST (148U/L(5-34)) and marginally elevated bilirubin (9.2umol/L(2-9)). Abdominal ultrasound showed a slightly hyperechogenic liver but no evidence of thrombosis. In the absence of hyperbilirubinaemia and with a normal ultrasound we began looking at his medication. Following discussion with paediatric haematology a diagnosis of scleral discolouration secondary to Eltrombopag was made. We made contact with his primary team in the US who recommended discontinuing the Eltrombopag and organising ongoing monitoring during his trip.

Conclusion:

Eltrombopag is widely used in the US for children with ITP[2] however it is not commonly used in Ireland as of yet. Stopping his Eltrombopag put him at risk of thrombocytopenia, however this had to be balanced against his risk of thrombosis.

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AN AUDIT OF COMPLIANCE TO ISBAR HANDOVER PRINCIPLES IN A REGIONAL PAEDIATRIC CENTRE.

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Aims:

Handover is defined as transfer of professional responsibility and accountability for some or all aspects of care for a patient or group of patients to another person or professional group on a temporary or permanent basis[1]. ISBAR is an internationally recognised method of effective handover, aimed at reducing risk and errors. Our aim was to improve compliance towards 100% with the ISBAR method during 08:30 daily handover in our Paediatric Department between on call team and teams taking over care.

Methods:

The ISBAR (identify, situation, background, assessment, recommendation, readback and risk) method was used as our standard. A proforma marking each ISBAR element was used to assess handover quality. Baseline data was collected by the audit team over three consecutive handovers in June 2019. The data collected was considered using weekly PDSA cycles model for quality improvement yielding strategies and goals to improve ISBAR. A weekly summary of progress and goals for improvement were presented. Strategies to improve compliance included staff education on ISBAR, visible reminders and awards to "champions" to reinforce good practice and teamwork.

Results:

Baseline data comprised of 29 patients over 3 handovers. At baseline patient identification, situation and background were the most compliant elements of ISBAR. Two PDSA cycles were carried out, during which 39 and 30 patients were discussed respectively. The overall compliance with ISBAR improved during the PDSA cycles, particularly assessment (52% baseline to 100% Cycle 2) and recommendation (27.5% baseline to 83% Cycle 2).

Conclusion:

There was continuous improvement from baseline with PDSA cycles focusing on areas for improved compliance with ISBAR. Education of staff, development of specific goals and awarding “gold stars” to the best performers were instrumental in driving the improvement. ISBAR has been shown to reduce risk and improve patient safety[2]. Our audit and re-audits have enhanced the ISBAR process in our institution.

1.National Clinical Guidelines:2015: Communication (clinical handover) in acute and children's hospital services. Ireland: Patient safety first. 2.Müller, M., Jürgens, J., Redaèlli, M., et al. (2018). Impact of the communication and patient hand-off tool SBAR on patient safety: a systematic review. BMJ Open, 8(8), p.e022202.

SERVICE EVALUATION OF A NEW REGIONAL BASED PAEDIATRIC SPASTICITY MANAGEMENT CLINIC AT ENABLE IRELAND, UNIVERSITY HOSPITAL GALWAY.

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Introduction: The spasticity management clinic was developed to ensure children in the West of Ireland have timely access to a service in their own community which improves their comfort, mobility and quality of life. Prior to February 2019, families had to travel to Dublin to avail of this service.
AIMS: To assess parent satisfaction with the paediatric spasticity management clinic since the establishment of the service in February 2019 and to seek feedback guiding service improvement and development.

Methods: Between February and October 2019, parents of patients availing of the service, were invited to complete a pre- and post-injection questionnaire, outlining their goals for treatment. Goals were categorised using the International Classification of Functioning, Disability and Health. Parents were asked for consent to participate at their initial visit. A standardised qualitative questionnaire was also administered over the phone or in a one-to-one interview style.

Results: 16 patients, aged between 5 and 18years, had botulinum toxin administered. Of those, 62.5% reported all of their goals were “achieved” and 37.5% reported one of their goals to be “partially achieved” and the other goals “achieved”. A majority commented that they “would like to access these injections on a regular basis”, based on goals achieved and clinical outcomes. All parents reported being “very satisfied” with the service; mean satisfaction 4.8/5, using The Likert scale. The most common reason for satisfaction was ease of access and the proximity of the clinic to the patients’ homes.

Conclusion: Patients and parents have a preference for availing of a regional based service and overall, are very satisfied with the multi-disciplinary approach and clinical outcomes. Further resourcing would expand the service, thus providing local care for patients in the western region of Ireland, with benefits for patients, their families and a reduction of demands on the large tertiary centres.

National Clinical Programme for Paediatrics and Neonatology (NCPPN) and Royal College of Physicians of Ireland (RCPI) (2015) Model of care for neonatal services in Ireland. Dublin: RCPI. Available at: http://www.rcpi.
ie/content/docs/000001/2422_5_media.pdf?1427299381 World Health Organization (2001) International classification of functioning, disability and health (ICF). Available at: http://www.who.int/classifications/icf/en/

NEONATAL HEPATITIS B PROPHYLAXIS: AN AUDIT OF EARLY PROTECTION AND POST-EXPOSURE PROPHYLAXIS IN A TERTIARY NEONATAL CENTRE

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Aims: To examine the time to administration and indications for Hepatitis B immunoglobulin (HBIg) and Hepatitis B vaccine (HBV), in Hepatitis B (HepB) and/or HIV exposed infants, in a large tertiary neonatal centre. To compare these findings to local and national guidelines on preventing perinatal transmission.

Methods: A retrospective sample of infants at risk of Hepatitis B infection was studied via the electronic health record. The Maternity Infectious Diseases database was audited, January to November 2018 inclusive, to identify all HepB and/or HIV exposed infants and those with an increased risk of postnatal/household HepB exposure. Data collected included: Date and time of birth, indication for HepB prophylaxis, HBIg dose and time to administration, time to administration of HBV. Findings were compared with the local and national standards as outlined in the Preventing Perinatal Transmission Guideline.

Results: Ninety-one infants were captured during the studied time period. Indications for HepB prophylaxis were: Maternal HBcAb positive (47.3%), Maternal HBsAg positive (16.5%), Maternal HIV positive (26.4%), Paternal HepB positive (7.7%), Maternal HBeAg positive (2.2%). Eighty-nine (97.8%) infants correctly received HBV prior to discharge. Forty-three infants qualified for HBIg administration; however, in one case this was not given. Median time to administration for HBIg was 3hr9mins and for HBV was 2hr49min. Identified reasons for guideline non-adherence included maternal vaccine refusal and failure to identify at risk infants prior to discharge.

Conclusion: Our study revealed excellent adherence with best practice standards on preventing perinatal transmission of Hepatitis B. Good compliance with local and national guidelines perhaps highlights the importance of NCHD teaching of guidelines/protocols. Furthermore, it highlights the beneficial resource of a dedicated Paediatric Infectious Diseases Specialist based in a large tertiary Maternity Hospital for guidance and teaching. Following this audit, the local guideline was updated in line with National Guidelines, with respect to HBIg dosing and administration.

Preventing Perinatal Transmission: A practical guide to the antenatal and perinatal management of HIV, Hepatitis B, Hepatitis C, Herpes Simplex and Syphillis. Review date: August 2018. The Rainbow Clinic Our Lady's Children's Hospital, Crumlin, & The Children's University Hospital, Temple Street. Dublin, Ireland Shiraki K. (2000) Perinatal transmission of Hepatitis B Virus and its prevention. J Gastroenterol Hepatol 15 Supple: E11-5

Poster No: 48
General Paediatrics

FOREIGN BODY ASPIRATION: PRACTICAL CONSIDERATIONS FROM BLS TO CLINICAL EVALUATION TO TERTIARY TRANSFER

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Introduction: Foreign body aspiration is a common paediatric presentation which warrants rigid bronchoscopy, this clinical pathway is made more complicated in the peripheral setting.

Case Description: A 2-year-old boy with a background of wheeze arrived at a peripheral ED after a peanut related choking crisis, requiring back blows, chest thrusts and eventually chest compressions. On evaluation by ED the child was alert and active with saturations 94% on room air. Chest radiography was performed which was interpreted as clear. Admission for observation was requested of general paediatrics due to the absence of an on site ENT service. On medical review the child had reduced air entry bilaterally, particularly on the left with bilateral wheeze, partially responsive to bronchodilators. During consultation for transfer for rigid bronchoscopy the patient deteriorated with profound desaturations 5 hours post event requiring high flow oxygen. Transfer was significantly delayed due to absence of sufficient suitably trained anaesthetic staff. Transport by ground ambulance was completed 11 hours post event, the patient had a subsequent deterioration on the ward at 17 hours with left sided complete white out on CXR. Rigid bronchoscopy was performed with retrieval of multiple peanuts, followed by intubation and PICU admission. His PICU admission was complicated by pneumonitis and E-coli on broncho-alveolar lavage. Repeat rigid bronchoscopies were required with a tracheal bronchus anomaly present. Ventilation was required for 12 days prior to extubation and eventual discharge.

Discussion: This case highlights the importance of parent BLS education. Further highlighted is the primacy of history as an indication for rigid bronchoscopy, a clear history of a choking crisis is sufficient indication even with a normal exam/radiography [1,2,3]. Staffing, in conjunction with lack of awareness of appropriate clinical pathways and ambiguity in referral centre all combined to delay transfer.

[1] Metrangolo S, Monetti C, Meneghini L, Zadra N., Giusti F 1999. Eight years' experience with foreign-body aspiration in children: what is really important for a timely diagnosis? Journal Paediatric Surgery [2] H. Tas et al. 2017, A Diagnostic Dilemma for the Pediatrician: Radiolucent Tracheobronchial Foreign Body. Pediatrics and neonatology. [3] Paksu S et al. 2012 Foreign Body Aspiration in Childhood: Evaluation of Diagnostic Parameters Paediatric Emergency care

AN AUDIT OF OUTPATIENT LETTERS FROM THE MERCY UNIVERSITY HOSPITAL PAEDIATRIC DEPARTMENT USING THE SHEFFIELD ASSESSMENT INSTRUMENT FOR LETTERS (SAIL).

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Aims

SAIL is a performance assessment tool developed by the Sheffield Children's NHS Trust, to evaluate outpatient letters and provide feedback to doctors to help improve written communication[1]. We utilised SAIL to audit a random selection of outpatient clinic letters in our Paediatric Department.

Methods

48 patient charts were randomly selected. The SAIL tool was used to evaluate an outpatient clinic letter for each patient from 1/1/2018 to 31/12/2018. Letters were from a variety of Paediatric clinics and all grades of Paediatric doctors. The results were relayed to Consultants and NCHDs.

Results

48 outpatient letters were assessed. 18 were written by SHOs, 6 by Registrars, 1 by SpR, 22 by Consultants. There were 22 new patients and 25 were follow-up visits. 7 were of low case complexity, 32 average complexity and 8 highly complex cases. SAIL scores varied from 45% to 100%. Higher scores indicate better quality of written communication. Common areas scoring highly included documented history and follow-up plan. Areas scoring lower included detailing a problem list and documenting doses in formal units.

Conclusion

Good written communication is fundamental to cohesive, holistic patient care in the hospital setting and the community. Outpatient letter writing by NCHDs and Consultants is generally good in MUH Paediatrics Department; however, there is room for improvement. Training could be provided to enhance written communication skills. An online module in clinical letter writing skills could be included in the BST or intern training programmes. A further audit, post training or module completion, would be needed to assess potential improvements.

1. Crossley, J.G.M., Howe, A., Newble, D., Jolly, B. and Davies, H.A., 2001. Sheffield Assessment Instrument for Letters (SAIL): performance assessment using outpatient letters. Medical education, 35(12), pp.1115-1124.

Audit of the Quality of Medical Records and Adherence to ISBAR guidelines in a Paediatrics Department

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Introduction: Clinical documentation in healthcare records is a key component in ensuring safe and quality healthcare. Providing a means for communication between healthcare teams whilst being a legal document providing accountability of care. The ISBAR technique (Identification, Situation, Background, Assessment, Recommendation) is a structured method for communicating information which contributes to increased patient safety. It is formally used in the Paediatrics Department in OLOL Drogheda for inpatient medical notetaking.

Aims: To assess the quality of medical records in a Paediatric Department in OLOL Drogheda.

Methods: A retrospective chart review was conducted in OLOL Paediatrics Ward. In this audit, 50 charts from current inpatients were selected at random over a one-month period (August 2019). Inclusion criteria was based on the patients most recent admission, and most recent note documented in the file was selected to audit. HSE guidelines for Healthcare Records[1]were used to devise a checklist for the general requirements of healthcare documentation. In addition, we also devised a checklist based on HSE ISBAR[2]structure. Thus, assessing the quality of clinical documentation in our department. Descriptive statistics were then compiled from data collected.

Results: Assessment of the overall quality of the files noted that the following features were documented in the following percentages of notes:

General requirements of records:

- Patient ID: 100%
- Date: 96%
- 24hr time: 38%
- Signature: 80%
- Printed name: 58%
- Job title: 36%
- Bleep number: 64%
- IMC number: 60%

ISBAR Structure:

- 44% of notes followed the structure
- *Identification*: 100%
- *Situation:* Patient headline: 80%
- *Background:* History update:76%, Investigation results: 62%
- *Assessment:* PEWS: 64%, Exam: 78%, Impression: 76%
- *Recommendation:* Plan: 78%

Conclusion: The quality of medical records in the Paediatrics Department in OLOL Hospital must be improved. We intend to provide staff education to increase awareness, and re-audit after this.

1 National Hospitals Office, Standards and Recommended Practices for Healthcare Records Management (2011) 2 HSE, Effective and Clinical Communication ISBAR. Available at: https://www.hse.ie/eng/about/who/qid/resourcespublications/tool-box-talks/effective-clinical-communication-isbar-.pdf

AUDIT ON GROWTH MONITORING DOCUMENTATION FOR NEONATES AT BIRTH IN A NICU

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Introduction: The HSE Standards for Good Clinical Practice in Growth Monitoring outlines guidelines for measurements. At birth the examination includes weight (Kg), length (cm), and Head circumference (cm). HSE Neonatal Charts require a record of these variables at birth.

UK-WHO growth charts have been integrated into child health programmes by the HSE. Their centile curves show how healthy children are expected to grow. Growth charts should be used to plot weight, height and head circumference, beginning at birth. Growth is a sensitive indicator of health in childhood, with growth assessment forming an both an essential part of newborn examination and good clinical care.

Aims: To assess the documentation of measurement of weight, length and head circumference at birth in the HSE Neonatal Chart and plotting of these parameters in growth charts.

Methods: Retrospective review of patient charts were studied in the NICU department of OLOL Hospital. In this audit 50 charts were randomly selected from neonates born in the unit between June – July 2019. Criteria assessed was based on key features required to correctly plot growth. Data was collected on weight, length and head circumference recorded. This was assessed in terms of correct documentation on the Neonatal Chart and the UK-WHO growth chart. Descriptive statistics were used to analyse the data.

Results: Assessment of the overall quality of documentation noted the following regarding documentation of growth parameters:

Neonatal Chart:

- Head circumference: 60%
- Length: 48%
- Weight: 48%

Growth Chart:

- Head circumference: 60%
- Length: 38%
- Weight: 62%
- Date & Time of Measurement: 22%
- Patient ID label on chart: 22%
- No growth chart: 20%

Conclusion: This audit demonstrates poor compliance to Growth Plotting and measurements. Staff education and reaudit will be conducted with the aim of increasing awareness of routine measurements to document growth.

HSE (2012) HSE Training Programme for Public Health Nurses and Doctors in Child Health Screening, Surveillance and Health Promotion. Unit 6 Growth Monitoring. Available at: https://www.hse.ie/eng/health/child/growthmonitoring/trainingmanual.pdf

SOOTHER USE – SHOULD ALL BABIES HAVE A SOOTHER?

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Aims: Soothers are widely used as a means to comfort infants. However, the current literature on their benefits and associated risks is vast and conflicting. As there are no official guidelines for soother use, it can be difficult to offer advice regarding soother use from a clinical perspective. This comprehensive review examines both advantages and disadvantages as presented in literature to synthesise a clinical conclusion regarding whether all babies should have a soother.

Methods: A systematic search of the Pubmed database was conducted, using the key words 'soother', 'pacifiers' or 'pacifier'. A concurrent search on the Web of Science database was also conducted to identify any studies that may supplement the initial search. Studies with an evidence level of 3 or higher were included. Non-English studies or studies over 10 years old were excluded.

Results: Soothers have been shown across several studies to reduce SIDS by up to 50%. There is evidence that soothers aid in the prognosis of premature infants admitted to the NICU and that superior pain control has been shown with soother use when combined with oral sucrose. Soothers have been associated with breastfeeding difficulties and primary dental malformations; however, they could not be confirmed as the causative agent.

Conclusion: The life-saving benefits of soother use outweigh the potential risks associated with them, therefore, they should not be discouraged.

A PAIN IN THE NECK; A COMPLETED AUDIT IF THROAT CULTURES IN A PAEDIATRIC EMERGENCY DEPARTMENT

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Introduction

The National Institute for Clinical Excellence (NICE) published an innovation briefing on "point-of-care diagnostic testing for suspected strep A infection in sore throat" May 2018. Suggesting that use of these tests in addition to clinical scoring systems could assist in rapid decision making, reduce unnecessary antibiotic use and provide additional patient reassurance compared with throat culture.

To audit use of throat culture and rate of positive results in the paediatric Emergency Department of a secondary paediatric hospital. To raise awareness of the importance of using clinical scoring systems in assessing the need for throat culture. To identify whether the introduction of point of care testing for Group A streptococcal infection (GAS) would be feasible in this setting.

Method

ED records were used to retrospectively identify patients with acute sore throat who had a culture taken over a three-month period. This was followed by interventions in the form of education sessions and visual reminders placed in the emergency department on the modified centor criteria clinical scoring system for GAS. We then re-audited throat cultures taken over a one-month period.

Results

In the initial three-month audit period, 53 throat cultures were taken. Of these one (1.8%) was positive for GAS. Following the interventions 31 throat cultures were taken in the one-month period of which four (12.9%) were positive for GAS.

Conclusion

Throat cultures were used in the assessment of children with acute sore throat despite their limited assistance in clinical decision making in the ED setting. There was a low yield of positive throat culture results. Raised awareness of clinical scoring systems did increase the yield of positive results. Further interventions are needed to reduce the rate of negative throat cultures before the benefit of introducing rapid antigen tests can be assessed. We plan to repeat this audit and compare results in a multicentre audit.

AN UNUSUAL CASE OF LISTERIA MENINGITIS COMPLICATED BY ACUTE HYDROCEPHALUS IN AN IMMUNOCOMPETENT CHILD

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Background

To highlight an unusual case of Listeria Meningitis in a previously healthy 11-month girl with no initial clinical signs of meningitis. *Listeria Monocytogenes* is a gram-positive bacteria usually transmitted via ingestion of contaminated food. Normally it infects cohort of higher risk patients such as neonates, elderly, pregnant women and the immunocompromised. It is rarely described in immunocompetent children.

Case

We describe a routine presentation to the emergency department of a 11-month old girl with a 2 day history of fevers, vomiting and decreased oral intake. She initially improved with IV rehydration then on day 2 of admission deteriorated with ongoing fever and new irritability and lethargy. Lumbar puncture was performed and CSF microscopy demonstrated a lymphocytic meningitis and PCR and culture was positive for Listeria monocytogenes. She was treated with high dose Amoxicillin and Gentamicin.

Her clinical course was prolonged and complicated by early acute hydrocephalus and intraventricular haemorrhage requiring external ventricular drain. This is an important complication which requires early recognition to ensure a favourable outcome.

The patient recovered completely with no detectable neurological sequelae and is having ongoing developmental follow-up.

Conclusion

While uncommon, Listeria Meningitis should be considered in immunocompetent children who present with gastroenteritis symptoms who respond poorly to initial treatment and it is important to monitor closely for signs of acute hydrocephalus.

A CASE OF LEMEIRRE: NOT SO FORGOTTEN…

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Introduction

Lemeirre syndrome is an extremely rare complication of an oropharyngeal infection. The etiological agent implicated is the anaerobe, *Fusobacterium Necroforum*. This causes a suppurative thrombophlebitis of the internal jugular vein (IJV) which may result in pulmonary emboli and fatal systemic sepsis.

Background

We present a 5-month old, previously healthy infant, who was referred to the Emergency Department via her GP with mastoiditis. She presented with a two day history of high grade fever, swelling behind her left ear and associated periorbital puffiness.

Clinical examination

Her vital signs were within normal limits with the exception of a temperature of 39.6^{o}C. Apart from the obvious left post-auricular swelling, the rest of her examination was unremarkable.

Investigations supported an infective cause with a CRP of 257mg/L and a neutrophilia of 12 x 10^{9}/L. CT scan confirmed a left mastoiditis and incidentally revealed a sigmoid sinus thrombosis. Further imaging (MRI) demonstrated thrombus extension into the left IJV with fluid collections in the posterior and middle cranial fossa and associated temporal bone erosion. Imaging of her chest and abdomen showed no evidence of metastasis. Culture of the superficial abscess confirmed *Fusobacterium Necroforum.*

Management

In addition to incision and drainage, treatment was a combination of IV antibiotics (ceftriaxone, metronidazole) and anticoagulation.

Discussion

Lemeirre syndrome has certainly earned its reputation as “the forgotten disease”, affecting approximately 1 per million persons per year. It occurs mainly in the immunocompetent host within the second and third decades of life, making it unusual in a 5 month old infant such as our patient. The most common initial symptom is a sore throat which can be associated with various conditions which are often benign. It is therefore imperative that clinicians adopt a high index of suspicion as successful treatment is based on prompt recognition and initiation of appropriate antibiotics.

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OEIS: A CASE REPORT OF A RARE COMPLEX MALFORMATION SYNDROME

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Background and Aims

This case study involves a rare but well – described condition called OEIS complex. This malformation complex is characterised by the following features: Omphalocoele, cloacal extrophy, imperforate anus and spinal defects. This is a rare congenital malformation present in approx. 1/200,000 pregnancies and 1/400,000 live births.

Our aims are to describe a case of this rare malformation complex in a female infant, to highlight the importance of early detection and involvement of a multi-disciplinary team and to illustrate the parental perspective.

Methods:

We review the diagnosis, pre-birth planning and considerations, presentation, management, treatment options and outcome to date. We present, with parental consent, clinical photographs, radiological images and results of laboratory and genetic investigations.

We discuss a summary of the parental perspective of their experience dealing with the diagnosis and care of an infant with this rare complex condition.

A review of the current available literature on this topic was also undertaken

Results:

Now four months of age, our patient was born by spontaneous delivery at 35 weeks gestation weighing 2.45kg in a tertiary level maternity hospital following antenatal diagnosis of OEIS syndrome in a regional centre. She is the third child to healthy non-consanguineous Irish Caucasian parents without any family medical history of note. Examination revealed omphalocele, cloaca extrophy, imperforate anus, 2 myelomeningoceles, bilateral talipes and left hip subluxation. Routine blood work was normal. Genetic testing confirmed the antenatal XX karyotype.

Antenatal images involved in diagnosis and post- delivery images displaying the signs of the condition are illustrated. Echocardiogram, cranial and renal ultrasounds were normal. Surgery timelines and considerations into each correction- including weight goals and expected outcome for each, prognosis to date and impact of on OEIS on our patient's parents and family are discussed.

Conclusions:

We add our Irish case to the literature on this malformation syndrome

INCIDENCE AND MANAGEMENT OF DIABETIC KETOACIDOSIS IN CHILDREN WITH TYPE 1 DIABETES MELLITUS

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Aims:

Analyse incidence of diabetic ketoacidosis (DKA) over time in children with type 1 diabetes mellitus (T1DM).

Audit compliance with 2015 NICE DKA management guidelines in children with T1DM.

Methods:

Audit of children <16 years of age with T1DM in single centre. DKA admissions were identified from electronic records. Data was collected from 01/01/2011 - 31/12/2012 and 01/01/2017 - 31/12/18. Pearson Chi-Square test compared DKA incidence between periods. Local DKA guidelines were updated 07/2016. Audit data was therefore collected between 01/08/2016 - 31/12/2018. DKA management was evaluated by 6 standards: DKA diagnosis; dehydration estimation; fluid calculation; intravenous fluid type; insulin dose and timing.

Results:

In total 612 children were included, 283 in 2011/12 and 329 in 2017/18. There were 81 and 73 hospital admissions in 2011/12 and 2017/18, respectively. DKA admissions were significantly decreased from 25 (31%) in 2011/12 to 11 (15%) in 2017/18 (p=0.02). There was no difference in whether DKA admissions were at T1DM diagnosis (15 (60%) in 2011/12; 8 (73%) in 2017/18).

Between 01/08/2016 - 31/12/2018, 371 children were audited. Seventeen DKA admissions of 91 total hospital admissions (19%) were included. Newly diagnosed T1DM accounted for 33 (36%) admissions, hypo- and hyperglycaemia for 17 (19%) and 24 (26%) admissions were for other reasons. DKA diagnosis was appropriate in 17/17 (100%) admissions. Estimation of dehydration was correct in 16/17 (94%) admissions. Fluid requirement calculation was accurate in 16/17 (94%) admissions. Appropriate intravenous fluids were started in 16/17 (94%) admissions. The intravenous insulin dose was correct in 16/17 (94%) admissions and was started >1 hour after starting intravenous fluids in 16/17 (94%) admissions. Overall, only 12/17 (71%) admissions were fully managed according to DKA guidelines on all standards.

Conclusions:

DKA admission incidence has significantly decreased in our hospital in 2017/18 compared to 2011/12. Compliance with DKA guidelines on management was suboptimal. Further education of healthcare professionals is required.

EVALUATING THE QUALITY OF DOCUMENTATION OF SOCIAL HISTORY IN PAEDIATRIC MEDICAL ADMISSION NOTES AT A REGIONAL PAEDIATRIC CENTRE

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Background and Aims

The psychosocial history is long established as an area of importance in medical note-taking and patient care. Our institution serves a catchment area of over 100,000 children less than 16 years of age, from very diverse backgrounds.

In-depth assessment of social history of our inpatients should aid in the establishment of better social supports and services.

Our aim was to assess the content of psychosocial history documentation in paediatric medical admission notes, highlighting areas for education and improvement, so as to identify patients living in high-risk situations, and adjust care appropriately.

Methods

This study involved concurrent analysis by two Paediatric Doctors in Training, of 75 patient charts of medical admissions, taken in even distribution from each of two Paediatric wards and examined over a three-week period during August/September 2019. Data on documentation of social history was collected using a standardized excel data collection tool and analysed.

Results

Documentation of any social history occurred in 31 of 75 charts analysed (41%). The most common areas documented were parental marital status (29/75: 38%), household constituents (19/75: 25%) and school attendance (12/75: 16%). Areas which may have important implications for disease progression, including smoking status and patient accommodation were recorded in 2/75 (2.6%) and 0/75 (0%) of charts respectively. The relationship between child and parent was assessed in 5/75 charts (6.6%), parental occupation in 2/75 (2.6%), ethnicity in 2/75 (2.6%), presence of pets in the home in 1/75 (1.3%) and parental literacy in 0/75 (0%).

Conclusion

Our study highlights significant variability in the quality of social history-taking in our department. Overall, documentation of psychosocial circumstances is extremely poor.

Research regarding the reasons for this and education amongst clinicians on the need for detailed record-taking with regard to social history- thus allowing us to tailor care to individual patients- is required.

PAEDIATRIC ASTHMA INTENSIVE CARE UNIT ADMISSIONS: A TEN-YEAR RETROSPECTIVE STUDY IN A REGIONAL HOSPITAL IN IRELAND

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Asthma is an extremely common paediatric condition presenting to emergency departments[1]. Severe episodes are potentially life threatening; requiring effective, rapid treatment[2].

Aims:

To assess: (1) Adherence to treatment guidelines (2) Discharge asthma action plans (3) How many had a recent hospital stay or out-patient appointment (within 6 months prior).

Methods:

A retrospective analysis of asthma admission rates to ICU over a ten-year period (2008-2018). Data was extracted from charts and analysed using SPSS 24.

Results:

Total 44 patients (>2 years of age); mean age 5.61 years (2-14). The mean length of ICU stay was 1.09 days. Nine cases were first diagnosis. One patient transferred to a tertiary centre. 3 were born premature.

Pre-hospital treatment with inhalers/nebulizers and oral steroids were given in 36 and 15 patients. In hospital, all received Salbutamol and Ipratropium bromide nebulizers and 37 intravenous hydrocortisone. 30 received Magnesium sulphate and 10 Aminophylline. 32 received antibiotics. Only 1 required intubation.

Nine had a recent hospital admission or out-patient visit. Compliance to prior treatment and parental smoking was not documented in 64% and 86%. 32 had evidence of a discharge asthma action plan. 11 had a naso-pharyngeal swab; 3 positive.

Ten patients under 2 years of age were diagnosed with asthma (data collected separately).

Conclusion:

Most cases were not first diagnosis; implying potential for improvement of management. Only 9 patients had recent hospital contact in the 6 months prior; highlighting potential for improvement at primary care level. Asthma action plans are a preventative strategy that must be used for every patient.

In 2011/12, a specific asthma out-patient clinic started; however, no decrease noted in ICU admissions since this began. In our regional hospital, if magnesium sulphate is required, the patient must be admitted to ICU; this varies between hospitals depending on ability to administer intravenous medications. Further pitfalls to asthma management include poor documentation of compliance and parental smoking.

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INTERIM REPORT OF AN AUDIT OF ADHERENCE TO SEVERE COMBINED IMMNUNODEFICIENCY (SCID) SCREENING IN AN ACUTE GENERAL HOSPITAL

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Aim: To assess adherence to guidelines for targeted SCID screening of infants from the Irish Travelling Community in Wexford General Hospital (WGH).

Methods: Infants eligible for SCID screening were identified through a record of samples sent for the Beutler test (high-risk galactosaemia screen). The period audited was January 2017-July 2019. Retrospective review of electronic laboratory results of these infants was performed. No identifying data were retained apart from in cases where additional clinical action was required. Doctors in the unit were surveyed to assess knowledge of SCID screening guidelines.

Results: 108 eligible infants were born during the study period. 26/108 (24%) did not have an FBC (full blood count) performed in the neonatal period. 16/108 (14.8%) had no FBC performed since birth. Of 82 infants that had FBC performed in the neonatal period, 70 (85%) were normal and 12 (14.6%) had mild lymphopaenia (lymphocyte count 1.5-2.7x10^9/L). Of the latter group, 9 had repeat normal FBC and 3 did not have repeat FBC. No infants with significant lymphopaenia (lymphocyte count <1.5x10^9/L) were identified.

Ten doctors completed the survey. All were aware of the screening but only 3 felt very confident in interpreting FBC results to identify SCID. 3 doctors did not select the correct next step to take when significant lymphopaenia is identified on FBC.

Conclusions: We are failing to adhere to guidelines on SCID screening in WGH. This may be partly due to poor knowledge among staff. A report has been submitted to the risk office. It suggests a new section is inserted on infant care record to prompt the doctor to check an FBC has been performed in eligible patients. Patients are being contacted and a dedicated catch-up phlebotomy clinic is set up. Audit will be extended to cover full period of screening (2016-present).

NO WAY OUT

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Introduction: Haematometrocolpos (blood-filled distended uterus and vagina) is rare and commonly secondary to an imperforate hymen[1]; infrequently, vaginal atresia accounts for this outlet obstruction.

Presentation: An eleven-year-old girl presented with a five-month history of cyclical lower abdominal pain with a known left duplex kidney. She was pre-menarchal with Tanner Stage 4 breast development. After multiple presentations and the development of a suprapubic mass, a pelvic ultrasound (US) and magnetic resonance imaging (MRI) revealed haematometrocolpos, bilateral heamatosalpinx and lower vaginal atresia with absence of a vaginal opening. Initial management included analgesia and menstrual suppression with high dose oestrogen whilst awaiting reconstructive surgery. Six weeks later she represented with increasing pain, abdominal distension and obstructive symptoms: urinary dribbling and constipation. Repeat US revealed a markedly distended fluid filled upper vagina, cervix and uterus with left hydronephrosis. 1250 mls of menstrual blood was drained under general anaesthetic. Perioperatively she developed urosepsis. Postoperatively she developed tachypnoea, tachycardia and pleuritic chest pain. A computed tomography pulmonary angiogram (CTPA) revealed a subsegmental pulmonary wedge infarction. She made a full recovery and was discharged on anticoagulation and progesterone only menstrual suppression.

Discussion: This case describes a very rare, but potentially serious cause of abdominal pain in paediatrics. In pubertal females, cyclical abdominal pain without menstruation should raise concerns of reproductive tract abnormalities[2]. Appropriate examination and radiological investigations are crucial to enable early treatment and prevent complications. Lower vaginal agenesis results from disrupted embrolyogical development of the sinovaginal bulbs and vaginal plate3. This may be associated with renal anomalies[4]. Surgical repair is indicated to optimise sexual and reproductive function[3]. Pulmonary embolisms is very rare in paediatrics, and usually associated with risk factors[5], which here included sepsis, dehydration, immobilisation and high dose oestrogen. High clinical suspicion resulted in an early diagnosis and management without further complications.

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AN EVALUATION OF UNIVERSAL HIP ULTRASOUND SCREENING FOR DEVELOPMENTAL DYSPLASIA OF THE HIP AND THE POTENTIAL APPLICATION TO IRELAND.

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Aims:

To review different screening paradigms for developmental dysplasia of the hip (DDH) and evaluate the applicability and feasibility of introducing a universal hip ultrasound screening programme to Ireland.

Methods:

A review of the literature was performed using key search terms: “developmental dysplasia hip”, “DDH”, “screening”, and “ultrasound”. Searches were performed in MEDLINE and Cochrane Database of Systematic Reviews (CDSR), supplemented by cross-referencing and contacting expert informants. Cost estimations were formed through extrapolation of NHS costing data and application to Irish CSO population data.

Results:

DDH screening aids early diagnosis and intervention, which reduces the risk of complication. In Ireland, screening involves clinical examination in the neonatal period using the Barlow and Ortolani tests, followed by repeat assessment at six weeks. Secondary hip ultrasound is selectively indicated for at-risk infants (positive Barlow or Ortolani, first degree family history of DDH and/or breech presentation beyond 36 weeks gestation). The effectiveness of clinical examination for hip instability is dependent on examiner experience, yet significant variability exists at present between Irish neonatal centres. Universal, first-line hip ultrasound screening, as employed in Austria, Switzerland and Germany, reduces operative intervention for DDH yet increases non-surgical treatment without a statistically significant reduction in late presentations. Universal scanning is cost-effective when costs of subsequent interventions are taken into account. For Ireland, this group estimates the cost of operating the current DDH screening programme at €2.5m per annum. The estimated cost of operating a proposed universal hip ultrasound programme is €6.8m per annum.

Conclusions:

In view of the reduction in both operative intervention and cost of DDH management, the introduction of universal ultrasound screening in Ireland merits consideration with a detailed cost analysis.

ELECTROENCEPHALOGRAMS IN THE ASSESSMENT OF PSYCHOTIC-LIKE EXPERIENCES IN UNDER 18s – A GOOD USE OF OUR RESOURCES?

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Background: Currently there is an absence of a gold standard of medical investigation for psychotic-like experiences (PLE) in children and adolescents, in particular to guide when an electroencephalogram (EEG) is indicated. In this context we have conducted an audit of EEG referrals over the last 2.5 years.

Objectives/Aims: The objective of this audit was to evaluate current practice and medical assessment associated with the referral of children and adolescents presenting with PLE for EEG.

Methods: A retrospective review of referrals to the EEG department was conducted on patients who underwent EEG during the time frame 1/1/17 to 30/6/19. Those under 18 years of age where referrals containing the following terms were included: psychosis, disturbance of visual, auditory and tactile perception, behavioral change and catatonia. A total of 2536 EEG referrals were reviewed and 21 patients were suitable for inclusion.

Results: 21 children and adolescents were referred for EEG for investigation of PLE. 19 experienced multiple features from the above categories. 13 exhibited behavioral change. 13 experienced auditory perceptual abnormalities, 11 experienced visual perceptual abnormalities and 2 experienced tactile hallucinations. Three exhibited signs of catatonia. Two presented with auditory hallucinations alone. EEG was performed as an outpatient on 12 patients, 10 of which were referred by community child and adolescent psychiatry and two were referred for medical investigation by adolescent inpatient units. 8 were inpatients of CHI @Tallaght and one was an inpatient of the adult psychiatric unit, Tallaght. Brain imaging was performed on 16 patients with normal results in all cases. Cerebrospinal fluid analysis and anti-voltage gated potassium channel and N-methyl-D-aspartate receptor antibodies were requested on 3. Of the 21 cases, 10 EEGs were normal, 3 were of uncertain clinical significance, 5 showed non epileptiform abnormalities (EEG slowing). One test could not be completed in a child with ASD. Only 2 cases showed epileptiform abnormalities (spike-wave activity).

Discussion: Of the cases referred, EEG provided limited diagnostic information. No abnormalities were found to suggest temporal lobe epilepsy. Most cases presented no abnormality or changes of uncertain clinical significance, which may contribute to further diagnostic confusion and potentiate medical over-investigation. Furthermore, epileptiform abnormalities found may represent false positive findings (e.g. occipital spikes). Guidelines for referrals for EEGs in this population would be beneficial and warrants review.

REPETITIVE PALATAL MYOCLONUS - A CASE STUDY

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Background and Aims

Repetitive palatal myoclonus (RPM) may be essential or symptomatic, differentials for the latter being tumour or demyelination.

Our aim is to report with patient and parental consent a case of this extremely rare neurological phenomenon in a teenage girl.

Methods

We describe the clinical presentation, examination findings with clinical photographs and video recordings, investigations, treatment and outcome to date in our adolescent patient.

A review of the currently available literature on RPM was also undertaken.

Results

A previously healthy 14-year old girl of Bangladeshi origin presented with a two-week history of progressively worsening objective tinnitus. She had been in Bangladesh in recent months and on return had been treated for tonsillitis. On examination, she was noted to have involuntary movement of the uvula and soft palate with an associated auditory click. The movement was repetitive and rhythmic. [See Video] The patient was unable to voluntarily suppress the movement. There was a self-reported increase in intensity of the objective tinnitus resulting in a disturbance of sleep, but speech and swallow remained unaffected. Magnetic resonance imaging of the brain was normal, as was electroencephalography. A normal ECG, chest X-ray, and the absence of cardiac symptoms and signs excluded the likelihood of severe aortic regurgitation which can result in a pulsation of uvula during systole [Muller's Sign], which may mimic our examination findings. Essential palatal myoclonus (EPM) was considered as a diagnosis of exclusion. Treatment is controversial with case reports describing anticonvulant and anxiolytic use in adult patients. An injection of botulinum toxin into the tensor veli palatini muscle has been described in the literature in some cases and results in remarkable improvement in symptoms. Our patient has been referred for botulinum toxin injection as her treatment plan.

Conclusion

We add our Paediatric case study on this unusual neurological condition to the literature.

HYPERTONIC SALAINE-AN OPTION FOR TREATMENT OF BRONCHIOLITIS-A LITERATURE REVIEW

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Bronchiolitis is the most common lower respiratory tract infection in children up to 2 years of age. It is the most common during winter months and is the leading cause of hospitalization of children worldwide. Bronchiolitis is caused by Respiratory syncytial virus(RSV) predominantly but there are other pathogens including adenovirus,rhino/entero virus etc that can cause bronchiolitis. The current management is minimal handling,oxygen supplementation and NG feeding/intravenous fluids. Many studies and randomized control trials(RCTs) have been conducted and many are still going on for many years to find best medical solutions for the cure of bronchiolitis. Nebulized hypertonic saline(HS) is one of them which has been under many trials.

The aim of this study was to review the current knowledge of HS regarding its efficacy, safety, clinical effects and tolerance in children. We performed a systematic search of the databases PubMed and Cochrane review for last 5 years.

Method: Thirteen clinical studies and Randomized control trials were included which were conducted on children treated with hypertonic saline with bronchiolitis hospitalised in an emergency department and general wards from year 2014-2019. We included 8 RCTs ,1 meta-analysis, 1 Cochrane ,1 decision analysis and 2 Trial sequential analysis. We excluded the studies/trials included in Cochrane review 2017 and Meta-analysis 2018. Of the 13 studies “Length of stay(LOS)” was the main parameter of 8 studies. The “cost effectiveness” of the use of HS was measured in 2 trials and “Admission rates” was main parameter in 2 trials. One trial used “fit for discharge” as main parameter of the study.

Results: The Length of stay was decreased in 4 studies and there was no difference in the other 4 studies.

Conclusion: Hypertonic saline is safe to use in children with bronchiolitis but there is no extra benefit in reducing the disease severity, admission rate or length of stay.

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"SCFN" (SUBCUTANEOUS FAT NECROSIS) OF THE NEWBORN - AN IMPORTANT DIFFERENTIAL DIAGNOSIS IN EVALUATION FOR CAUSES OF BRUISE-LIKE SKIN LEISONS IN A NEONATE

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Introduction:

SCFN of the newborn is an uncommon, self-limiting panniculitis characterized by development of erythematous, firm, indurated plaques or nodules commonly over the extremities, back, buttocks and thighs, mostly occurring in term or post term babies within the first few weeks after birth. Hypercalcaemia is a life threatening complication which requires monitoring for several months. Perinatal mechanical stress, tissue hypoxia, and hypothermia may contribute to the pathogenesis. Exact incidence is unknown with a nearly equal male to female ratio.

Case Background:

We report a neonate presenting to Mercy University Hospital Cork by parents at 10 days of life from home with a sudden onset bruise-like linear lesion 6cm long and 1.5 cm wide extending from the midline of upper part of the back to the right axilla. There was no history of trauma and baby was born via NVD. The skin lesion was red/purple in colour, non-tender and palpable on examination. Clinical examination was otherwise unremarkable. As the marks on the back were suggestive of bruising, the baby underwent detailed Non Accidental Injury (NAI) investigations and social services assessment. Coagulation studies and FBC were normal. MRI brain reported subdural hematoma and suspected skull fracture, making NAI a strong consideration. Ophthalmology assessment and skeletal survey were normal. CT Skull was advised and this excluded skull fracture in favor of vermian skull bones. The origin of the subdural hematoma was then deemed uncertain but reported to be likely associated with vaginal delivery. Dermatology consultation confirmed the clinical diagnosis of SCFN of newborn.

Conclusion:

SCFN is a rare but important condition to consider in young infants who present with unexplained bruise-like lesions which require thorough investigation and consideration of possible NAI. Dermatology opinion was very helpful and should be sought if there is uncertainty about differential diagnosis.

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RE-INTERPRETING THE APPROPRIATE GROWTH HORMONE RESPONSE TO HYPOGLYCAEMIA

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Aims: 'Critical samples' consist of assessment of an individual's metabolic and endocrine status during a hypoglycaemia episode to evaluate for a pathological contributor towards aetiology of the episode. Growth hormone (GH) level is part of this work up to assess likelihood of GH deficiency. The aim of this study was to identify if the preset cut off value for growth hormone "7 microgram/Litre" during hypoglycaemia is appropriate and how likely values below this are to be indicative of growth hormone deficiency.

Methods: The study population consisted of paediatric patients aged up to 16 years old who had critical samples sent during hypoglycaemia over a 12 month period from 1st Jan 2018 until 30th Dec 2018 inclusive at University Hospital Limerick. Retrospective review from a prospectively collected database of glucose and GH levels as well as other growth parameters.

Results: Forty blood samples were collected during the study period during hypoglycaemia. One sample was insufficient to process GH. Growth Hormone results were categorized into to 5 subgroups i.e. < 1 mcg/L, 1-2.9 mcg/L, 3-4.9 mcg/L, 5-6.9 mcg/L and > 7 mcg/L.

Only three (7.6 %) patients exhibited a "normal" GH response to hypoglycaemia of >7 mcg/L and thirty-six patients (92%) had suboptimal GH response. Data was skewed to the right with median GH reading of 3.19 mcg/L. The available data on the other parameters i.e. Insulin-like Growth Factor (IGF)-1 levels, Growth Velocity/Height centiles and Growth hormone stimulation test was limited but normal.

Conclusion: No patient had documented GH deficiency or loss of height centiles, despite only 7.6% (3/39) having "adequate" GH response during hypoglycaemia. These data suggest that the optimal level for GH during hypoglycaemia should be re-evaluated in larger prospective studies, to reduce unnecessary evaluation for GH deficiency with attendant anxiety and cost generated therein.

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CREATING A CULTURE OF PATIENT SAFETY: A QUALITY IMPROVEMENT PROJECT

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Aims

Patient safety culture involves an organization-wide commitment to providing safe care. In such organizations, the interests of both patients and health care providers are protected when a harmful incident, a no harm incident or a near miss event occurs. Such events are analyzed to support and educate staff to prevent similar events in the future. (1) Current systems in place in Children's Health Ireland (CHI) at Crumlin to report a harmful incident, a no harm incident or a near miss are underutilized by medical staff. In 2018 in CHI at Crumlin, 4.27% of total incident reports were reported by medical staff. The majority of the reports were for clinical and medication related incidents. The aim of this project was to evaluate the current patient safety culture among medical staff at our hospital.

Methods

A specifically designed questionnaire was distributed to doctors currently working in CHI at Crumlin. (2) The survey was completed by all grades of medical staff. Data was compiled and analyzed using Excel.

Results

60% of participants reported that when errors happened, they are sometimes discussed to prevent them from happening again. 33% of participants reported that they are rarely encouraged by colleagues to report concerns. 75% of participants reported that they do not know the proper reporting procedures. 40% of participants reported that when a mistake is caught and corrected before reaching the patient, it is rarely reported. 58% of participants reported that they have not reported any patient safety events in the last 12 months.

Conclusions

The results of this survey highlight the need to improve the culture of patient safety among medical staff. Training and guidance are needed to support medical teams in providing the safest possible care to patients. (3) Future work should focus on training and educating medical staff on hospital incident report procedures.

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A CASE OF ISCHAEMIC STROKE IN A TWELVE-YEAR-OLD BOY WITH COSTELLO SYNDROME

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Aims

Ischaemic stroke is less common in children with annual incidence rates ranging from 0.6-7.9/100,000 children per year. Common risk factors include cardiac abnormalities, vasculopathies, and infection (1). Costello syndrome is a rare disorder (350 cases reported worldwide) affecting multiple organ systems. Characteristic features include: failure to thrive, developmental delay, coarse facial features, and cardiac abnormalities (2). We present a case of stroke in a 12-year-old-boy with Costello Syndrome and hypertrophic cardiomyopathy.

Method

A retrospective review of the medical record was performed. From each medical record, data on clinic history, examination findings, investigations performed and length of stay were extracted.

Results

The patient was a 12-year-old boy, who presented to the emergency department with a one week history of increasing tone and weakness of his right arm and leg on a background of Costello syndrome and hypertrophic cardiomyopathy. Examination findings showed increased tone in all four limbs increased in the right arm compared to the left, which was held in fixed flexion. Upper/lower limb reflexes were present on the left and difficult to illicit on the right.

CT Brain with contrast showed new low attenuation areas involving the left basal ganglia and parietal lobe. The impression following this was a likely left basal ganglia/parietal lobe stroke that had occurred 10-14 days previously. He was then started on low dose aspirin and baclofen. Further investigations to find an aetiology (including CT Angiography, ECHO, Thrombophilia and Coagulation screens) were all normal.

Nine months post stroke he still has severe right sided hypertonia which has worsened pre-existing contractures and is unable to weight bear. He most recently underwent upper/lower limb botox injections/tendon releases and is awaiting a bed in the National Rehabilitation Hospital.

Conclusion

Although relatively uncommon, stroke occurs in the paediatric population causing significant morbidity and mortality. Children with underlying cardiac disorders, arteriopathy, and infection are particularly at risk(3).

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FOLK MEDICINE AND FOLK HEALING IN IRELAND

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Introduction and Aims

There is a deep connection in Ireland with 'the cure' for health problems, beliefs passed down, often by word of mouth, from generation to generation as part of a perpetual folk tradition. Ailments treated by folk healers in Ireland through the medium of charms and faith healing include colic, warts, epilepsy, ringworm and shingles. Healing abilities are often said to be inherited through means including a man being the seventh son of a seventh son or a woman marrying a man of the same surname and to whom she is otherwise unrelated.

Religious healing is a strong entity in the culturally catholic Irish Traveller Community.

Little is known about the folk healing practices of Ireland's Romani people.

Most believers in folk healing also go to physicians for medical care. It is imperative that healthcare professionals be aware of folk healing traditions in their area of practice.

Our aim in this study was to review the literature currently available on the use of 'folk healing' and 'folk medicine' in modern Irish society and in particular in relation to child health care.

Methods

A literature review pertaining to folk medicine in Ireland was conducted. Entries from medical, cultural and anthropological sources were considered.

Results

Nine papers fulfilled the criteria for our review. The majority of relevant papers originated in anthropological and humanities-based journals. While there are a significant number of anecdotal records referring to folk healing, there is a dearth of statistical data of these informal practices in Ireland. We noted a prevalence of narratives from rural areas in Ireland.

Conclusion

The dearth of information in relation to folk healing practices in Irish contemporary multicultural life should prompt further study by our Paediatric community into the use of folk medicine and belief in folk healing in children.

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TIME TO TREAT NEONATAL JAUNDICE IN DISCHARGED PATIENTS –A REVIEW

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Introduction:
Jaundice is a common condition in newborns and is a clinical sign of excess bilirubin. Phototherapy is the application of fluorescent lights over skin to assist in reducing bilirubin. The Department of Neonatology, UMHL and Department of Paediatrics, UHL of the University

Hospital Limerick group (UHLG) are located on split sites approximately six kilometres apart. Once discharged home from UMHL, babies cannot be readmitted. Therefore a number of neonates are transferred from care at UMHL to UHL each year to avail of phototherapy to treat excess unconjugated bilirubin.

Aims:
Our aim was to review the time taken to initiate treatment for neonatal unconjuated hyperbilirubimemaia from time of diagnosis, in patients admitted to UHL in whom the need for treatment was identified at UMHL in the aftermath of discharge.

Methods:
The study period was taken as the twelve month time frame between July 1 st 2018 and August 1 st 2019. We conducted a retrospective chart review of neonates in whom care was transferred from UMHL to UHL for phototherapy. Time of diagnosis was taken as the time of receipt of the blood sample recorded by the Laboratory; time of admission and of commencing treatment was obtained via admission records.

Results:
A total of 38 neonates were transferred from UMHL to UHL for phototherapy during our study
period. Average time to admit from time of diagnosis was 6.32 hours (0.43 - 13.76 hours). Average time to commence treatment from time of admission was 45 mins (0.08 - 2.5 hours). Average length of stay was 2.8 days (0.75 - 4.7 days).

Conclusion:
We have observed delays in commencing phototherapy in patients who have been discharged home from our Maternity Hospital and required readmission to our General Paediatric ward. A Quality Improvement project to identify the reasons for this and methods to rectify the issues is currently underway.

Adherence to Toxbase Guidelines Regarding use of N-acetylcysteine in Paracetamol Overdose

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Background

Paracetamol overdose is a relatively common presentation to Paediatric Emergency Departments (PED) and if managed incorrectly has the potential to cause significant morbidity and mortality. We audited paracetamol overdoses in our ED over a 2 year period to evaluate adherence to Toxbase guidelines on treatment with N-acetylcysteine (NAC).

Methods

A retrospective analysis was carried out using the Symphony database over a 2 year period from August 2017 to August 2019. The records of patients with a recorded diagnosis of 'paracetamol OD', 'mixed overdose', 'ingestion – accidental' & 'ingestion – deliberate' were evaluated, and those without paracetamol ingestion were excluded. Clinician electronic notes and scanned drug kardexes were analysed for required data.

Results

Over a 2 year period 22/87 (25.3%) fulfilled the criteria to receive NAC. A total of 19/87 (21.8%) patients were treated with NAC and 4/19 (21.1%) of these were found to be accidental overdoses and 15/19 (78.9%) were deliberate. Overdose amount in milligrams/kilogram was only recorded by the treating clinician in 4/19 (21.1%) patients. Toxbase guidelines were adhered to in 12/22 (54.5%) of patients. In patients where Toxbase guidelines were not adhered to 7/22 (31.8%) patients had NAC administration delayed until blood results were available. Of the delayed administrations of NAC 4/7 ingested > 150mg/kg of paracetamol greater than eight hours prior to their PED attendance and 3/7 presented after a staggered overdose. In addition, 3/22 (13.6%) patients were identified that did not receive NAC at all during their attendance despite fulfilling the criteria. 2/3 of these had an unsure time of ingestion and thus should have been treated as a staggered OD as per Toxbase, 1/3 was a staggered overdose of 50mg/kg. We identified 1/19 (5.3%) patient that did not meet the criteria for treatment with NAC but did receive the infusion, which was stopped once blood results were reported as normal.

Discussion

Adherence to Toxbase guidelines with regard to the management of paracetamol overdose is an area that often causes confusion and can be significantly improved upon in our department. Accurate documentation of ingested amount in milligrams/kilogram by the clinician and development of a departmental proforma may help to identify those patients with significant overdose and simplify who should be considered for treatment with NAC.

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ARRHYTHMOGENIC RIGHT VENTRICULAR CARDIOMYOPATHY IN A TEENAGER-A CASE STUDY

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Background and Aims

Arrhythmogenic right ventricular cardiomyopathy (ARVC) is the second most common cause of sudden cardiac death in patients under 35 years old.

Commotio cordis is ventricular fibrillation caused by a blunt, non-penetrating blow to the chest during repolarisation of the myocardium (a 10-30 millisecond window).

Our aim is to report the case of a 14-year-old boy, who was brought to our Paediatric Emergency Department (PED) by helicopter following an out-of-hospital cardiac arrest (OHCA).

Methods

We describe the presentation, management and outcome to date in our patient.

Results

During a rugby match he was struck in the chest by the ball and collapsed less than a minute later. He had no previous medical history or family history of note.

Bystander cardiopulmonary resuscitation (CPR) was immediately started by a spectator and was continued until an automated external defibrillator (AED) was brought on scene. He received a single 200J shock which achieved return of spontaneous circulation (ROSC).

On arrival to the ED he was alert, orientated and vitally stable. His ECG showed normal sinus rhythm, bedside ultrasound of his heart showed no regional wall motion abnormalities and no pericardial effusion. Chest x-ray was unremarkable. Initial blood workup showed a raised troponin. Serial data showed no changes in the ECG and a downward trend in the troponins.

He was admitted to the local Coronary Care Unit (CCU) with a working diagnosis of commotio cordis. Departmental transthoracic echo (TTE) showed mild stiffening and dilation of the right ventricle. He was transferred to a tertiary paediatric hospital the next day; there, a cardiac MRI was suggestive of arrhythmogenic right ventricular cardiomyopathy (ARVC). An implantable cardiac defibrillator (ICD) was inserted and he was commenced on bisoprolol. A genetic panel is currently pending.

Conclusion

Regardless of the underlying diagnosis, immediate high-quality CPR is essential to survival of an OHCA.

AN ABDOMINAL MASS IN A SIX YEAR OLD? HOW BEZOAR!

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Background and Aims

Trichobezoar is a rare but important cause of upper abdominal mass in paediatric patients and must be considered if there are signs of trichotillomania or trichophagia.

Our aim is to report the case of a 6-year-old girl, who was referred to the Paediatric Emergency Department (PED) by her General Practioner (GP) with an abdominal mass, the ultimate diagnosis for which was a trichobezoar.

Methods

We describe the clinical presentation, examination findings, management and outcome to date in our patient. Clinical photographs and radiological images are shown with parental consent.

A review of the currently available literature on this topic was also conducted.

Results

She presented with epigastic pain and reduced oral intake. She had no past medical history and normal neurodevelopment to date.

On arrival she appeared well, vitals were within normal limits. She had a three month history of trichotillomania with trichophagia which coincided with the birth of twins in her family. She also had a four day history of halitosis.

Abdominal examination revealed a large, non-tender, well circumscribed mass in the epigastrium, with some crepitus. Laboratory investigations were normal. An abdominal x-ray revealed a large intra-luminal mass filling most of the stomach.

She was referred to the surgical team and was subsequently transferred to a tertiary paediatric hospital the next day. She underwent a laparotomy to remove the mass which was confirmed to be a trichobezoar. She had an uneventful post-operative recovery and was discharged after five days.

During her admission child-psychiatry were consulted regarding her trichotillomania and trichophagia which were diagnosed as being secondary to anxiety. She has since been managed with play therapy and has not had any further instances of trichophagia.

Conclusion

Gastric bezoars have a reported recurrence rate of up to 20%; therefore, it is critical to treat the underlying cause of the condition.

CAROTENAEMIA IN INFANCY

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Aims

Carotenaemia is a well-documented condition but is difficult to diagnose when unfamiliar with its typical pattern and aetiology. key features that distinguishes it from jaundice are an absence of scleral icterus, in addition to palmoplantar and nasolabial fold distribution. When discovered in infancy it is typically of dietary origin, and we aim to discuss the mechanisms behind this, the treatment options available, and some of the rarer conditions associated with this phenomenon.

Methods

A 9 month old girl, with an unremarkable neonatal period, was noted to have a yellowish discolouration of her skin, primarily affecting her palms, soles, and nasolabial folds, with scleral sparing. Following a detailed discussion on feeding habits since weaning on to pureed and solid foods, it was discovered that her diet was rich in vegetables that contained high levels of carotenoids, such as carrots, sweet potatoes, and pumpkin. Further investigations revealed an elevated Beta-Carotene level of 7.73µmol/L. Alpha carotene, B12, amino acids, and organic acids were all within normal range

Results

The use of pureed and homogenized vegetables as a common feeding method has been shown to increase the bioavailability of certain carotenoids, thus increasing the possibility of developing the classical skin discolouration described. On follow up review 9 months later, following the introduction of a varied diet, our patients skin tone had returned to normal colour.

We also discuss those who have an increased susceptibility to carotenaemia as a result of conditions such as diabetes mellitus, anorexia nervosa, or hypothyroidism, and the mechanisms behind each of these.

Conclusions

Knowledge of this condition and its underlying mechanisms can be quite useful for paediatricians who regularly care for infants. As it is invariably dietary in nature, bar some exceptions, it does not require exhaustive investigations, and can typically be managed by simple advice and observation.

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AN AUDIT OF EEG REFERRALS FROM THE EMERGENCY DEPARTMENT AT CHILDREN'S HEALTH IRELAND AT CRUMLIN OVER A 6MONTH PERIOD

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Background

Approximately 5% of attendances to the Emergency Department are related to seizures. [1] Currently any child referred for an EEG from the Emergency Department are automatically referred to General Paediatrics clinic if they are not already known to be a neurology patient. These patients then go on the General Paediatrics waiting list depending on the urgency of the referral. We want to look at the current pathway for these children who attend the Emergency Department to see if there are any aspects of our practice which we may improve.

Aims

To review all children referred for EEG from the Emergency Department for a six-month period from 1st January 2018 until 30th June 2018.

To review the referral details and how this was graded using the NICE guidelines for EEG referrals.

To review the outcomes from the EEG report and follow up care of the patients

Methods

Using the EEG database, I was able to review all referrals to the EEG department from within the hospital during a six-month period 1st January to 30th June 2018. Chart review to capture follow up and treatment.

Results

Total number of EEG referrals during study dates was 293. There were 36 referrals from the Emergency Department during this time. The age of patients ranged from 6days to 15yr 9months old. Four of these patients were referred directly to neurology after their EEG as it fitted with a specific epilepsy syndrome. 10 of the Emergency Department referrals were for children admitted to the hospital.

Conclusion

8% of all EEG referrals over this 6month period were directly from the Emergency department for patients who were discharged. 46% of these were referred after their first seizure.

Armon K, Stephenson TJ, Gabriel V,et al. Determining the common medical presenting problems to an accident and emergency department. Arch Dis Child 2001;84:390-2

PARENTAL EXPERIENCES OF A POSTNATAL DIAGNOSIS OF DOWN SYNDROME IN IRELAND

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Aim

To explore parents' perceptions to the way in which the news was delivered and identify the positive and the negative aspects of the disclosure process.

Methods

Semi structured qualitative interviews were carried out with eight parents of children below the age of 4 years. The study explored the timing and setting, the type of information received, the use of social network supports and parental recommendations for future disclosures

Results

When the news was delivered the majority of the parents were satisfied. They expressed satisfaction in the manner in which the clinician communicated the news, the information they received and also how they were given time to process the information. The three parents who were dissatisfied all had a delayed diagnosis, two were told alone and they did not receive any written information. These parents reported that when they received the diagnosis of Down syndrome that they were relieved as they had feared for a worse outcome such as an acute or life limiting illness. The initial shock experienced at the time of the diagnosis meant that parents did not take in the verbal information that the doctor gave them. Parents who reported receiving written information felt it was outdated and excessive both in terms of volume and contained medical information that was not necessarily relevant to their child at that point in time. The study also highlighted parent's reliance on social media platforms as a support network. The study found that adequate emotional/psychosocial support was not routinely provided to parents both to deal with their own emotions and also in relation to their preconceived concerns for social interactions for their child with their peers.

Conclusion

It is envisaged that the findings of this study will contribute to developing a positive experience for parents receiving a postnatal diagnosis of Down syndrome.

THE DOWN SYNDROME HEALTH SURVEILLANCE CLINIC CHILDREN'S HEALTH IRELAND, TALLAGHT

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Aim

The development of multidisciplinary one stop shop annual health screening clinic for children and adolescents with Down syndrome the first of its kind in Ireland. It was envisaged that the clinic would reduce the need for multiple hospital attendances for children with Down syndrome on an annual basis and also reduce waiting times for appointments. It was also hoped that the clinic would provide a holistic service tailored to the children's medical needs and that care would be provided in a coordinated manner.

Method

The clinic was established in June 2015. There are 245 children and their families who attend the clinic and year-round support and coordination of care is available from the team to the families via the Clinical Nurse Specialist. A clinic Performa was developed within the clinic which allows standardised and consistent care to be delivered to each child at each visit.

Results

The clinic operates twice a month. Children are reviewed by the medical team and a full medical assessment is carried out along with a developmental profile. Once seen by the medical team the children then rotate through audiology and phlebotomy. Since the clinic has been established greater awareness has been created of some of the more common medical issues children with Down syndrome may experience, such as sleep apnoea and recurrent respiratory tract infections.

The establishment of the clinic has alleviated the waiting time for children to receive appointments and has also reduced waiting times when they attend the hospital.

The standardised approach for health surveillance has led to a holistic approach to the care that we provide in the authors institution or children with Down syndrome. Ongoing research within the clinic also takes place and publications have been accepted internationally.

Conclusions

The DS clinic has led to the provision of standardised care in a timely manner

RECOGNITION AND MANAGEMENT OF THE DETERIORATIN CHILD; A PRE-COURSE ASSESSMENT IN A NIGERIAN SETTING

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Introduction:

Resuscitation training is an integral part of training for healthcare professionals. Practical training enhances skill retention and develops a standardised approach to clinical assessment and emergency management. Nigeria is a low-middle income country with a high child mortality rate (under-five mortality rate of 100.2/1000). A paediatric resuscitation course previously established in Tanzania for teaching in low resource settings entitled "Paediatric Acute Illness Resuscitation Skills" (PAIRS) was first taught in Enugu, Nigeria in 2019. The attitudes and perspective of healthcare professionals in the management of sick children were not previously known in this setting.

Methods:

A pre-course questionnaire was given to over half (123/214) of the healthcare workers trained. Questions included background information on qualifications, specialty and previous resuscitation training. Using a Likert scale, participants were asked to rate their levels of experience, knowledge and confidence in recognising and managing sick children. Further questions addressed participation in teamwork and potential problem areas when dealing with sick children.

Results:

48% (59/123) were doctors and 42% (52/123) nurses. 58.5% (72/123) worked in paediatrics. 57% (70/123) previously received training in paediatric resuscitation with 55.7% (39/70) delivered by volunteer organisations. On average, 84.5% (104/123) reported positive responses for experience and knowledge in recognition of a sick child and confidence in their management. On average, 83% (102/123) reported positive responses to teamwork. Factors of most concern when dealing with a sick child were lack of diagnosis, lack of information, rapid deterioration, the inability to get help when needed and applying skills in a real-life setting.

Conclusion:

Overall, healthcare professionals self-reported being confident in the recognition and management of the deteriorating child, although concerns were reported in applying skills in real life. Understanding the baseline attitudes, experience, confidence and concerns of healthcare workers helps to ensure appropriateness of course delivery and improve skill retention and application.

BRITISH THORACIC SOCIETY NATIONAL PAEDIATRIC PNEUMONIA AUDIT

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Aims:

1. To assess adherence to British Thoracic Society (BTS) guidelines (2011) for management of Community Acquired Pneumonia (CAP) in children
2. To identify any trends over time either positive or negative

Methods:

Children over the age of 1 year old with a diagnosis of CAP that were admitted to hospital during the time period of 1st November 2016 to 31st January 2017 were included. Children under the age of 1, those seen in accident and emergency only, those admitted to intensive care unit directly and those with a diagnosis of hospital acquired pneumonia, cystic fibrosis, malignancy or Human Immunodeficiency Virus infection were excluded. A total of 29 children from the Ulster Hospital (7302 children nationally) met the inclusion criteria. Data was identified (Patient demographics, admission duration, antibiotic choice pre admission and/or during admission, severity, investigations, further management, presence of complications and whether or not follow up was organised) and extracted from the patients notes and submitted into the BTS audit tool online.

Results:

Locally, more children had inflammatory markers (93%), Chest X-Ray's (CXR, 93%), blood cultures (72%) performed in comparison to the national average. It was also found that more children received oxygen (52%), had intravenous antibiotics (IV, 72%) given, chest physiotherapy (7%) performed in comparison. Fewer children were followed up (7%). Duration of antibiotic use and rate of complications were similar to that of the national average.

Nationally, there was an overall reduction in bloods and CXR's performed, more children were prescribed oral amoxicillin as 1st line and fewer children were prescribed IV antibiotics.

Conclusion:

The results of our audit from a local and national level, can conclude that more importance should be placed on promoting oral antibiotic usage, avoid performing unnecessary blood & radiological investigations and avoiding the use of chest physiotherapy in the management of a child with CAP.

1. Community-acquired pneumonia in children:what's new? Anne Thomson and Michael Harris. doi: 10.1136/thoraxjnl-2011-200671 2. British Thoracic Society guidelines for the management of community acquired pneumonia in children: Update 2011. Thorax2011 66: ii1-ii23. doi: 10.1136/thoraxjnl-2011-200598. 3. https://www.uptodate.com/contents/pneumonia-in-children-inpatient-treatment - Community Acquired Pneumonia in Children. Accessed 15/10/2019. 5. Paediatric Anti–Microbial Guidelines South Eastern Trust (Via Microguide App). Accessed 15/10/2019.

A CLINICAL CASE REPORT: THERAPEUTIC CHALLENGES ASSOCIATED WITH THE MANAGEMENT OF ARFID IN A GENERAL PAEDIATRIC SETTING, COMPLICATED BY A CO-MORBID DIAGNOSIS OF SENSORINEURAL DEAFNESS

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Avoidant restrictive food intake disorder (ARFID) is a newly recognised eating disorder included in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (*DSM-5*). ARFID is an eating/feeding disturbance resulting in persistent failure to meet appropriate nutritional and/or energy needs which causes significant weight loss or inadequate weight gain, malnutrition, dependence on supplementation, and/or interference in psychosocial functioning. Three different subtypes of ARFID are described: individuals who seem disinterested in eating, those who have a fear of aversive symptoms or discomfort from eating such as abdominal pain, choking, or vomiting, and those who have a sensitivity to specific characteristics of the food. Body image disturbance is not associated with the illness.

We report on the case of a 12 year old girl with ARFID and co-morbid deafness who required a six month admission to a Paediatric Ward, in a General Hospital, where she was managed by a multi-disciplinary team. Medical complexities associated with her case included the acute development of hypernatremia and rapid weight loss following various trials without enteral feeding which ultimately necessitated the insertion of a Peg tube. Her case was further complicated by obvious barriers to communication which likely had an impact on the therapeutic rapport as well as the ability to engage in the recommended treatment plan.

Through review of the literature, we will discuss ARFID, it's consequences and a description of the current recommended course of treatment. We will refer to the difficulties associated with the effective management and appropriate intervention for individuals with a hearing impairment who also have a mental disorder.

EVALUATING PARENTAL KNOWLEDGE OF PAEDIATRIC BURNS FIRSTAID IN IRELAND AND THE EFFECTIVENESS OF AN EDUCATIONAL VIDEO-INTERVENTION IN RAISING THIS KNOWLEDGE

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Aim: To evaluate the knowledge of burns first aid in a cohort of Irish parents(pre-test) and to evaluate the effectiveness of an educational video intervention in improving this knowledge.

Methods: A prospective interventional study using a pre- and post-test design was utilised. An educational video based on current best practice guidelines was produced and was shown to parents waiting in Paediatric OPD after a previously validated pre-intervention questionnaire was completed. A post-intervention questionnaire was completed following the video. Questionnaires assessed demographics, previous experience and included scenarios to test parental knowledge. A convenience sample of parents aged over 18 years attending the POPD were invited to participate. Parents who were not fluent English speakers and parents of children attending the Burns OPD were excluded from the study. Data was analysed using SPSS Version 24.

Results: A total of 112 parents participated (81% female [n=91], 18% male [n=21]). Baseline knowledge of parents was found to be poor overall with the mean score being 31.9%. Post-test mean score knowledge was 92.1%. Pre- and post-test scores were analysed using paired t- test and showed a statistical significance ($t(111) = -27.8$, $p<0.001$, 95% CI). No significant difference in pre and post scores within subgroups was found.

Conclusion: The study found poor parental knowledge of burns first aid in Ireland and shows the use of an educational video was effective in raising knowledge levels. It has also identified a need for a national campaign about burns first aid.

AN AUDIT OF URINE COLLECTION TECHNIQUES IN UNIVERSITY HOSPITAL LIMERICK OF INFANTS AND CHILDREN WITH SUSPECTED URINARY TRACT INFECTIONS

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Urinary tract infection is one of the most common bacterial infections in infants and young children. Current guidelines from NICE recommend all children presenting with a fever >38 degrees to have a urine sample tested within 24 hours of presentation. Expedient collection of a urine sample and analysis of same is therefore essential to guiding clinical decision in initiation of treatment.

The clean-catch method of urine collection is currently the gold standard method as per the NICE guidelines. Obtaining urine samples, particularly from pre-continent children, is challenging and as such a number of methods are utilised. While urine bag collection is the easiest method to employ, particularly in infants, significant false positive rates have been associated with same.

Urine collection methods employed in University Hospital Limerick include both bag collection and clean catch collection.

This audit examines the current practises, and methods of urine collection in University Hospital Limerick, in both the Emergency Department and in the paediatric ward setting. Data was obtained retrospectively from paediatric records. Demographic information was obtained, including age and gender, together with presenting complaint. Method of urine collection employed was noted, as was microscopy result. The number of urine samples taken was further analysed, and number of false positive and false negative results documented.

Preliminary results demonstrate that bag collection is preferentially used in pre-continent infants and children (80%) versus clean catch samples in continent children (100%) in UHL. All infants with a positive bag sample, had a further clean catch sample performed so as to confirm diagnosis. False positives were noted in approximately 40% of those with bag samples positive for leukocytes.

As such, it is evident that while the use of urine bag sample is convenient, it is less accuration than clean catch sampling and may result in delay in initiation of treatment or inappropriate treatment of UTI.

PURLs: An easy approach to obtaining clean-catch urine from infants J Fam Pract. 2018 Mar; 67 (3): 166, 168-169 Morris L, Mounsey A Evalution of a new strategy for clean catch urine in infants Paediatrics, Sept 16, Vol 138, Issue 3 Labrosse M, Levy A, Autmizguine J, Gravel J Contamination rates of different urine collection methods for the diagnosis of urinary tract infections in young children: An observational cohort study J Paediatr Child Health 2012 Aug; 48(8; 659-664 Tosif S, Baker A, Oakley E, Donath S, Babl FE

INTRAVENOUS FLUID USE IN PAEDIATRIC INTENSIVE CARE UNIT PATIENTS

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Aims

Fluid and electrolyte therapy are important components in the care of the hospitalized child [1]. This audit was conducted to illustrate if Whangarei Base Hospital (WBH) were compliant with local and national intravenous fluid (IVF) guidelines and document electrolyte abnormalities in a paediatric intensive care unit (ICU) population.

To audit fluid management in children admitted to ICU in WBH in 2017. We aimed to audit the type of fluids given, timing of electrolyte monitoring and recorded electrolyte values.

Methods

A retrospective cohort study was performed. This included all patients, aged 0-16 years, admitted to WBH ICU from January 1st to December 31st, 2017 (n=62). This included both paediatric medical and surgical patients. The patients were identified using the ICU database.

Local fluid guidelines were used as a standard from January 1st to June 30th, 2017. The Starship Clinical Guidelines on IVF were used for cases from July 1st-December 31st, 2017.

Results

Of the 62 patients identified, 7 were excluded due to complex fluid management secondary to a diagnosis of severe diabetic ketoacidosis. Of the 55 included, 49 patients were administered IVF; 81% were prescribed IVF in keeping with guidelines. There was 100% compliance with renal function check prior to starting IVF, but 86% compliance at 24 hours. Of note, 50% (n=9) of those checked had abnormal renal function at 24 hours; 1 hyponataemic patient and 8 hypernatraemic patients. All hypernatremia cases were infants under 1 year old with a diagnosis of bronchiolitis. All had normal or low sodium before started IVF.

Conclusion

Infants with bronchiolitis are more susceptible to electrolyte imbalance while on IVF. WBH could improve compliance with electrolyte monitoring after 24 hours of IVF.

[1] Fuchs J, Adams ST, Byerley J. Current Issues in Intravenous Fluid Use in Hospitalized Children. Rev Recent Clin Trials. 2017;12(4):284-89

NOVEL SIGNS IN 17q24.2 MICRODELETION

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Aims:

Many deletions of the long arm of chromosome 17 have been reported, but deletions of chromosome band 17q24.2 are rare[1]. Such deletions have been described in patients with developmental delay, growth retardation and dysmorphic features[2]. We present a girl with a 700 kB microdeletion of 17q24.2. Her case may aid the genotype-phenotype correlation in similar cases in the future.

Methods:

To describe a case report with novel findings in a 17q24.2 microdeletion.

Results:

A 9-year-old girl presented to the Neurology team with juvenile absence epilepsy. At this point, she had diagnoses of global developmental delay, autism and learning difficulties. She was noted at this time to have hypertelorism, epicanthic folds, and bilateral divergent squint She also had bilateral CNVI palsy and bilateral intention tremor and hypertension. She was referred to the Endocrine clinic with concerns about her growth and features of adrenarche. At presentation, her initial auxology was as follow: weight: 98th centile, height 2nd centile. She subsequently developed hypothyroidism, secondary amenorrhoea, Cushingoid features (normal Cortisol/ACTH on testing), an advanced bone age and rapid weight gain. A full endocrine work-up was undertaken including genetic samples for chromosomal analysis and microarray. Array CGH analysis of DNA, discovered a 700kB microdeletion of 17q24.2 which explains her phenotypical features and medical issues. This region contains several OMIM genes including PRKCA, HELZ and CACNG5. PRCKA may account for the truncal obesity and CACNG5 may explain her seizures[1].

Conclusions:

This is a very rare collection of signs and symptoms which are consistent with the literature for 17q24.2 microdeletion [1,2]. In addition our case has an advanced bone age, hypothyroidism and secondary amenorrhoea. There are only 5-6 other cases noted in world literature. This case adds to the limited literature and will aid the diagnoses of other such cases worldwide.

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TARGETED ULTRASOUND SCREENING FOR DEVELOPMENTAL DYSPLASIA OF THE HIP IN INFANTS

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Aims: To review the nature and outcome of targeted hip ultrasound screening and to assess the implementation of the National Selective Ultrasound Screening Programme for Developmental Dysplasia of the Hip (DDH) in Infants in the University Hospital Kerry (UHK).

Methods: A retrospective review of all the infants who underwent hip ultrasound screening to detect DDH during the year 2018 in UHK was conducted. Data was collected from the National Integrated Medical Imaging System (NIMIS) and analysed on an Excel spreadsheet.

Results: Out of an annual average of 1,250 live birth, 206 infants (16.4%) underwent 243 hip ultrasound scans. A total of 181 infants (88%) were referred from the paediatric department in UHK compared to 25 infants (12%) from the community. 140 infants (68%) were referred due to a risk factor while 41 infants (20%) were referred following an abnormal hip examination. The mean age at the first hip ultrasound scan was 12 weeks with 14 infants (6.8%) had their scans within 6 weeks of birth. 173 of the initial hip ultrasound scans (84%) were normal and 35 infants (17%) needed a follow up scan. Follow up hip ultrasound scans were done after a mean of 10.7 weeks with none of them done within 4 weeks. There were 2 infants (1%) diagnosed with DDH.

Conclusion: During the 1-year period reviewed, 16.4% of the live birth infants had targeted hip ultrasound screening. Most of the referrals (88%) were from the paediatric department and around two thirds (68%) were due to a recognised risk factor. DDH was detected in 2 infants (1%). Only 6.8% of the eligible infants had their initial hip ultrasound scan within 6 weeks of birth and none had their follow up scan within 4 weeks as recommended by the National Selective Ultrasound Screening Programme for DDH.

National Selective Ultrasound Screening Programme for Developmental Dysplasia of the Hip in Infants, Implementation Pack. https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/radiologyddhimplementaionpack.pdf

COLO-CUTANEOUS FISTULA; A RARE COMPLICATION OF PERCUTANEOUS ENDOSCOPIC GASTROSTOMY TUBE INSERTION

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Background:

Children with cerebral palsy frequently encounter feeding problems. There are numerous causes in this at-risk population. Percutaneous endoscopic gastrostomy (PEG) tube insertion is often required to optimise nutrition and reduce the risk of severe gastroesophageal reflux and aspiration. Complications associated with gastrostomy tube insertion include wound infection, pneumoperitoneum and tube dislodgement. Major complications such as oesophageal perforation, gastric perforation and colo-cutaneous fistula are rare.

Case report:
A thirteen-year-old girl with a complex background history presented to the Emergency Department with recurrent episodes of coffee ground vomiting. She presented on four separate occasions over a six-month period. There was no history of pyrexia, diarrhoea, melena or sick contacts during these episodes. Her background history was significant for dystonic type cerebral palsy - GMFSC 5, epilepsy, dysphagia, PEG tube insertion two years earlier, mild scoliosis and constipation. A differential diagnosis of ulcerative oesophagitis, peptic duodenitis, coeliac disease, inflammatory bowel disease, renal stones or a mechanical PEG issue were considered. Laboratory investigations revealed: Haemoglobin 8.3, inflammatory markers, renal, liver and bone profiles all within normal limits. Stool: Viral screen and C.Difficile negative. Stool calprotectin 4001 ug/g, IgA 2.29. tTg <7. Abdominal ultrasound showed no abnormalities. She was admitted electively for OGD and colonoscopy with PEG change to mickey button while under general anaesthetic.
Outcome: A gastro-colic and colo-cutaneous fistula were identified at colonoscopy
Discussion:
Colo-cutaneous fistula is a rare iatrogenic complication associated with percutaneous endoscopic gastrostomy tube insertion [1]. It occurs when the catheter penetrates directly through the bowel and into the stomach. Patients can often remain asymptomatic for prolonged periods [2]. The fistula is usually identified only after PEG replacement where patients often develop diarrhoea from colonic tube feeding. Clinicians should always remain mindful of PEG tube complications especially in at risk populations with complex background histories and cognitive impairment.

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2. Minocha A, Rupp TH et al. Silent colo-gastrocutaneous fistula as a complication of percutaneous endoscopic gastrostomy. *Am J Gastroenterol*. 1994; 89:2243–2244

ACUTE ON CHRONIC ABDOMINAL PAIN; ACUTE PANCREATITS IN THE SETTING OF UNDIAGNOSED CROHN'S DISEASE

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Background:

Crohn's disease (CD) is an immune-mediated, transmural inflammatory disease that can affect any portion of the intestinal tract from the mouth to the anus. There are many well-known extra-intestinal manifestations and complications associated with the condition. This case report highlights a rare presentation of acute pancreatitis in the setting of undiagnosed Crohn's disease.

Case report:

A fourteen year old boy was referred for review with a three month history of tiredness, general malaise and reduced appetite. There was significant but unquantified weight loss over the preceding two months. He had generalised crampy abdominal pain which was increasing in severity. This was associated with intermittent vomiting and loose stool. The stool was foul smelling but no blood was present. He also experienced urgency, tenesmus and occasional nocturnal stooling. His vomiting became bilious the night before review. There was no family history of inflammatory bowel disease (IBD). **Impression:** History very suspicious for Crohn's disease with urgent MR Enterography, OGD and colonoscopy warranted. On admission, prior to undergoing further investigation, he developed severe epigastric pain and further bilious vomiting. The pain was localised to the epigastrium, suspicious for acute pancreatitis. Laboratory investigations were confirmatory, revealing an elevated Amylase of 1652 IU/L. A diagnosis of Crohn's disease was later confirmed on histopathology.

Discussion:

Extra-intestinal conditions associated with IBD are identified in approximately 10% of patients at presentation and are rarely reported prior to diagnosis [1]. Albeit infrequent, the spectrum of pancreatic manifestations in IBD are growing. The most frequent causes of acute pancreatitis in patients with IBD are adverse effects of drug therapies and gallstones [2]. These conditions should be considered in patients with known or suspected IBD presenting with clinical or laboratory features suggestive of hepatobiliary involvement.

References:

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2. L Ramos, D Sachar, J Torres. Inflammatory Bowel Disease and Pancreatitis: A Review. *Journal of Crohn's and Colitis*, Vol 10, Jan 2016

SHOULD CHILDREN WITH IDIOPATHIC SHORT STATURE BE TREATED WITH GROWTH HORMONE?

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Background

Idiopathic short stature (ISS) in children is a common referral to paediatric endocrinology. It is defined as height more than 2 SD below mean height for corresponding age, sex and population with no identifiable disorder.[1] The absence of a definitive diagnosis or targeted mechanism for idiopathic short stature has ensured few treatment options available to affected children. Research into recombinant growth hormone (GH) treatment has repeatedly demonstrated increased growth and increased final adult height.[2] Despite this, GH treatment remains controversial due to a lack of consensus on its effect on quality of life, therapeutic dosing and cost-benefit ratio.

Aim

To assess the current research with regard to GH treatment in children with ISS

Methods

Pubmed, Cochrane reviews and EBM reviews were used in conjunction with search terms including “idiopathic short stature” and “growth hormone”. Pubmed identified 3 meta-analysis, 9 systematic reviews and 61 randomised controlled trials (RCTs) that met the review criteria. EBM reviews identified 5 systematic reviews and 57 RCTs. High quality evidence was assessed from meta-analysis, systematic reviews and RCTs when determining research to support the clinical question.

Results

Children with ISS receiving GH for 6 months had increased growth velocity, increased short-term growth and overall increases in final height when compared to untreated controls. Irrespective of gains in stature, all children in treatment groups remained shorter than age matched peers of normal height. No study reported adverse side effects with GH treatment. Recent studies identified improved quality of life, psychosocial functioning and self-esteem reporting following GH treatment.

Conclusion

High quality evidence from RCTs and meta-analysis identified increased short-term and long-term height gains in children with ISS who received GH treatment. Further research is necessary to determine the most suitable treatment paradigm and functional treatment parameters. Quality of life variables and cost-benefit ratio analysis would provide important insights.

1. Deodati A, Cianfarani S. Impact of growth hormone therapy on adult height of children with idiopathic short stature: systematic review. BMJ. 2011;342:c7157. 2. Bryant J, Baxter L, Cave CB, Milne R. Recombinant growth hormone for idiopathic short stature in children and adolescents. Cochrane Database Syst Rev. 2007(3):CD004440.

EBV: MORE THAN MEETS THE EYE

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Background: Ebstein-Barr Virus (EBV), easily recognized when a patients present with fever, pharyngitis, and cervical adenopathy, can have more challenging cryptic presentations. Here we present a useful clinical clue that should prompt consideration of EBV infection even when more characteristic features are lacking.

Case 1: A 15 year old girl presented with 6 days of bilateral eyelid swelling, without itch, erythema or discharge. She had a pyrexia of 40C in ED, but no pharyngitis or other localising symptoms. On examination bilateral periorbital oedema and non-tender cervical adenopathy was noted. Investigations showed transaminitis and a raised CRP. She was commenced on IV antibiotics to cover for periorbital cellulitis. Cultures of throat and blood were negative. Head CT showed mild stranding of periorbital soft tissues without collection. EBV IgM and VCA IgG were positive confirming the diagnosis of acute EBV, antibiotics were discontinued. She had an uneventful recovery.

Case 2: Subsequently when an 8 year old girl presented to ED with a one week history of bilateral facial and eyelid swelling, without associated itch, erythema or discharge, despite absence of fever and pharyngitis, EBV was among the diagnostic considerations . Examination revealed bilateral periorbital oedema and non-tender cervical lymphadenopathy. She had a lymphocytosis and transaminitis. EBV IgM was strongly positive. Subsequent results confirmed EBV infection as EBV VCA IgG was positive with EBV DNA detected at 3626c/ml. She was discharged from ED and had an uneventful recovery.

Discussion: Periorbital oedema is a recognised sign of acute EBV infection, referred to as "Hoagland sign" [1], first described by Hoagland in 1952. It may easily be mistaken for periorbital cellulitis, allergic reaction, angioedema and thyroid disease. These cases highlight the importance of this sign in facilitating the correct diagnosis and management of EBV.

[1] Hoagland RJ. Infectious mononucleosis. Am J Med 1952; 13: 158-171.

CHILDHOOD OBESITY AND SLEEP: PROTOCOL FOR A SYSTEMATIC REVIEW

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Background:

Childhood obesity is associated with physical and psychosocial comorbidities including sleep disorders and disturbances. Sleep quality can impact lifestyle behaviours and body weight and as such, requires consideration as part of interventions to manage childhood obesity.

Aim:

To develop a protocol for a systematic review of scientific literature addressing sleep and childhood obesity.

Methods:

Using the PRISMA-P (1) guidelines we will undertake a systematic review to identify observational and intervention studies that examine the relationship between sleep difficulties and obesity in children.

A search strategy has been developed and conducted using MESH terms for MEDLINE, CINAHL, and PsycINFO databases to identify completed human studies of sleep related indices published in English between January 1970 and March 2018, where a child is defined as under 19 years of age and where obesity is classified as either overweight or obesity (using national growth reference cut-offs). All identified study titles were imported into Endnote and independently screened by two reviewers against inclusion/exclusion criteria (See Figure 1). A third reviewer was consulted for any uncertainties arising during the screening process. Table 1 contains criteria questions used by reviewers for screening articles.

Data will be extracted from full text studies using a standardised form to record data related to participants, interventions, comparators, outcomes and other study characteristics including study quality which will be determined using the Cochrane risk of bias tool(2). Data will be synthesised and described narratively according to study design (observational or intervention studies).

Results:

The search, conducted in March 2018, yielded 1066 references for screening. The screening and exclusion process is described in Figure 1.

Conclusion:

We anticipate that through development of a rigorous protocol and systematic procedure we will add to the knowledge in this field by reporting on the most recent scientific literature related to childhood obesity and sleep.

1. Shamseer L, Moher D, Clarke M, Ghersi D, Liberati A, Petticrew M, Shekelle P, Stewart L, PRISMA-P Group. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. BMJ. 2015 Jan 2;349(jan02 1):g7647. 2. Higgins JP, Altman DG, Gøtzsche PC, Jüni P, Moher D, Oxman AD, Savovic J, Schulz KF, Weeks L, Sterne JA. The Cochrane Collaboration's tool for assessing risk of bias in randomised trials.BMJ. 2011 Oct 18;343:d5928.

THE NATIONAL DATA REGISTER FOR CHILDREN WITH DOWN SYNDROME.

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Aims:

Ireland is thought to have amongst the highest incidence of Down syndrome (DS) in the world. Despite this there is lack of information regarding epidemiology of Down syndrome in children in Ireland. Data regarding prevalence of DS in Ireland and associated health conditions and adherence to medical management guidelines are also limited. The National Data Register was set up with the aim to address these deficits.

Methods:

A national prospective incidence study of babies born since January 2015 with DS was established following ethical approval. A parent information leaflet, consent and data collection form were approved by ethics committees and all 19 maternity hospitals agreed to participate. Following genetic confirmation and informed consent, parents of newborns were invited to enrol in the study by their clinical team who submitted a detailed clinical case form. Babies' progress will be monitored prospectively with annual questionnaires. Data will be compared with Eurocat data of reported cases of DS to measure ascertainment.

Results:

A total of 74 were enrolled on the Register. Following the introduction of GDPR and the HRR participants were re-consented to remain on the Register. Of these 44 participants: prenatal diagnosis = 23.4%; cardiovascular issues =49%; Haematological issues = 6.4%; and respiratory issues = 17% and two babies have died. Applying Eurocat data from 2014 shows an incidence of 1 in 444 live births this would give an estimated 168 babies born with DS per annum with some annual variation. The majority of babies born with DS are not currently being notified to the DS Register.

Conclusion:

The Register will advance knowledge, define National incidence of Down syndrome in Ireland. It will provide realistic and valuable data with evidence based estimates regarding occurrence, patient demographics and health which will enhance and inform the care we provide However, the DS Register needs to optimise participation.

CONVERSION DISORDER: DON'T BE MISTAKEN, DON'T BE MISLED

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Conversion disorder is the loss or alteration of motor, or sensory function in the absence of identifiable pathology. [1] It is most prevalent in the 10-15 year old age group, female: male ratio, 2:1.

We present 5 cases: all female, 11-14 years, presenting with vague symptomatology and normal investigations. 3/5 had identifiable psychological stressors. They had a combined total of 15 presentations, 9 admission episodes, 40 in-patient days and 20 radiological investigations.
1/5 was diagnosed with a treatable neurological condition.

1: EO, 11 years old, repeated presentations with generalised weakness, headache and arthralgia. Patient's father had died one year prior. Mother has fibromyalgia and functional neurological disorder.

2: RM, 14 years old, multiple episodes of collapse, with apparent unconsciousness and repeated presentations to hospital. Postulated aetiologies included neurocardiac syncope and Postural Orthostatic Tachycardia Syndrome. There followed exclusion from school and multiple medical opinions.

3: KO, 14 years old, presented following recurrent pre-syncope, collapse, and shaking episodes. Previously investigated for recurrent vomiting with no aetiology found. Psychological stressors included disabled sibling, significant mental health disorders, both parents.

4: AO, 14 years old, recurring presentations to the emergency department with stuporous state, collapse, weakness, headache, nausea. Perceived pressure to achieve academic excellence seems the psychological stressor. There followed exclusion from school for some months.

5: CM, 13 years old, repeated presentions with general malaise, arthralgia, headache and dizziness, with ataxic gait. Difficult transition to secondary school, and involvement in road collision 6 months previous noted. Objective difficulty eliciting lower limb deep tendon reflexes. Diagnostic lumbar puncture, 3rd admission, demonstrated elevated CSF protein. Subsequent development of symmetrical lower limb paraesthesia. Confirmed diagnosis, Guillain Barre syndrome, responsive to immunoglobulin therapy.

Conversion disorder is a diagnosis of exclusion and careful systematic approach should be applied, ensuring all organic causes of symptoms have being explored, before attributing symptoms to a psychogenic disorder. [2,3]

1 WHO. The ICD-10 classification of mental behaviour disorders. Geneva: World Health Organisation.1992. 2Evans JR. Pediatric Pain Letter, June 2015, Vol. 17 No. 2 3Stone J. The bare essentials: Functional symptoms in neurology. Pract Neurology 2009,9: 179-89.

ACUTE NECROTIZING ENCEPHALOPATHY: A NOT SO RARE DIAGNOSIS

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Introduction: Acute necrotizing encephalopathy of childhood (ANEC) is described as a severe but rare type of encephalopathy. Despite this, after it has been first reported two decades ago, more and more cases are emerging. It is a potentially fatal disease and carries the risk of neurodisability, affecting previously healthy infants and younger children.

Case presentation: With the intention of raising awareness towards this diagnosis we describe the unusual case of a previously healthy 11 year old Irish girl who initially presented with an overwhelming systemic inflammatory response and decreased consciousness that prompted intubation and ventilation, treatment with broad-spectrum antibiotics, steroids, vasopressors and renal function support. Two weeks prior she had a self-resolving febrile illness. Initial investigations showed very high inflammatory markers but did not reveal a source for her acute deterioration. The CT brain showed cerebral edema. She improved on the treatment described and was discharged from the pediatric intensive care unit after 11 days. On the ward, such changes like inappropriate behavior, disinhibition and significant communication difficulties were noted. Following neurological assessment and MRI brain confirming the diagnosis of acute necrotizing encephalopathy she received steroid treatment and input from speech and language therapy, occupational therapy, physiotherapy and psychology. She showed significant improvement, displaying appropriate behavior and regaining communication skills and continues to be followed up by a multidisciplinary team.

Discussion: Insufficient awareness of this disease leads to delay in diagnosis and treatment, which can negatively impact the prognosis of an already unpredictable entity. Further studies and research towards developing guidelines for diagnosing and treating this severe type of encephalopathy are of great value. Also, it is necessary that clinicians keep in mind ANEC as a differential diagnosis when confronted with clinical rapid deterioration following a febrile illness.

1.Yuya Onozawa, Toshiyuki Iwasaki, Takahiro Iizuka, Yutaka Nonoda, Taira Toki, Susumu Obata, Shinichi Munekata, Yuhsaku Kanoh. Evoked potential studies for predicting functional recovery in a case of acute necrotizing encephalopathy. Clinical Case Reports 2018; 6(5): 813– 816. 2. Mizuguchi, M., J. Abe, K. Mikkaichi, S. Noma, K. Yoshida, T. Yamanaka, et al. 1995. Acute necrotizing encephalopathy of childhood: a new syndrome presenting with multifocal, symmetric brain lesions. J. Neurol. Neurosurg. Psychiatry 58: 555– 561. 3. Mizuguchi, M. 1997. Acute necrotizing encephalopathy of childhood: a novel form of acute encephalopathy prevalent in Japan and Taiwan. Brain Dev. 19: 81–92 4. Motojima, Y. , Nagura, M. , Asano, Y. , Arakawa, H. , Takada, E. , Sakurai, Y. , Moriwaki, K. and Tamura, M. (2016), Diagnostic and prognostic factors for acute encephalopathy. Pediatrics International, 58: 1188-1192. 5. Skelton B. W., Hollingshead M. C., Sledd A. T., Phillips C. D., Castillo M. Acute necrotizing encephalopathy of childhood: typical findings in an atypical disease. Pediatric Radiology. 2008;38(7):810–813 6. Kansagra S. M., Gallentine W. B. Cytokine storm of acute necrotizing encephalopathy. Pediatric Neurology. 2011;45(6):400–402 7. Kim JH, Kim IO, Lim MK, Park MS, Choi CG, Kim HW, et al. Acute necrotizing encephalopathy in Korean infants and children: imaging findings and diverse clinical outcome. Korean J Radiol. 2004;5:171–177

WORTH THE WAIT? REVIEW OF PATIENTS REFERRED TO GENERAL PAEDIATRIC DEPARTMENT IN CHI AT CRUMLIN WHO NO LONGER REQUIRE APPOINTMENT.

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Introduction

Waiting times for children routinely referred to General Paediatrics in CHI at Crumlin has reached over 2 years 11 months from date of referral to date of triage. This project aimed to evaluate referral source information and the most common reasons for referral to General Paediatrics for those who no longer required appointments.

Methods

Data was collected retrospectively from patient referral letters that were triaged and validated by Consultant General Pediatricians from September 2017 to September 2019 in CHI at Crumlin who no longer required an appointment. Information included date of referral and triage date, referral source, reason for referral, duration of symptoms and the outcome of clinical validation process.

Results

Data on 153 referral letters were recorded. Median age at time of referral was 3.46 years (SD 4.5). Average waiting time was 1.29 years (SD 0.43 years). Source of referral included GP 75.8% (116/153), ED 15% (23/153), AMO 7.2% (11/153) and other 2% (3/153). Majority of patients were referred from Dublin 69.9% (107/153), other areas included Kildare 17.6% (27/153), Wicklow 7.2% (11/153), Wexford 2.6% (4/153) and other 2.6% (4/153). Average duration of symptoms when specified was 8 months. Top 5 reasons for referral included Failure to Thrive/GORD 17.6% (27/153), abdominal pain 14.4% (22/153), Fits/faints 11.8% (18/153), Head shape 9.2% (14/153) and headache 8.5% (13/153). Reasons why patients no longer required appointment included issue resolved 60.1%(92/153), seen by different specialty 9.8%(15/153), seen in other hospital 9.8% (15/153), seen elsewhere 6.5%(10/153), seen privately 5.9% (9/153), appointment no longer required 7.8%(12/153).

Conclusion

The review highlights the over estimation of patients on the waiting list for General Paediatric routine review and the importance of a validation process to ensure waiting lists are accurate and up to date. By implementing a Consultant validation process and screening outpatient referrals, average waiting times will decrease resulting in shortened waiting times and appropriate allocation of resources.

RETROSPECTIVE STUDY OF MRI BRAIN FOR HEADACHE IN THE ABSENCE OF "RED FLAGS" SIGNS AND SYMPTOMS

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Background: Headaches are a common and concerning symptom that frequently presents to the paediatric emergency department (1). While the vast majority of these headaches represent benign processes (viral headaches, migrainous headache and sinus headaches), there is considerable worry from both parents and emergency department practitioners that they may represent a sinister malignant process or space occupying lesion (2).

Headsmart, the UK brain tumour charity, have published guidelines on which to image children in the context of headaches that may represent a space occupying lesion(3).

Aims: To examine the yield of MRI brain requested in Temple Street Children's University Emergency Department.

Methods: MRI Brain scans ordered from TSCUH ED were examined from May 2017-May 2019. Included studies were performed for the primary presenting complaint of "Headache". Studies that were for a primary presenting complaint in the absence of headache were not included. Additionally cases which had demonstrated an abnormality prior on CT were also excluded. Case notes were reviewed retrospectively and symptoms compared to the joint RCPCH-Headsmart guidelines.

Results: 93 studies were included, 30 studies had any radiological findings. 53% demonstrated sinusitis (n=16). 3 (3.03%) scans demonstrated an intracranial mass (2 posterior fossa, 1 middle fossa tumour). All 3 of these met joint RCPCH- Headsmart guidelines for scanning for suspicion of intracranial mass clinically.The remaining studies showed Chiari/Tonsillar herniation (n=1), and other incidental findings (n=12) In total 37 studies met criteria for scanning (39.7% of total included studies, 29.4% of total MRI brains ordered from the department). The included studies made up ~44% of total MRI ordering for the department and 73.8% of MRI brains ordered in total.

Conclusions: No studies performed in the absence of meeting RCPCH-Headsmart guidelines were found to have a space-occupying lesion indicating that these guidelines represent a sensitive decision support tool for intracranial mass albeit with low specificity.

1. Trofimova A, Vey BL, Mullins ME, Wolf DS, Kadom N. Imaging of children with nontraumatic headaches. Am J Roentgenol. 2018;210(1):8–17. 2. Lewis DW, Qureshi F. Acute headache in children and adolescents presenting to the emergency department. Headache. 2000;40(3):200–3. 3. Walker D, Grundy R, Kennedy C, Collier J, Wilne S, Koller K. The Brain Pathways Guideline : A Guideline To Assist Healthcare Professionals in the Assessment of Children Who May Have a Brain Tumour. Vol. 2017. 2017.

Poster No: 97
General Paediatrics

A SERIES OF UNFORTUNATE EVENTS: A CASE OF ACUTE DISSEMINATED ENCEPHALOMYELITIS COMPLICATED BY STATUS DYSTONICUS

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Background:

Acute disseminated encephalomyelitis (ADEM) is an immune mediated demyelinating disorder of the brain and spinal cord. It is uncommon with an estimated incidence of 0.3 per 100,000 children per year. ADEM is characterised by acute onset of encephalopathy with multifocal neurological deficits and pyramidal signs. Symptoms are often preceded by a viral infection. Diagnosis is clinical with neuroimaging findings of demyelination.

Case:

A 7-year old boy presented with acute ataxia. He was lethargic, drowsy and agitated for 2 days prior to presentation with a recent hand, foot and mouth infection. On examination, he was ataxic with drooling, intention tremor and past-pointing. MRI-Brain showed extensive T2 hyper-intensities in bilateral hemispheres and thalami consistent with ADEM. He was commenced on IV methylprednisolone and a lumbar puncture was performed under general anaesthesia. After the lumbar puncture, he had three episodes of bilateral tonic extensor posturing with clonic jerking of the right hand. He was treated as status epilepticus (IV lorazepam and phenytoin), intubated and transferred to CHI at Temple Street. Reviewing the history and videos of the events, the movements were more in keeping with dystonia with an elevated creatine kinase. He was intubated for three days with dystonic movements noted when stimulated. An EEG showed a slow background with no epileptic discharges. He made an excellent recovery and was discharged on a weaning dose of prednisolone.

Discussion:

ADEM itself is uncommon. This coupled with a dystonic reaction is very uncommon. Dystonia can be challenging to recognise and should be considered as a differential diagnosis of status epilepticus. The cause in this case, is unclear, maybe the areas of demyelination in the thalami and/or secondary to anaesthetic. Undoubtedly, the sedating medications used to treat status epilepticus helped with the dystonia but if recognised earlier, a different treatment pathway could have been commenced.

AN UNUSUAL CASE OF RECURRENT PAROTID GLAND SWELLING IN A 7 YEAR OLD GIRL

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Aims

Juvenile recurrent parotitis (JRP) is an inflammatory condition of the parotid gland in the paediatric population. Patients present with recurrent pain and swelling of one or both parotid glands. (1) The condition affects children between 3 to 6 years of age and again at 10 years of age until puberty. Recurrent parotitis in the paediatric population is rare. (2) We describe a case of juvenile recurrent parotitis in a 7 year old girl who had 6 episodes of left sided parotid gland swelling over a 5 year period.

Methods

A retrospective review of the medical record was performed. Data extracted from the medical record included clinical history, examination findings, investigations performed and management.

Results

The patient was a 7 year old girl, who presented to the emergency department with a history of left sided facial swelling and pain on a background of recurrent parotitis. Examination findings were consistent with parotitis. An ultrasound of the neck confirmed the diagnosis. No duct dilatation or calculus was appreciated. Initial bloods showed normal FBC, U&E's, CRP and ASOT titre. Further investigations including immunoglobulins, vaccine titres, auto-immune antibodies, viral serology excluded immune deficiency, autoimmune conditions and viral or bacterial infection. She was treated with a course of IV antibiotics in hospital. On discharge, she had a follow-up MRI of the parotid glands. This showed enlargement of the left parotid gland compared to the right side. No focal masses or nodules were identified. She was seen by ENT in outpatients who plan to manage her conservatively.

Conclusion

We encourage paediatricians to consider JRP as a diagnostic possibility in children with recurrent parotid gland swelling. Important differentials to consider include autoimmune conditions such as Sjogren syndrome or Sarcoidosis, ductal obstruction secondary to calculi or tumours, immune deficiency and infectious causes such Mumps, EBV, CMV, Staphylococcus aureus (3).

1. Roby BB, Mattingly J, Jensen EL, Gao D, Chan KH. Treatment of Juvenile Recurrent Parotitis of Childhood: An Analysis of Effectiveness. JAMA Otolaryngol Head Neck Surg. 2014 Dec; 14(2):126-129. 2. Garavello W, Redaelli M, Galluzzi F, Pignataro L. Juvenile recurrent parotitis: A systematic review of treatment studies. Int J Pediatri Otorhinolaryngol. 2018 Sep; 112: 151-157. 3. Baszis K, Toib D, Copper M, French A, White A. Recurrent Parotitis as Presentation of Primary Paediatric Sjogren Syndrome. Paediatrics. 2012 Jan;129 (1):179-182

THE RE-EMERGENCE OF A VACCINE PREVENTABLE ILLNESS

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Aims

Measles is a vaccine-preventable illness. The virus is spread via respiratory droplets. Before the introduction of the vaccine in 1963, it is estimated that 30 million cases occurred globally each year. (1) We describe a case of Measles in a 4 year old boy who received the first dose of the MMR vaccine. The objective of this case report is two-fold – 1) to highlight the importance of measles vaccination with 2 doses of the MMR vaccine, 2) to raise awareness among paediatricians in training, who may have never seen a case.

Method

A retrospective review of the medical record was performed. Data extracted from the medical record included clinical history, examination findings, investigations performed and management.

Results

The patient was a 4 year old boy, who presented to the emergency department with a history of rash and fever. The rash was a blanching erythematous maculopapular eruption extending from head to toe, involving palms and soles. The child had symptoms of cough, coryza and conjunctivitis with purulent discharge for 4 days prior to ED presentation. On examination, there was generalized lymphadenopathy, enlarged tonsils, dry cracked lips and bulbar conjunctivitis bilaterally. Of note, there was no desquamation of the hands and feet and no Koplik spots. Initial bloods showed normal FBC, U&E's, CRP 6 mg/L (<10), monospot negative and mild transaminase elevation (AST 101 U/l, ALT 59 U/l). An extensive infectious disease work-up was performed – yielding mostly negative results. The buccal swab for Measles RNA was positive as was serum Measles IgM.

Conclusion

Measles can mimic a variety of disorders including Kawasaki's Disease, Adenovirus or Enterovirus. It is one clinicians may not be familiar with given the effectiveness of the measles vaccine. Given the resurgence of Measles globally, interventions are urgently needed to address low vaccination rates and vaccine hesitancy.

1. World Health Organization. Measles vaccines: WHO position paper, Weekly Epidemiology Record [Internet]. World Health Organization; 2017 [updated 2017 April 28; cited 2019 Oct 6]. Available from: https://www.who.int/immunization/policy/position_papers/measles/en/.

RE-AUDIT OF FIRST PRESENTATION OF SUSPECTED PAEDIATRIC EPILEPSY TO PORTIUNCULA UNIVERSITY HOSPITAL

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Aims: The aim was to establish if a proforma, created as a result of a 2017 audit in PUH, contributed to the improved assessment and documentation of first presentation of suspected epilepsy in children.
METHODS: Over a designated time period, 7 proformas were completed by Paediatric Consultants and NCHDs for a suspected first presentation of epilepsy and the results were compiled.

Results: The audit established that gaps existed in the assessment and recording of data in the patient cohort, despite the introduction of the proforma as a guide. Important information such as sequence of events, duration of seizure, frequency of seizures and provoking factors were missing in some presenting complaints. The seizure type was identified in 71.4% of cases. Epilepsy was documented in 28.6% of cases, non-epilepsy was documented in 28.6% and 42.9% were deemed as uncertain. If medications were documented, there was no evidence that side-effects had been discussed. Only one proforma had 100% completion rate documented.

Conclusions: Overall, the proforma did not markedly improve the assessment and management of this patient cohort compared with the time period covered in the initial audit. While it would have uses as an audit tool it was of no additional benefit in assessing patients. History taking is key in aiding a diagnosis of epilepsy, however, it was evident that important aspects of the history were missing in certain cases. To conclude, a new proforma with relevant and clear questions could be used as an adjunct or alternatively, as a replacement, to the standard paediatric admission proforma when there is a presentation of any seizure type to PUH.

Note: audit based on proformas only and not clinical notes

1.https://www.hse.ie/eng/services/publications/clinical-strategy-and-programmes/paediatric-neurology.pdf Published by HSE 2. Epilepsy in children and young people, NICE guidelines (QS27), published Feb 2013 3. A population audit of first clinic attendance with suspected epilepsy. Dunkley C., Albert A., Morris N., Williams J., Whitehouse W.P.; Seizure (2005) 14, 606-610 4. Audit of First Presentation of Suspected Paediatric Epilepsy to the Emergency Department. McGivern S, Treston B, Neenan, F; 2017, Dept of Paediatrics, PUH, Ballinasloe, Co Galway

COLIC AND REFLUX – IT IS NOT ALL IT SEEMS TO BE

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Pilot study of colic/reflux symptoms in bottle fed infants with tongue tie.

Infants who attended a tongue tie clinic who were bottle fed and diagnosed with tongue tie were included.

Prior to division a history was completed and examination performed and the Infant - Gastro-esophageal reflux questionnaire - revised (I-GERQ-R)[1] was completed. The tongue tie was then divided using a CO_2 laser (Luxar LX20SP). A follow up questionnaire was completed either at a follow up clinic visit or via post.

25 Infants had pre and post-division questionnaires completed. The average age was 11 weeks (0-43) and the Martinelli[2] score 11 (7-13)

The I-GERQ-R scores pre division were 17 pre-division and 11 post-division for the whole group.

In those whose pre-division I-GERQ-R score was >15 the average score was 22 pre-division and 12 post-division.

This pilot study would suggest that tongue tie could be a cause for colic and reflux symptoms in some infants and that division of tongue can improve their symptoms.

1. Leah Kleinman et al The Infant Gastroesophageal Reflux Questionnaire Revised: Development and Validation as an Evaluative Instrument Clinical Gastroenterology and Hepatology May 2006 Volume 4, Issue 5, Pages 588–596 2. Martinelli et al. Lingual frenulum protocol with scores for infants. The International journal of orofacial myology : 38. 104-12

INTRODUCTION OF A SAFETY HUDDLE IN A REGIONAL PAEDIATRIC DEPARTMENT

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Aim: To develop a culture of safety, open communication and improve recognition of the potentially deteriorating child through the implementation of a daily safety pause, "huddle" in our paediatric department. This QI project was introduced as part of RCPI SAFE collaborative which ran over a 6 month period from October 2018-May 2019.

Methods: We utilised the PDSA model for improvement to implement our huddle. We held discussion with relevant members of staff about the potential benefits to our team of introducing a "safety huddle". We developed and refined a "script" which could be followed at each huddle to ensure all relevant information was being communicated and to ensure a consistent standard for the huddle each day. We measured the success of our huddle through "Huddle Observation Tool".

Results: Our huddle was implemented in February 2019. Attendance was excellent amongst nursing and medical staff. Mean duration of 5.25 minutes. The huddle leader was clearly identified and conversations regarding PEWS, family concerns, "watchers" and high risk therapies were discussed at every huddle. The observer strongly agreed that the huddle followed clear structure, embraced a collaborative culture and gave an opportunity to identify risk and discuss plans.

With regard to our process measures we completed the SAFE Collaborative Dataset from October 2018 to June 2019. There was a reduction in unplanned ICU transfers and unplanned escalations to higher care following implementation. Feedback from team members was overwhelmingly positive. We acknowledge our numbers are small, and seasonal variation may be a confounding factor emphasising the need for ongoing data collection.

Conclusion: Our huddle has successfully become embedded as part of the safety culture in our paediatric department, and preliminary data suggests a measurable success through our systems database. We will continue to measure our huddle success through the SAFE dataset.

1) Edbrooke-Childs J, Hayes J, Sharples E, et al. Development of the Huddle Observation Tool for structured case management discussions to improve situation awareness on inpatient clinical wards BMJ Quality & Safety 2018;27:365-372. 2) Stapley, Emily et al. "Factors to consider in the introduction of huddles on clinical wards: perceptions of staff on the SAFE programme." International journal for quality in health care : journal of the International Society for Quality in Health Care 30 1 (2018): 44-49 .

A CASE OF RECURRENT MILLER FISHER SYNDROME IN A PAEDIATRIC PATIENT

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Aims: We report a case of recurrent Miller Fisher Syndrome (MFS) in a paediatric patient. MFS is a rare form of Guillain-Barré Syndrome, characterised by a triad of areflexia, ataxia and ophthalmoplegia. The majority of MFS have positive anti-GQ1B antibodies. Typically, it is a monophasic disease, and recurrence is reported infrequently in adults and paediatrics.

Methods: A 14 year old male presented with acute onset of weakness and slurred speech. He had a previous presentation with anti-GQ1B antibody positive MFS at age 6 years. Positive exam findings included bilateral ptosis, hypernasal dysarthric speech, ataxia, past-pointing, dysdiadochokinesis and reduced power in all four limbs (4/5). He had areflexia, which was longstanding. Over the initial 48 hours of admission he developed progressive ophthalmoplegia and weakness. He was intubated due to concern about evolving bulbar symptoms.

Results: MRI Brain and Spine were normal. EMG identified sub-acute sensory motor axonal neuropathy. He received two days of IVIG but had persistent ophthalmoplegia, ataxia and weakness. Following a five day course of plasmapheresis, there was improvement in symptoms. Anti-GQ1B antibody levels were positive (1:1600) confirming the diagnosis of recurrent MFS.

Conclusion: Recurrence of MFS is extremely rare, with only three paediatric cases reported to date. Latency to recurrence in these three paediatric patients ranged from 18 months to 7 years. In our case, the latency of recurrence was 8 years. In the 34 recurrent MFS cases reported in adults, latency varied between 8 weeks and 44 years. Therefore, it is important to be aware of the rare risk of recurrence of this syndrome in children and teenagers, as initiation of early treatment (IVIG and /or plasmapheresis) is beneficial.

1)Grosso S, Verrotti A, Tei M, Cornacchione S, Giannini F, Balestri P. Recurrent miller fisher syndrome in children. Pediatr Neurol 2014;50:269-71. 2)Barbato F, Di Paolantonio A, Distefano M, Mastrorosa A, Sabatelli M, Servidei S, Luigetti M. Recurrent miller fisher: a new case report and a literature review. Clin Ter. 2017 May-Jun;168(3):e208-e213. doi: 10.7417/T.2017.2008. Review. PubMed PMID: 28612899. 3)Hamaguchi T, Yamaguchi K, Komai K, et al Recurrent anti-GQ1b IgG antibody syndrome showing different phenotypes in different periods Journal of Neurology, Neurosurgery & Psychiatry 2003;74:1350.

THE DIAGNOSTIC DILEMNA OF GI DISORDERS IN CHILDREN WITH AUTISM: CASE OF NEW ONSET IBD IN A CHILD WITH AUTISM

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Background

Feeding disorders and gastrointestinal symptoms are very common in children with autism spectrum disorder (ASD). GI symptoms may overlap with ASD core symptoms and often are attributed to sensory issues and behavioural manifestations. Studies have shown that inflammatory bowel disease are more prevalent in children with ASD.

Clinical case

A 10-year old boy with a background of ASD presented with a 12 months history of failure to grow, unexplained weight loss, chronic abdominal pain and intermittent diarrhea associated with decreased appetite, nausea and vomiting. On examination, he was extremely thin and pale. Abdominal examination showed right iliac fossa tenderness with no other sign. Assessment of growth indicated the weight dropped across centiles from 50th-75th to<0.4th centile over a 2 months period. A full blood count showed hypochromic microcytic anemia. The following bloods were normal: TFTs, Coeliac Screen, Immunoglobulins, B12, folic acid and vitamin D. Stool samples ruled out infectious causes. Dietician review noted a limited diet and challenging eating behaviours with food and texture selectivity as well as rigid routine with food. The impression at this stage was of a sensory element to his symptoms. In light of this, feeding strategies and several oral nutritional supplements were trialed, with no improvement in his eating habits.

Due to the ongoing chronic abdominal pain, an abdomen ultrasound was done and suggested chronic appendicitis and colitis. Fecal calprotectin result of 2444 ug/g was highly suggestive of IBD. The patient was referred to the gastroenterology team in CHI Crumlin for query IBD. A colonoscopy confirmed severe Crohn’s disease. He was then started on the appropriate treatment and followed up under the GI team.

Discussion

The diagnosis of gastrointestinal disorders in patients with ASD can be very complex. It is important to remember the known association between IBD and ASD, in order to prevent a misdiagnosis or mislabeling of IBD as feeding disorder

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AN AUDIT OF PAEDIATRIC NEURODISABILITY MODEL OF CARE IN IRELAND

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Aims:

- To audit waiting period in accessing medical and non-medical facilities for a patient with neurodisability
- To compare the waiting period in facilities inside the hospital vs in other hospital and in the community

Methods:

A retrospective audit of referrals of patients with neurodisability in Paediatric department of Portiuncula University Hospital, Ballinasloe was done in July 2019. Referrals to medical and non-medical services including early intervention team were included in the study. Referrals for urgent transfer for any medical needs to a specialized setup were not included in the audit. The time at which referral was made was documented in 'weeks of life' of the corresponding patient. We audited the time at which referral was made and the time it got accepted for relevant action. Ease was access was ascertained average waiting time. We also audited the difference in time in intra-hospital vs inter-hospital referrals.

Results:

A total of 31 referrals were audited. Referral rejection percentage was 3%. Three percent of referrals were still awaiting appropriate response. A total of 9 emergency transfers within 6 months of life were documented. Average waiting period was 10 weeks with Standard deviation of 14.8 weeks . Waiting period for intra-hospital referrals (services available at PUH) was 0.8 weeks compared to 20.66 weeks for inter-hospital (for services at Dublin, Galway-ophthalmology, ENT etc) referrals. Waiting period for services in community was 5.2 weeks for EIT, social worker etc. Access to in hospital facilities in Galway/Dublin (Audiology, sleep study) were on average after a waiting period of 19.6 weeks.

Conclusion:

There was an ease of access for local services available to patients with neurodisability. Specialised setups took longer time providing the service.

HSE 2009

A SYSTEMATIC REVIEW OF THE USE OF SERUM BIOMARKERS AS PREDICTORS IN PAEDIATRIC TRAUMATIC BRAIN INJURY

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Aims

This review looks at available blood biomarkers in paediatric traumatic brain injury (TBI) from the spectrum of mild, including concussion, to severe. It examines their utility to prognosticate both radiological and functional outcomes.

Methods

This systematic review was registered on PROSPERO and performed in accordance with PRSIMA guidelines. Five databases were searched for studies evaluating biomarkers and outcomes in children. Two researchers independently screened studies for inclusion, extracted data and appraised quality using Quality in Prognostic Studies (QUIPS) tool. Meta-analysis was performed using RevMan 5.0. Analysis was pooled for 1) Neuron specific enolase (NSE) and glial fibrillary acidic protein (GFAP) with Glasgow outcome scale, 2) GFAP and prediction of positive imaging findings and 3) GFAP and post concussive symptoms.

Results

Of 3801 articles identified, 415 were screened and 27 articles pertaining to blood biomarkers and outcome in paediatric traumatic brain injury were included in the review. Of these 16 addressed the ability to discriminate injury on imaging, 11 addressed long-term outcomes and two, post concussive symptom scoring. Biomarkers included S100B, NSE, GFAP, ubiquitin c-terminal hydrolase (UCH-L1), Myelin Basic Protein (MBP), D-dimers, Interleukin-6, -8, and -10 SICAM, L-selectin, Endolectin, NF-H, secretagogin, Hsp 70, and copeptin. Higher NSE levels correlated with poorer outcomes. Higher GFAP correlated with death and disability at 6 months. GFAP failed to discriminate CT abnormalities in severe TBI but in mild TBI, GFAP levels were higher with positive CT findings. Two small studies conflict on the utility of GFAP to predict post concussive symptoms.

Conclusion

Serum NSE and GFAP have shown utility in larger studies to differentiate better outcomes in severe TBI. GFAP predicted CT positivity in milder TBI patients, and at a cut-off of 15ng/mL predicted CT positivity with 94% sensitivity. A cautious correlation has been shown with GFAP because of small sample size.

MEDICINES SAN MONTRES (DOCTORS WITHOUT WATCHES)

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Background:
Healthcare records form an integral part of communication between healthcare professionals and are a permanent account of patient care. The Health Service Executive (HSE) recommends that all documentation is clear, legible, corresponding to the correct patient and written in permanent black ink; date, time(in 24-clock format) and author identification should be included on each page. Author identification includes signature, printed name, job title and bleep number or Irish Medical Council (IMC) number.

Aims:
To establish the current practice of Consultant and Non-Consultant Hospital Doctors (NCHD) in the paediatric department.

Methods:
Retrospective chart review of patients attending the paediatric department, including medical/surgical admissions and ED attendances in October 2019. Entries were reviewed and the presence of the following features were noted: date, time, name, role, IMC or bleep and patient sticker on each entry.

Results:
79 medical records were randomly selected and reviewed (ED 22; medical admissions 39; surgical admissions 18). Entries varied across the different grades of hospital doctors-38% SHO, 22% consultants, 14% Registrar and 3% interns. Only 28% of clinical entries had recorded all 6 features outlined by HSE for good medical record keeping. Considering the features individually, 97% of records had the date recorded, 80% recorded their name and 70% had their IMC or bleep number. Only 65% of entries had the date and time recorded. 75% of entries had a patient sticker in place.

Conclusion:
We identified a deficit in compliance with HSE standard guidelines in documentation of timing and authorship of healthcare record content. Education of staff in the department regarding clinical note-taking responsibilities is essential and highlighting the e-learning module available. Personalised stamps included in orientation packs could aid in improving compliance and allow for clear and legible identification. Re-assessment of practise after educational sessions to take place in the coming weeks.

HSE Standards and Recommended Practices for Healthcare Records Management, QPSD-D-006-3 V3

RETROSPECTIVE EVALUATION OF INPATIENT CHILDREN TREATED CLINICALLY FOR BRONCHIOLITIS: A CLINICAL AUDIT ON CLINICAL PRACTISE GUIDELINE (NG9,2015) ADHERENCE

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Aims and Objectives

Bronchiolitis is prevalent among paediatrics population, particularly during the winter season. This audit was performed to assess the local clinical practice adherence in comparison to the established NICE (NG9 ,2015) guidelines in the management of bronchiolitis in children, and to compare the performance results from the last 2017 audit.

Methods

A systemic random sampling (recruitment of every 10th patient listed in the labarotary record of positive RSV samples between 1 January 2017 till 28 February 2019) was employed in this study, resulting in a total of 51 paediatric inpatient's records retrieved from the Medical Record Office and analysed. Essential data were transcribed into separate data collection sheet: presenting symptoms, physical findings, management and plan of prevention/follow- up and were measured against criteria outlined in the NICE guideline. Data were described using percentages and distribution. Numerical data were described using median and interquartile range due to skewed distribution.

Results

The median age of admission for RSV bronchiolitis at our centre was 5.8 months old, while the median duration for admission was 1.0 day. As compared to the last 2017 audit, a better adherence to the NG9 (2015) was noted. There was a substantial reduction in the number of hypertonic saline nebulization used as compared to the last audit (7 patients vs 31 patients) and less children were subjected to blood gas analysis (1 vs 5)

Conclusion

This clinical audit affirms a good compliance of the clinical management of RSV bronchiolitis in Letterkenny University Hospital to the latest NG9 (2015)

NICE (2015) Bronchiolitis in Children : Diagnosis & Management NG9

XANTHOGRANULOMATOUS PYELONEPHRITIS _ CASE REPORT OF A RARE PAEDIATRIC PRESENTATION OF XANTHOGRANULOMATOUS PYELONEPHRITIS

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Background: Xanthogranulomatous Pyelonephritis (XGP) is an uncommon cause of chronic pyelonephritis first described by Schlagenhaufer1 in 1916. While it's pathogenesis is unknown, it is characterised by unilateral enlargement of a kidney, hydronephrosis and replacement of renal parenchyma by serosanguinous fluid filled cysts, and subsequent loss of normal renal function2.

Case Report: A 10 years old girl initially presented with a cyst on her back that turned out to be the rare condition described - XGP. The cyst in the lower lumber area was incised and drained by her GP under sterile technique. She remained well with no spikes of fever and was on IV antibiotics. She had a background history of Tetralogy of Fallot and repaired dysplasia of the hips. All her blood investigations were unremarkable, however, her swab for abscess showed E. coli which was resistant to amoxicillin and co-amoxiclav. She was treated with IV ceftriaxone and metronidazole. Her ultrasound soft tissue showed complex, thick walled, abscess extending from subcutaneous tissue of left flank traversing posterolateral left upper quadrant abdominal wall into left upper quadrant and directly communicating with thick walled fluid collection in midpole of left kidney.

CT scan confirmed the above-mentioned findings with additional abnormal areas of increased lucency of right anterior ileum with cortical irregularity and erosion and also enlarged left para-aortic lymph nodes. She was then transferred to Professor Feargal Quinn, Consultant Paediatric surgeon at Children's Health Ireland hospital, Crumlin for further management.

Conclusion: XGP should be included in the differential diagnosis of all children presenting with perirenal or psoas abscesses and renal masses.

1Schlagenhaufer, F. (1916). Uber eigentumliche Staphylomykosen der Nieren und des pararenalen Bindegewebes. Frank Zeitsch Pathol 19:139–148. 2Tolia, B.M., Iloreta, A., Freed, S.Z., Fruchtman, B., Bennett, B., Newman, H.R. (1981). Xanthogranulomatous pyelonephritis: Detailed analysis of 29 cases and a brief discussion of atypical presentations. J Urol., 126: 437-442. 3Stoica, I., O'Kelly, F., McDermott, M.B., Quinn, F. M. J. (2018). Xanthogranulomatous pyelonephritis in a paediatric cohort (1963–2016): Outcomes from a large single-center series. J. Pediatr. Urol., 14(2): 169.

EVALUATION OF DOCUMENTATION OF EXAMINATION FINDINGS IN PAEDIATRIC MEDICAL ADMISSION NOTES

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Aim: To check compliance with documentation of examination on admission of patients to the Paediatric wards at UHL.

Methodology: Random selection of charts of 20 paediatric medical patients (age ranging from neonate to 16 years old) excluding surgical ,ophthalmology ,orthopaedic and ENT patients , on Paediatric wards of UHL were evaluated in mid September 2019 within 2 to 3 days for the documentation of examination of both relevant and systemic examination findings which included CNS ,GIT,CVS,ENT and respiratory examinations in both paediatric emergency and ward notes .
Data was analysed on the basis of fully documented, not documented and improperly documented sections. The standard for study was HSE standards and Recommended Practices for Healthcare Records Management.

Results: The results showed that most documented systemic examinations were gastrointestinal, respiratory, cardiovascular systems and ear nose and throat examination whereas the least and improperly documented system was the central nervous system. 100% documentation of CVS and GIT in ED notes of admission part , 93% of respiratory system ,81% of ENT and 56% of CNS documentation was observed which was comparatively a little better as compared to ward notes with 95% CVS , 90% of GIT and respiratory ,80% ENT and 55% of CNS documentation.
Regarding CNS documentation ,45% included improper or not documented which was mostly in non -CNS related symptoms but out of 4 cases of epilepsy, syncope, headache and unresponsive episode ,2 cases of unresponsive episode (febrile convulsion) and syncope showed incomplete documentation.

Conclusion: Overall documentation of examination was satisfactory in our unit when we looked at the results .However, CNS was documented in 55% of admission notes where as 45% was either not documented or improperly documented which included mostly non -CNS related symptoms .Following on our study, importance of documentation of examination was emphasized.

HSE Standards and Recommended Practices for Healthcare Records Management

CONSTIPATION GUIDELINE ADHERENCE AT TALLAGHT UNIVERSITY HOSPITAL'S PAEDIATRIC EMERGENCY DEPARTMENT: DO WE NEED TO PULL UP OUR PANTS?

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Background: Constipation is a commonly encountered childhood problem with an estimated 3% prevalence worldwide[1](reported prevalences of up to 30% depending on criteria used[2].) Constipation encompasses infrequent/painful defecation, faecal incontinence/overflow, abdominal pain, stool retention and hard stool – accompanying symptoms include reduced appetite/energy and irritability[1]. It causes significant distress to patient and parent and accounts for high numbers of medical facilities' presentations[1]. Our constipation guideline mirrors NICE guidelines – aiming to provide an assessment to management and recognise red flags[3].

Aim & Objectives:

1. Ascertaining compliance regarding history taking/examination, to the guideline (used in Dublin childrens' hospitals).
2. Comparing TUH compliance with outcomes of a similar audit performed in Temple Street Childrens' University Hospital [TSCUH] (January and February 2014)[4].

Methods: Utilizing online ED Symphony, a retrospective study was performed over January - February 2019. Identified patients had 'constipation' as discharge diagnosis. Online chart reviews were subsequently done.

Results: 90 Patients were included (TSCUH 192). 2 Patients had no data.

History: reference to 1) diet 8.8% (TSCUH audit 17.7%); 2) meconium passage 4.4% (4.2%); 3) growth 11.1% (0.52%); 4) developmental Hx 6.6% (1.5%) and 5) medication Hx 56.6% (31%). Details regarding constipation (not evaluated in the TSCUH audit) included: onset 84.4%; frequency 40%; consistency 45.5%; calibre 8.8%; pain/bleeding 26.6%; abdominal pain 63.3%; toilet training 2.2%; withholding/soiling 17.7%; appetite 32.2%; energy 2.2% and thyroid disease indicators 1%.

Examination: abdominal 93.3% (TSCUH 97%); anal inspection 10% (14%); lower limbs 14.4% (8%); spine 2.2% (3%) and growth 3.3% (0.5%).

PFAs performed in 8.8% (35%).

Conclusion: Similar (to TSCUH) poor compliance to our constipation guideline was highlighted; especially surrounding targeted examination beyond standard abdominal palpation. History taking centred around simply identifying constipation. Non-recommended PFAs are still performed.

Recommendations include examining facilitation of online centile charts; improved documentation; distributing the guideline to doctors starting the rotation (include in ED teaching) and re-auditing.

1. Evaluation and Treatment of Functional Constipation in Infants and Children: Evidence-Based Recommendations from ESPGHAN and NASPGHAN, 2014 (https://www.ncbi.nlm.nih.gov/pubmed/24345831) 2. Idiopathic constipation in children clinical practice guidelines, 2015 (https://ep.bmj.com/content/101/2/65) 3. 2010 NICE guideline - Constipation in Children and Young People: Diagnosis and Management 4. A Review of Our Constipation History and Examination in an Irish Emergency Department: Are We Getting To The Bottom Of It? (dr Helen Fitzpatrick, dr Ike Okafor, Emergency Department Temple Street Childrens' University Hospital 2015) 5. Constipation guideline (TUH paediatrics)

WE ARE ROMA-THE OUTSIDERS! AN OVERVIEW OF THE ROMANI PEOPLE IN IRELAND

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Background and Aims

The Romani people colloquially known as the "Roma Gypsies" are an indo-Aryan ethnic minority group originating from the northern Indian subcontinent, traditionally itinerant and estimated to number between 4000 and 5000 in Ireland at any one time.

Often overlooked, nomadic races are unique minority groups with specific health needs

Disadvantaged minority groups are known to bear a greater burden of illness than general populations

Cultural competency and cultural awareness amongst healthcare professionals when dealing with the ethnic diversity in modern Irish Society is crucial.

This study aims to identify the specific family structure, common genetic conditions and other illnesses associated with the Roma Gypsy Subgroup within the context of the Irish Population.

Methods

A review of the current available literature and a database search were undertaken and relevant Clinicians and organisations contacted in an effort to compile data on the Irish Roma to inform appropriate action in the area of Roma Child Health.

Results

Roma Gypsies are a distinct subgroup that are described across almost all bodies of literature as being discriminated against in both institutional and individual levels, some even describe this discrimination to be a "Roma Gypsy Holocaust".

At present there are no current Irish studies that describe the ethnic variety and cultural norms of this important subgroup in Irish society.

The most striking piece of international literature reported that currently up to 20% of Roma Gypsies described experiencing poverty that would be described to be "Extreme". In 50% of households with children, it was reported that food was seldom available and that malnutrition was a massive cause of morbidity among Roma Children.

Conclusion

Our review should prompt formal Irish data collection on this nomadic race. Further studies are required to analyze the impact of marginalization on Irish Roma Gypsy Children in relation to their unique issues and needs.

PAEDIATRIC STROKE PRESENTING TO A REGIONAL PAEDIATRIC CENTRE; A CASE SERIES OF 3 UNRELATED PATIENTS PRESENTING OVER 1 MONTH PERIOD

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Background and Aims:
Paediatric stroke is a relatively uncommon event with incidence ranging between 1.2-13 cases per 100,000 children.[1]

Our aim is to report a case series of 3 unrelated children who presented within a one month period this summer to our Paediatric Emergency Department with paediatric stroke.

Methods:
We describe the clinical presentations, examination findings, radiological images, results of etiological investigations, treatment and outcomes to date in our cohort.

Results:

Case 1
The first patient was a 3 year old Irish male with Trisomy 21 presenting with a <12 hour history of right arm and leg weakness. An urgent CT brain demonstrated a left frontal lobe infarct. He underwent embolization. The final diagnosis was Moyamoya.

Case 2
The second patient was a 6 year old previously well Irish boy who had a minor fall from a couch 18 hours previously. He complained of mild right arm and leg weakness after the event. The following morning he was noted to have a dense right-sided hemiplegia and dysarthria. A CT brain showed ischaemia. He was outside the window for thrombolysis and underwent embolectomy. He subsequently required a craniotomy. His functional prognosis, regarding speech in particular was guarded upon last discussion.

Case 3
The final patient was a previously well 10 year old girl who presented with a 4 hour history of a left-sided hemiplegia. CT angiogram of brain was normal. Enroute to a tertiary unit, her left-sided symptoms resolved but she subsequently developed right-sided weakness. MRI brain/neck diagnosed demyelinating multiple sclerosis.

Conclusion:
Our cases serve to highlight the need to consider the etiologies of paediatric stroke in a timely manner in order to implement appropriate treatments within the recommended timeframe and maximise outcomes.

1. Daniel S. Tsze, Jonathan H. Valente. Pediatric Stroke: A Review. Emerg Med Int. 2011; 2011: 734506. Published online 2011 Dec 27. doi: 10.1155/2011/734506

THE DRUGGLE – AN AUDIT OF PAEDIATRIC PRESCRIBING

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Background and Aims:

It is estimated that 1-2% of patients admitted to hospital are affected by medication errors.[1]Children are at an increased risk due to the complexities of paediatric prescribing. [2,3] Using the PDSA cycle and the HSE Nursing & Midwifery Quality Care Matrices standards, we wanted to examine current prescribing practices in our paediatric population and identify areas of potential improvement.

Methods:

We retrospectively reviewed 17 randomly selected paediatric inpatient kardexes containing 96 prescriptions. We examined the number of medications which correctly documented the following: dose; frequency; route; signature; generic name; max dose for PRN drugs and the use of block letters. We also evaluated the number of kardexes which documented the weight, allergies and start date. We held an education session informing doctors of the results, highlighting areas of potential improvement. 6 weeks after educational intervention we conducted a re-audit of 17 more kardexes containing 118 prescriptions.

Results:

100% of kardexes had weight and start date documented before and after intervention. Allergies were documented in 94% of kardexes rising to 100% after intervention. Dosage was documented for 98% of medications pre and post intervention. The frequency of medications was documented for 78% of medications rising to 88% post intervention. Use of block letters rose from 57% to 72%. The route of administration pre and post intervention was measured at 100% and 99%. 97% of medications were signed for pre-intervention and 96% post. 82% of medications were prescribed using generic names pre-intervention and 80% post. Documentation of a maximum dose for PRN drugs rose from 81% to 92%.

Conclusion:

There was an improvement in four major aspects of prescribing examined and we maintained a good standard in a further three areas. Overall, the use of educational intervention is improving the safety of prescribing in our hospital and we plan to continue this audit cycle.

1. Routledge PA. Safe prescribing: a titanic challenge. Br J Clin Pharmacol. 2012 Oct; 74(4): 676–684 2. Ghaleb, M. A., Barber, N., Franklin, B. D. & Wong, I. C. 2010. The incidence and nature of prescribing and medication administration errors in paediatric inpatients. Arch Dis Child, 95, 113-8 3. Kaushal, R. 2001. Medication Errors and Adverse Drug Events in Pediatric Inpatients. JAMA: The Journal of the American Medical Association, 285, 2114-2120.

THE ACUTELY JAUNDICED OLDER CHILD – A CASE STUDY

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Background and Aims: The acutely jaundiced older child is a relatively uncommon presentation to the Irish Paediatric Emergency Department (ED). Our aim is to report the challenging case of a 7yo girl who presented with acute onset jaundice.

Methods: We describe the history, exam, investigations, radiological findings, management, diagnosis and outcome of this patient.

Results: A previously well 7yo girl of North African descent presented to our ED with a < 24 hour history of jaundice and pyrexia. She reported feeling tired but denied any other symptoms. There was no history of recent illness, overseas travel, new medications or foods. She had three older siblings who were well.

On examination the patient had notable jaundice with scleral icterus. Abdominal exam revealed hepatomegaly with some discomfort of the right upper quadrant. There were small cervical lymph nodes palpated. She provided a coca-cola coloured urine sample.

Her bloods showed a Hb of 7.6, normal reticulocyte count, platelets 89, atypical lymphocytes on film. Bilirubin was raised (369), predominantly conjugated, with an elevated ferritin of 5377. Importantly, monospot was positive. An urgent abdominal ultrasound revealed an enlarged spleen (9.5cm) with a bulky appearance. There were enlarged lymph nodes present within the porta hepatus, mesial tree and right iliac fossa. Liver was enlarged but showed normal echogenicity.

In terms of management in the ED, she required observation only.

With Haematology input the patient was eventually diagnosed with Autoimmune Haemolytic Anaemia (AIHA). She required one transfusion of red blood cells and responded well to IV methylprednisolone. She was discharged on a tapering dose of steroids.

Conclusion: This was an interesting case of an unusual presentation with an extensive differential diagnosis, requiring numerous investigations. Close coordination with specialist services ensured that the diagnosis was made early and complications were treated promptly. AIHA is a rare condition in childhood with annual incidence reported internationally as low as 0.2 cases/1,000,000.[1,2]

1. Aladjidi N, Leverger G, Leblanc T, et al. New insights into childhood autoimmune hemolytic anemia: a French national observational study of 265 children. Haematologica. 2011;96(5):655–663. 2. Ladogana S, Maruzzi M, Samperi P, et al. Diagnosis and management of newly diagnosed childhood autoimmune haemolytic anaemia. Recommendations from the Red Cell Study Group of the Paediatric Haemato-Oncology Italian Association. Blood Transfus. 2017;15(3):259–267.

ANTI-N-MEYTHL-D-ASPARATE-RECEPTOR ENCEPHALITIS POST HERPES SIMPLEX VIRUS ENCEPHALITIS - A CASE STUDY

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Background and Aims: Anti-*N*-methyl-d-aspartate-receptor (NMDAR) encephalitis is a recognised complication of herpes simplex viral encephalitis (HSVE) occurring in 20-30% of these patients. [1] We present a case of NMDAR encephalitis 4 weeks post HSVE in an 11yo boy.

Methods: We describe the presentation, investigations, findings, treatment and outcome for this patient.

Results: A previously well 11yo boy was transferred from Great Ormond Street Hospital (GOSH) to complete a 3 week course of IV Aciclovir following a diagnosis of HSVE. Initial CSF was negative for NMDAR antibodies.

During admission the patient had headaches with mild memory problems. On the day before discharge however, he had an episode of confusion with difficulty speaking and subtle rhythmic movements of his left arm. On examination post event he had left-sided residual weakness, persistent headache and a definite deterioration in cognition. We were concerned that this event was a focal seizure and queried NMDAR encephalitis. Urgent EEG showed near continuous polymorphic delta slowing over right hemisphere. He was commenced on IV Methylprednisolone as a precaution in addition to Phenytoin, Clobazam and Levetiracetam.

He improved gradually with resolution of headaches and no further seizures. He was discharged on Levetiracetam and a weaning dose of Prednisolone awaiting results of a repeat CSF sample. He has returned to school and is doing well.

The repeat CSF subsequently came back positive for anti NMDAR antibodies. He is awaiting discussion to see if he would benefit from second line immunotherapy e.g. Ritxuimab and has been recommenced on Aciclovir as per GOSH given his prolonged course of steroids to avoid re-activation.

Conclusions: NMDAR encephalitis is a rare diagnosis with estimations of incidence per year as low as 0.85/1,000,000 in children.[2] This case highlights the need to be aware of NMDAR as a complication of HSVE in the 3-4 week period post infection.

[1] Armangue T, Spatola M, Vlagea A, et al. Frequency, symptoms, risk factors, and outcomes of autoimmune encephalitis after herpes simplex encephalitis: a prospective observational study and retrospective analysis. Lancet Neurol 2018; 17:760. [2] N-methyl-D-aspartate receptor antibody-mediated neurological disease: results of a UK-based surveillance study in children. Wright S, Hacohen Y, Jacobson L, Agrawal S, Gupta R, Philip S, Smith M, Lim M, Wassmer E, Vincent A. Arch Dis Child. 2015 Jun; 100(6):521-6.

Coeliac Disease; right test wrong time. Is the Emergency Department the place for primary diagnosis?

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Aim:

To assess the effectiveness and indications of performing a coeliac screen in an emergency department.

Introduction:

Coeliac disease is a common auto immune disease of the small intestines. It is due to gluten sensitivity [1]. Diagnosis of this over the age of 2yrs involves serological tests for IgA and TtG. Current indication for screening are as per the ESPGHAN [2] and NICE guideline.

Coeliac disease incidence in paediatrics has increased over 20 years[3], with the highest prevalence rates (1 in 300) in the west of Ireland.

Methods:

A retrospective review of children attending the Paediatric Emergency department of CHI Tallaght was performed from July 2018 to March 2019. Patient history and clinical data was retrieved from our local ED information system Symphony. Biochemical results were accessed via our electronic laboratory system.

Results:

58 coeliac screens were performed; 2 were positive. The indications in the patient's notes for these are as follows.

- Abdominal pain: 29 (20/29 with >1/12 history)
- Constipation: 5 (4/5 with >1/12 history)
- Diarrhoea: 7 (1/7 with >1/12 history)
- Vomit: 1 with >1/12 history
- Positive family Hx: 5 (1st degree 3/5)
- Weight loss: 3
- New onset DM: 3
- Unknown indication: 3
- Psychiatric workup: 1
- Pilonodal sinus: 1

Indications for positive results were chronic abdominal pain.

Discussion:

Only 60% of coeliac requests were adhering to current best practice and international guidelines. It is interesting that there were only 2/58 (3%) positive screens positive screens in our patient cohort. This low yield of positive findings highlights that routine coeliac testing shouldn't form part of investigation for children who present with chronic gastrointestinal symptoms.

1 Education sessions for NCHD's to reinforce coeliac screening in accordance with current international guidelines
2 Re-audit in one year to evaluate adherence to current best practise.

1 American college of gastroenterology clinical guideline: diagnosis and management of celiac disease 2 European Society for Pediatric gastroenterology, Hepatoogy and Nutrition Guidelines for the diagnosis of Coeliac Disease. S Husby 3 The rising incidence of celiac disease in Scotland 4 Mylotte M, Egan-Mitchell B, Mc Carthy CF, McNicholl B. Incidence of coeliac disease in the West of Ireland. BR Med J 1973;1; 703-705 5 Simon Murch, Huw Jenkins, Marcus Authet all. Joint BSPGHAN and Coeliac UK guidelines for the diagnosis and management of coeliac disease in children. Arch Dis Child 2013;98:806-811

AVOCADO: THE MILLENNIAL ALLERGY.

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Aims

This case report draws attention to an unusual trigger for a condition known as Food Protein Induced Enterocolitis (FPIES). FPIES is a non-IgE food hypersensitivity of infancy, characterised by profuse, delayed vomiting and diarrhoea[1]. Infants commonly require intravenous rehydration during attacks and can become hypothermic. Common triggers include Cow's Milk, Soya, Rice, Fish[2].FPIES was only formally defined in the 70's and awareness of it remains low, resulting in delayed diagnosis[3]. Diagnosis is largely history lead but a formal hospital based oral challenge can be considered. Skin prick tests are commonly negative. Resolution in the first 2-3 years is common.

Methods

This is a case report.

Results

A 13 month old girl presented to the allergy clinic at CHI Our Lady's Children's Hospital Crumlin with a history of vomiting associated with Avocado. Parents described that, consistently, on 4 separate occasions; the infant had multiple vomits and appeared cold and lethargic. Onset of vomiting was always at least 2 hours post ingestion. No urticarial or angioedema were reported. The infant never vomited outside of these 4 occasions. Her diet was largely unrestricted. Skin prick testing to avocado, banana and kiwi were negative. The clinical picture was consistent with a diagnosis of FPIES to Avocado. A hospital based challenge was not deemed necessary for confirmation.

Conclusion:

Avocado is an uncommon but documented trigger of FPIES. An Australian population based study described 5 avocado FPIES out of 230 FPIES cases[4]. A US centre reviewed 74 FPIES cases, 12 were identified as avocado FPIES[5]. We are unaware of a previously documented case of Avocado FPIES in Ireland. Triggers for FPIES differ geographically and this case likely reflects new weaning habits in Ireland. Avocado has become a very popular early weaning food in Ireland. We anticipate that we will encounter more cases.

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EXERCISE IN CHILDHOOD

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Aim:

A prospective study to establish if children and young people are fulfilling the National Guidelines on Physical Activity for Ireland, recommending at least sixty minutes daily exercise, including muscle and bone strengthening exercises, beside aerobic exercises.

Method:

A colourful poster with a list of exercises to help with filling a questionnaire was prepared. .

These were given to parents and young children after the weight and height were recorded in clinic.

They had to indicate how many minutes of exercise was done each day that week including minutes spent on muscle and bone strengthening exercises

Completed questionnaires were returned to either the clinician or OPD nurse after the paediatric clinic consultation.

Parents and children were encouraged to take the poster home as a reminder.

Result:

Two hundred and four questionnaires were returned. Thirty four incomplete questionnaires were discarded.

Hundred and fourteen of the participants were male, ninety were female.

Forty children were two to four year old pre schoolers. One hundred and thirteen primary school children and fifty one secondary school year children.

Seven out of eleven girls, twelve out of twenty nine boys aged two to four were compliant with the recommended exercises.

Fourteen out of fifty three girls, twenty out of sixty boys aged five to twelve were compliant with the exercises.

Two out of twenty six girls, four out of twenty five boys aged thirteen and sixteen were compliant with the exercises.

Conclusion:

Twenty three out of ninety or twenty six percent of girls were compliant with the recommendations

Thirty six out of one hundred and fourteen or thirty two percent of boys were compliant with the recommendations

Strategies need to be developed to encourage school children to do more exercises.

A BONE TO PICK: INVESTIGATING THE ROLE OF BISPHOSPHONATE THERAPY IN THE TREATMENT OF SECONDARY OSTEOPOROSIS IN CHILDREN AND ADOLESCENTS

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Aims:

Children and adolescents are at an increased risk for reductions in bone strength and subsequent fractures either due to the osteotoxic side effects of certain medications and therapeutic regimens or secondary to a spectrum of medical conditions which impact negatively on the skeletal architecture. Bisphosphonates are a cornerstone in the treatment of osteoporosis in the adult population and have been used in the treatment of childhood osteoporosis for some years but with a weaker evidence base to back it up. We aimed to highlight the current evidence for bisphosphonate therapy in relation to the clinical benefit and the risk of harmful side effects in secondary osteoporosis in children and adolescents by way of a literature review.

Methods:

A systematic search of the Cochrane Central Register of Controlled trials and Ovid MEDLINE was carried out. An exclusion criterion was established and a schematic approach was undertaken to narrow down the original list of papers to those of most relevance to our research question in a 3 step process including a final review of papers in full by 3 independent reviewers.

Results:

Across all 11 papers included in the final review which included 208 patients altogether. Significant improvements of lumbar spine bone mineral density evidenced by changes in Z-score from baseline were consistently reported and no new fractures were reported in any of the studies. Few side effects were reported from the therapy.

Conclusion:

We concluded that bisphosphonates are effective in improving bone mineral density in children and adolescents with secondary osteoporosis. However, our research was limited by the fact that no papers included fracture incidence as part of their primary outcome and papers differed widely in how they defined osteoporosis in a paediatric population.

HAND, FOOT, MOUTH AND ... BRAIN
A CASE REPORT AND LITTTERATURE REVIEW OF HAND, FOOT AND MOUTH DISEASE WITH NEUROLOGIC COMPLICATIONS

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Hand foot and mouth disease (HFMD) is a common paediatric presentation to general practice and emergency department. It is caused by a group of viruses of the *Picornaviridae* family, has no targeted treatment and usually has a benign course. In rare cases however, the initial phase of viral exanthema can be followed by severe neurologic complications and life-threatening autonomous instability.

This is a case-report of a child with complicated HFMD followed by a concise literature review. A PubMed search yielded 257 abstracts, that were manually reviewed. Out of those, 28 series and 3 case-reports of patients with complicated HFMD were selected for full review.

Case: 22-months-old boy presented with a 2-day history of vomiting, irritability, exanthema of his palms and soles and mouth blisters. After an initial improvement, he became encephalopathic, with fluctuating alertness. He had normal strength and deep-tendon reflexes, but little spontaneous movement. He had tremulous eye movements, intention tremor and ataxia, frequent myoclonus and profuse sweating. An MRI of brain and spine was consistent with brainstem encephalitis and transverse myelitis. He had CSF pleyocytosis. His rectal swab subsequently identified Enterovirus. He received 5 days of IVIG and intensive neuro-rehabilitation. He was discharged on day 14 of illness having made full recovery.

Literature review: 22/28 of the series were from Asia. General incidence of neurologic complications varied between 0.1 – 19.8%. Severity of acute presentation correlated with outcome. Enterovirus 71 caused more severe disease. CNS disease without cardiopulmonary involvement had mostly favourable outcome.

HFMD can have severe and potentially life-threatening complications. Careful clinical assessment of patients will identify children at risk of complicated disease and allow rapid escalation of care. Carefully designed prospective study on the changing landscape of causative agents of HFMD is required in European Countries to allow for appropriate public health measures.

' HITTING ALL THE WRONG NOTES'-A CASE REPORT OF CHRONIC SUPPURATIVE BRONCHITIS RELATED TO BAGPIPE PLAYING.

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Aims:

We describe the first possible case of Bagpipe playing associated lung infection in a paediatric patient. Hypersensitivity Pneumonitis is well described, responsible for 1.5-13% of all cases of interstitial pneumonitis. (1) Recent publications report cases of hypersensitivity pneumonitis associated with pathogens isolated in wind instruments. (2, 3)Usual pathogens are fungi and mould though bacteria have also been identified. Symptoms appear to resolve when music playing is stopped or instrument correctly cleaned and pathogen removed.

Methods:

Microscopy and Culture identified Pseudomonas Aeruginosa

Results:
We present the case of a fifteen-year-old girl, referred to a tertiary centre for investigation of persistent productive cough unresponsive to bronchodilators, inhaled steroids and oral antibiotics. She had reduced spirometry with FEV1(80 %). Initial impression was that of chronic suppurative bronchitis or bronchiectasis given the volume of sputum production. A high-resolution CT Thorax showed no bronchiectasis. Nasal brushings and immune work- up were normal. Pseudomonas Aeruginosa was isolated from sputum culture. A course of IV antibiotics and nebulised tobramycin was completed. On review of history, the patient was noted to be a national champion in bagpipes and played several hours daily. There was no cleaning routine for the instrument which was heavily wet after being played. On commencement of antimicrobials and correct cleaning, symptoms resolved completely and spirometry improved; FEV1 to 122% of predicted.

Conclusion:
We propose that our patient had chronic suppurative bronchitis, secondary to pseudomonas aeruginosa triggered or exacerbated by bagpipe playing. Cultures were not taken from the instrument. However, given the previous reports in literature, we suggest the strong likelihood that playing of the bagpipes in this teenager had a significant role in the pathogenesis of her disease. In those with recurrent pulmonary infections or conditions such as cystic fibrosis or primary ciliary dyskinesia a history of playing wind instruments should be sought and proactive advice given.

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A CASE REPORT OF TRANSIENT PSEUDOHYPOALDOSTERONISM SECONDARY TO URINARY TRACT INFECTION

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Aims:
Aldosterone plays an important role in potassium and sodium regulation exerting its primary effect in the principal cells of the nephron. The incidence of Pseudohypoaldosteronism is estimated at 1 per 13,200 live births in Ireland with males more commonly affected (1). It remains poorly understood with both transient and genetic forms. We describe a case of a transient pseudohypoaldosteronism in an infant with a urinary tract infection (UTI).

Methods:
A spot urine was collected before treatment commenced and urine steroid profile was analysed at King's College London by high resolution gas chromatography mass spectrophotometry.
Plasma Aldosterone and renin activity were measured by liquid chromatography tandem mass spectrophotometry (LC-MS/MS) at Leeds endocrinology laboratory.

Results:
A twenty-eight- day male presented with pyrexia, irritability and reduced feeding. He had a prolonged capillary refill time but examination including genitalia was normal. Initial blood sugar was 2.5mmol/L He was hyponatraemic (120mmol/L) and hyperkalaemic (6.9mmol/L). Urine microscopy showed 90 white cells and he was considered to have a UTI. He was treated with intravenous saline and antibiotics. Renal ultrasound was normal. Extended investigations revealed normal cortisol, 17-OHP, and an increase in Renin 60nmol/l/hr (RR 1.9-29) and Aldosterone 19,600pmol/L (RR 400-3000). Urinary electrolytes were paradoxically low in samples obtained after commencement of antibiotics which has previously been described. Urinary steroid profile identified low concentrations of3B-hydroxy-5ene steroids with a relative increases of corticosterone metabolites, including tetrahydro-18-hydroxy-11-dehydrocorticosterone, 6-hydroxy-tetrahydro-11-dehydrocorticosterone. The major aldosterone metabolite, tetrahydroaldosterone was increased. These findings confirm Pseudohypoaldosteronism and exclude salt wasting forms of Congenital Adrenal Hyperplasia and aldosterone synthase deficiency. Interestingly, cholesterol was also increased which can be a useful marker of UTI and thus suggests a secondary cause in our presentation.

Conclusions:
Transient Pseudohypoaldosteronism should be considered in young infants who present with hyponatraemia in the context of a urinary tract infection and prompt investigations initiated.

1. Kaninde A, Grace M, Joyce C, Taylor NF, Riordan M, O'Grady MJ, et al. GP139 The incidence of transient pseudohypoaldosteronism in infancy in ireland: a prospective whole island surveillance study. Archives of Disease in Childhood. 2019;104(Suppl 3):A86-A7.

CRITICAL CARE IN PAEDIATRICS IN THE WEST OF IRELAND: A TEN-YEAR REVIEW.

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Aim

To collate data on the characteristics of ICU admissions of patients aged between 0 and 16 years in University Hospital Galway with a view to appropriate infrastructure, service and workforce planning for the future in light of new paediatric model of care nationwide.

Method

A retrospective review of all patients aged 0 to 16 years admitted to ICU during a cumulative ten-year period between 1st of January 2008 and 31st of December 2018. Diagnosis, age, duration of stay, admitting consultant and discharge destination were documented.

Results

A total of 638 patient contacts met the criteria for inclusion. Median age was 4 years old and median length of stay was 19 hours in ICU. Speciality Consultant admissions were as follows – Paediatrics 74.8%, Surgery 10.8%, Medicine 5.3%, Other 9%. Respiratory, neurological and endocrine diagnosis were most common cause for admission to ICU. Patients were discharged to the Paediatric Ward in 57.6%, Tertiary Paediatric Units in 26.3%, and to an Adult Ward in 13% of cases.

Conclusion

Approximately 1600 children in the Republic of Ireland require critical care annually. There are only two Paediatric Critical Care Units in the two Supra Regional Children's Hospitals. Significant numbers of children presenting to regional units require critical care. The new model of care for paediatrics in Ireland advocates for the *"hub and spoke"* model, providing the majority of services locally with outreach from tertiary paediatric subspecialties. The new paediatric hospital and the implementation of a new national model of care presents a unique opportunity for regional centres. Our study highlights the importance, quality and quantity of a regional hospital in managing children who need critical care. General paediatricians see the undifferentiated child and provide a vital interface between primary care, subspecialty hospitals and intensive care.

JUST IN THE NEC OF TIME: AN AUDIT OF INTRODUCTION TIMES OF ENTERAL FEEDING IN PRETERM INFANTS WITH NECROTISING ENTEROCOLITIS

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Aims

To collate data on the characteristics of patients diagnosed with necrotising enterocolitis in the Neonatal Intensive Care Unit with a view to identifying potential risk factors and to audit our time to introduction of first exposure to enteral feeding.

Methods

A retrospective review of all patients admitted to NICU in the Coombe Hospital during a cumulative 3 year period of 1st of January 2016 to 31st December 2018. There was retrospective verification of data with complete case ascertainment.

Our primary focus was to ascertain time of first introduction of oral feeds. Secondary outcomes included; baseline demographics, maternal prenatal management, prenatal and postnatal medication use, interventional delivery suite resuscitative and post natal efforts, systemic complications of prematurity, cardiac issues, long term morbidity and mortality.

Results

A total of 32 neonates met the criteria for inclusion. All patients were between 24+0 and 27+6 weeks. Mean birth weight was 630g. Median time to first oral care and establishment of enteral feeding was approximately fifteen hours. Common maternal co-morbidities included pre-eclampsia, hypertension, diabetes mellitus and chorioamnionitis.

Conclusion

Necrotising enterocolitis is an important cause of poor neonatal outcome. Hostile environments created by the maternal condition prenatally along with postnatal causes are believed to create an insult to gut mucosa, damaging its permeability and redistributing the blood away from the gut. This causes bacterial colonization, inadequate neutralisation of toxins and hypoxic ischaemic injury to the intestine or mucosa, ultimately leading to necrotising enterocolitis. Early introduction to oral feeding is a potentially modifiable risk factor that units could target to prevent highly variable practices and reduce overall rates of necrotising enterocolitis.

QUALITY IMPROVEMENT AUDIT TO LOOK HOW WELL WE ARE MANAGING PAEDIATRIC URINARY TRACT INFECTION IN WEXFORD GENERAL HOSPITAL

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Background

Wexford General Hospital is a secondary care hospital where a number of children are admitted with Urinary tract infection (UTI) and also managed as outpatient. Recently we have observed that sensitivity pattern of E. coli, that is the most common organism in UTI has changed.

Aims

To identify most common causative organism of Urinary tract infection (UTI) and sensitivity in Paediatric patients at Wexford area and compare with the previous audit done in 2015 to improve the treatment of UTI.

Methods

We conducted a retrospective study between 1st January 2019-30th June 2019 which included children under the age of 16 years diagnosed with UTI in Emergency Department of Wexford General Hospital, both inpatient and outpatient. Urine samples were collected by clean catch, sent for microscopy, culture and sensitivity. We had compared the results for microorganism ideintification and sensitivity with the audit done in 2015. Standard: Departmental Guideline for management of UTI and Local antibiotic Guideline.

Results

A total of 42 patients were included in this study. Among them, 76% (12) were female, most of the patients in the age group 2-16 years (64.28%). Regarding the causative microorganism, the most frequent isolated microorganisms were E. coli-80.95% (78% in 2015), Enterococcus faecalis 7.14% (8% in 2015) and Proteus mirabilis 4.76% (4% in 2015). E. coli had a high sensitivity to Nitrofurantoin (97.05%), Cephalexin 91.17% and Trimethoprim (70.58%) and a high resistance to Amoxicillin (76.47%). The sensitivity was similar with the results from 2015 for Nitrofurantoin and Trimethroprim and higher for Cephalexin (69%). The resistance for Amoxicillin had increased (57% in 2015).

Conclusion

E. coli had a high sensitivity to Nitrofurantoin and Cephalexin. It is different as compared to sensitivity in 2015, so we changed the local guideline after the discussion with Microbiologist.

PHYSICAL ILLNESSES ASSOCIATED WITH CHILDHOOD HOMELESSNESS- A LITERATURE REVIEW

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Background and Aims

Childhood homelessness is a growing concern in Ireland[1] creating a Pediatric subpopulation at increased risk of physical illnesses, many with life-long consequences.
Our aim was to identify and categorize the physical morbidities prevalent in homeless children.

Methods

A review of the English-language literature on physical morbidities affecting homeless children (defined as ≤18 years of age), published from 1999-2019 was conducted. A total of 1194 articles were identified, 33 articles of which met our inclusion criteria.

Results

Respiratory issues were the most commonly cited illnesses affecting homeless children; which included asthma, upper respiratory tract infections, and chronic cough[2,3,4,5]. Homeless children were also described as being at increased risk for contracting infectious diseases[6], with many studies placing emphasis on the risks of STI and HIV/AIDS transmission[7,8]. Dermatologic concerns for this population comprised of scabies and head lice infestation, dermatitis, and abrasions[2,3]. Malnutrition manifested as a range of physical morbidities; including childhood obesity[9,8], iron deficiency anemia, and stunted growth[11]. Studies demonstrated a higher prevalence of poor dental[7,10] and ocular health[5] in this population as well. Many articles also commented on the risk factors predisposing homeless children to these physical health concerns, which can broadly be categorized as limited access to health care, poor living conditions, and lack of education[2,6].

Conclusion

This literature review summarized the physical illnesses prevalent among homeless children and the contributing factors leading to them. Gaps in the literature were also identified, and included a dearth of studies focusing on younger children compared to adolescents. We believe that the current issue of child homelessness is socially and medically unacceptable and that homelessness occurring today will be one of the scandals of the next generation akin to the recent scandals of historical workhouses and mother and baby homes.
Further research into prevention and intervention programs for this vulnerable population is urgently needed.

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INFANTS UNDER 3 MONTHS PRESENTING WITH FEVER; ARE WE GUIDELINES COMPLIANT?

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Background

Fever is a common potentially serious presentation to the paediatric emergency department. In infants younger than three months, fever can potentially carry high morbidity and mortality. The 2015 National Institute for Health and Care Excellence (NICE) recommended guideline for management of fever in infants and children aged under five.

Aim

We aimed to determine whether infants, younger than three months with fever, who were admitted to Tallaght University Hospital (TUH) underwent clinical assessment in accordance with NICE guideline.

Methods

A retrospective descriptive study was conducted from the time period Nov 2017 to Dec 2018.

Results

A total of 43 patients were admitted with fever > 38.0'C. Mean (SD) age was 49.56 (18.22) days; 36 (83.7%) infants between 1-3 months and 7 (16.27%) younger than one month.

All individuals underwent FBC, CRP and blood culture. Lumbar puncture (LP) was performed in 6/7 (85.7%) and in 23/36 (63.8%) patients who are younger than 1 month and aged between 1-3 months, respectively.

Of 43 patients, 30 who received chest X-ray (CXR) experienced persistent tachypnea and/or focal chest signs. In this cohort of patients, all, but one individual aged seven weeks, had urine testing for urinary tract infection (UTI). Diarrhoea was documented in 22 (51.2%) patients, of whom all had stool culture, as per the (NICE) guidelines.

Conclusions

With respect to management of fever in young infants, compliance with NICE guideline is satisfactory in our institute. In infants younger than 3 months who presented with temperature of 38 Celsius, FBC, CRP, blood culture, stool culture and CXR were performed as per NICE guideline. Notably, LP was performed as per NICE guideline in those older than one month, however 1 in 14 infants younger than one months did not receive it. With respect to urine testing for UTI, all complied except one.

1) National Institute for Health and Excellence (NICE): Fever in under 5s: assessment and initial management (CG160). Published; May 2013.

HEPATITIS & CHOLESTASIS IN A PATIENT WITH DOWN SYNDROME, IS IT COMMON?

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16 months old vaccinated female child with background h/o of Trisomy 21, ASD, VSD, PDA, repaired Duodenal Atresia, Nystagmus, Constipation, Rt. Eustachian Tube dysfunction and Delayed Developmental milestones presented with prodromal illness for about 2 weeks which appears to be settling but disimproved at presentation with 4 episodes of vomiting (non-bilious) & fever (39c) for 1 day.

On examination vitals were stable, blanching rash on face, ENT examination showed b/l enlarged tonsils with congestion, CVS examination showed grade 2/6 Systolic murmur and rest of her examination was unremarkable.

Investigations were as under;

Her AST,ALT, Alkaline phosphatase and GGT were raised, coagulation profile and LDH were slightly deranged, CRP was mildly raised, Viral hepatitis screen including EBV and CMV were negative, screening for Influenza, RSV, Metapneumovirus, Parainfluenza virus, Mycoplasma pneumonia, Chlamydophila Pneumina, Rhino/Enterovirus, Adenovirus, Coronavirus, Bocavirus were all negative.

KARYOTYPE 47 XX T21, TFTs, Coeliac screen, urate, CXR were normal, Urine positive for E coli treated with Cefotaxime.

US showed that gallbladder is dilated with sludge in the gallbladder lumen with normal liver.

Her liver enzymes improved after conservative management with Ursodeoxycholic acid.

Down syndrome is a chromosomal disorder associated with several autoimmune diseases such as thyroiditis, coeliac disease and type 1 diabetes mellitus. There are case reports about autoimmune hepatitis in Down syndrome patients.

What is known:

1) Cholestasis is common in Trisomy 21[1].
2) TAM can occur in Neonatal period[2,3].

These are common finding in neonatal period.

3) Autoimmune diseases are common and possibly under reported[4,5].

What this report adds:

1) Markedly elevated liver enzymes suggesting Hepatitis or liver failure can occur in older Down syndrome patients.
2) Down syndrome patients with significant liver derangements may appear clinically stable.
3) It is clinically advisable to check LFTs in ill Trisomy 21 patients to identify those with significant liver derangement that may need support.

1) Arnell H, Fischler B. Population based study of incidence and clinical outcome of neonatal cholestasis in patients with Down syndrome. The Journal of Pediatrics [J Pediatr] 2012 Nov; Vol. 161 (5), pp. 899-902. Date of Electronic Publication: 2012 Jun 01. 2) https://www.ncbi.nlm.nih.gov/pubmed/27467421 3) https://www.uptodate.com/contents/transient-myeloproliferative-disorder-of-down-syndrome 4)

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Poster No: 131
General Paediatrics

PAEDIATRIC NOCTURNAL ENURESIS: 15 MINUTE CONSULTATION

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Introduction: Nocturnal enuresis (NE) is a common paediatric condition defined as intermittent involuntary urination at night after the age of anticipated bladder control (5 years) [1,2]. Primary NE occurs when a child has been unable to accomplish continence for six months and secondary is incontinence after 6 months of dryness. The presence or absence of urinary dysfunction determines nonmonosymptomatic nocturnal enuresis (NMNE) or monosymptomatic nocturnal enuresis (MNE), respectively [3]. The present review aims to provide healthcare professionals with an evidenced-based framework to assess and treat NE efficiently in a single clinical encounter.

Methods: An electronic literature review was performed using PubMed with search terms: (Diagnosis/Broad[filter]) AND ("Nocturnal Enuresis"[Mesh] and (Therapy/Narrow[filter]) AND ("Nocturnal Enuresis"[Mesh]). Previously established guidelines with information on management were also used to develop the protocol. The search was limited to English language and peer-reviewed journals. Articles were screened independently by two reviewers.

Results: The results of this comprehensive review were used to establish a protocol for the assessment and treatment of nocturnal enuresis.

Conclusion: NE is a common paediatric condition, which is diagnosed with a thorough history and exam. The protocol developed provides evidence-based recommendations for the evaluation, treatment, management and indications for referral in a clinical encounter.

1. Hjälmås K. Pathophysiology and impact of nocturnal enuresis. Acta Paediatrica. 1997;86(9):919-922. 2. The ICD-10 classification of mental and behavioural disorders. Geneva: World Health Organization; 1992. 3. Diagnostic and statistical manual of mental disorders. 3rd ed. Washington: American Psychiatric Association.; 1980.

MULTI-RESISTANT GRAM NEGATIVE ORGANISMS IN CYSTIC FIBROSIS PATIENTS AT CORK UNIVERSITY HOSPITAL

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Aims:

The aim of this study is to evaluate the burden of multi-resistant gram negative organisms in the paediatric cystic fibrosis population attending Cork University Hospital.

Methods:

We identified patients currently attending the Cystic Fibrosis clinic in CUH who grew a multi resistant organism on respiratory culture. Retrospective analysis was performed on the organism identified, age at first growth, FEV_1 at baseline and follow up, initial treatment, maintenance therapy, days of IV antibiotics per year following first isolation, genotype, co-morbidities and geographical location.

Results:

Ten patients (6 male) out of the 100 patients attending CUH grew a multi resistant gram negative organism.

The mean age of first isolation was 7.8 years.

Burkholderia species was identified in 8 patients, Ralstonia species was isolated in one patient and Achromobacter species was identified in one patient. 5 patients had a single growth of a multi-resistant organism and 5 patients had chronic growth in their sputum cultures.

All patients had initiation with intravenous antibiotics and maintenance with nebulised antibiotics. One patient with chronic Ralstonia mannitolilytica had a protracted course with prolonged requirement for IV antibiotics following isolation.

Of 11 patients who reside in South East Ireland, 3 of these are amongst the patients with multiresistant organisms compared with 7 out of the 89 patients from the South-West.

Conclusion:

There is a significant burden of multi resistant organism growth among the CF population. We noted an apparent increase in Burkholderia amongst patients from the South East of Ireland. Further epidemiology studies of patients with Cystic Fibrosis and multi-resistant organisms is warranted.

MATERNAL AGE IN PREGNANCY AND THE RISK OF AUTISM SPECTRUM DISORDER OR ATTENTION DEFICIT HYPERACTIVITY DISORDER IN THE OFFSPRING

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Aim

To examine whether maternal age is associated with an increased risk of ASD or ADHD diagnosis in the offspring.

Methods

A retrospective analysis of the Millennium Cohort Study (MCS) was conducted. Data on maternal age at birth, and other confounders was extracted from the primary parental questionnaire which was carried out when the infants were 9 months old. Data on ASD and ADHD diagnosis was extracted from the fourth parental questionnaire carried out at age 7. Logistic regression models were used to examine the association between maternal age and ASD or ADHD adjusting for relevant confounders.

Results

18,549 singleton mother-child pairs identified in sweep 1 of the MCS, with data on maternal age which was divided into the following categories; 13-19 (8.6%), 20-24 (19.1%), 25-29 (27.6%), 30-34 (28.8%), 35-39 (13.6%) 40+ (2.2%). 13,256 mothers answered the question on ADHD, and 13,268 on ASD in sweep 5 of the study. Compared with mothers aged 25-29 years of age, children of women aged 30-34 and 35-39 were found to have a decreased risk of ADHD with adjusted odds ratios of 0.427 (0.218-0.839) and 0.380 (0.161-0.900) for ages 30-34 and 35-39 respectively. There was no significant association between other maternal age category and ADHD. A maternal age of 35-39 was found to be associated with a decreased risk of ASD (adjusted odds ratio of 0.377; 0.163-0.875). Otherwise maternal age did not influence the occurrence of ASD.

Conclusion

Maternal ages between 30 and 39 years were associated with a decreased risk of development of ADHD. Maternal ages of 35-39 were associated with a decreased risk of ASD in the child. Due to a limited number of ASD and ADHD cases in mothers over 40 further research investigating the associations between advanced maternal age and ADHD and ASD is required.

SHOTS IN THE DARK? TACKLING VACCINE HESITANCY

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Aims: Vaccine hesitancy is a critical, emerging public health issue, the consequences of which are far reaching and potentially devastating. Despite the HSE proffered vaccine schedule, the requisite 95% national uptake for herd immunity has not been achieved for any vaccine. A significant reason for this is parental refusal of vaccinations for their children - coined by the WHO as “Vaccine Hesitancy”. We aimed to identify key reasons for rising vaccine hesitancy, current parental concerns, and examine the role healthcare professionals can play in improving vaccine uptake.

Methods: PubMed literature relating to vaccine uptake, vaccine hesitancy and reluctance, and methods of promoting vaccination from 1990 to the present day was reviewed. 6918 papers were relevant to the search terms, and this was reduced to 128 studies used in the final project. Papers were excluded based firstly on abstracts, then secondly by a full text review.

Results: The factors influencing vaccine hesitancy are multifactorial. Parental attitudes were deemed to carry the most weight, often established antenatally, and trumping demographics or socio-economic factors. Issues regarding complacency and confidence in vaccines and health care professionals were highlighted, coupled with other concerns such as adverse effects and lack of coherent information. Studies stressed that tailoring vaccine consultations to individual patients was highly efficacious. Although patients often demanded additional information, studies found moderate evidence that this would change opinions. Further evidence highlighted successes in choice architecture and nudge theories to promote vaccinations at a GP practice. In effect, attempting to polarize patients into pro- or anti- vaccinations yielded little success.

Conclusion: Although there is no stereotypical vaccine-hesitant parent, there are common themes among those who refuse vaccination. Vaccine uptake must be encouraged in order to attain herd immunity, but there is currently no consensus on the best method to achieve this.

HEALTHY HEROES: AN INITIATIVE FACILITATED BY INTERDISCIPLINARY UNIVERSITY STUDENTS TO ENCOURAGE HEALTHY LIFESTYLES IN SCHOOL AGED CHILDREN

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Aims: Students from the University of Limerick (UL) Graduate Entry Medical School (GEMS) collaborated with faculties of Medicine, Physiotherapy, Psychology, Biology, and Nutrition at UL to implement a program that promotes healthy living and overall well-being in school-aged children. The Healthy Heroes program, initially based in Galway, was adapted by UL GEMS students to incorporate an interdisciplinary approach that exposed children to the various professions within a healthcare team. The program was held on April 10th, 2019 for sixty-one children between the ages of eight and ten. Interactive workshops provided children with skills and knowledge regarding the human body, healthy eating, daily physical activity, and overall mental well-being.

Methods: A survey with open-ended questions was distributed to each participant to qualitatively assess the learning and level of engagement that took place throughout the day. Questions included: 1) “What did you learn today?”; 2) “What station did you like the most?”; and 3) “What station did you like the least?”. Sixty-one surveys were received and reviewed. Fifty-seven were included in the analysis. Four surveys were excluded for lack of completion.

Results: Questions two and three indicated that students were most engaged with Cell Explorers (human biology) at 41%, followed by medical education (21%), nutrition (19%), physical activity (12%), and mental health (7%). The response to question one indicated that students gained the most knowledge with regard to the importance of their mental well-being.

Conclusions: The primary outcome of this initiative was to promote the development of healthy lifestyles in an accessible and age-appropriate manner. Despite a lower level of engagement, the importance of mental health was the most acknowledged. Moving forward, we will explore the uptake of lessons learned in the program through surveys that quantify behavioural changes made since participation in comparison to baseline behaviours.

COELIAC AND THYROID SCREENING IN CHILDREN WITH TYPE 1 DIABETES

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Aims: Comorbid medical conditions such as coeliac disease and thyroid disorders are significantly higher in patients with Type 1 Diabetes (T1D). Timely diagnosis of such disorders can prevent chronic ill health in affected individuals. Appropriate screening of children with T1D patients is crucial in optimizing diabetes management. This study aimed to measure adherence to current screening practice for coeliac disease and thyroid disorders within a regional level Paediatric Diabetes clinic. Our local guideline is to measure thyroid function and celiac screen each year in children with T1D.

Methods: This study was a retrospective analysis conducted within the regional T1D paediatric outpatient clinic at University Hospital Limerick and analyzed children with T1D who attended the clinic between June and August 2019. A chart review for each attendee was undertaken and examined for demographics, diabetes diagnosis and previous coeliac and thyroid screening data. Data were compiled and analyzed using SPSS statistical software.

Results: 76 eligible children attended the outpatient clinic during the study period. Demographic data showed a mean age of 12.1 years (range 3-18 years), 45% male gender, and a mean duration of diabetes of 7.3 years. Further analysis showed that 98.7% underwent thyroid screening for thyroid stimulating hormone (TSH), with 82% undergoing thyroid peroxidase antibody testing. 96% of attendees were screened for coeliac disease by tissue transglutaminase (TTG), with 9% showing an elevated TTG level. 75% of attendees were concurrently tested for IgA levels.

Conclusion: There is close to universal screening for thyroid and coeliac disease within the cohort examined. Concurrent IgA level measurements were undertaken in only three out of four attendees, but the remainder may have had a previously documented normal IgA level. Auditing and adherence to screening guidelines optimize the screening practice for thyroid and coeliac dysfunction in a paediatric T1D population.

CARDIOPHOBIA: INCREASED FEAR OF MANAGING COMMON PAEDIATRIC CARDIOLOGY PROBLEMS AMONG NON-CARDIOLOGIST HEALTHCARE PROFESSIONALS

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Aims – Paediatric cardiology services in Ireland are currently in high demand. Fear of managing common problems such as chest pain, murmurs and interpretation of basic ECGs appears to be common given the enormous number of these referrals to specialist centres. In this survey-based research study, we aimed to identify factors contributing to the increased number of children on the waiting list of cardiology outpatient referrals.

Methods – An online survey was distributed to basic specialist trainees working in Ireland via email as well as a physical copy handed out during basic specialist training teaching courses. The questionnaire was designed with closed-ended questions regarding common reasons for referral in paediatric cardiology. A grounded theory framework was used to generate hypotheses with the available data.

Results – One hundred surveys were completed by 100 NCHDs. Only 33% of the study participants felt confident in reading ECGs accurately and only 58% were confident in recognising cardiac chest pain. In those that had attended an RCPI Cardiology Masterclass (25), this increased to 44% and 64% respectively. When presented with an innocent murmur in a pre-school child or teenager, participants commonly chose to involve paediatric cardiology immediately – 48% and 57% respectively. 91% of participants felt that there should be greater access to paediatric cardiology courses and 97% expressed that ECG workshops would be helpful.

Conclusion – Cardiophobia is prevalent among NCHDs with 2 thirds of trainees finding it challenging to interpret an electrocardiogram and nearly half found it challenging to manage chest pain or define an innocent murmur. Such cardiophobia and FOMSD may explain the referral of such patients to specialist cardiology services. A significant majority of NCHDs expressed the desire for further education in managing such common problems. Further studies are warranted to develop pedagogical techniques to alleviate these problems for medical trainees.

AN UNUSUAL AND CONFUSING RADIOLOGICAL PRESENTATION OF AN UMBILICAL HERNIA

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Background and Aims:
Neonatal abdominal masses are uncommon and can vary from small lesions found incidentally to large lesions occupying the whole abdominal cavity and from benign to malignant.
Our aim is to report the case of a seven-week-old girl who serendipitously was found to have a radio opaque lesion on abdominal X ray which surprisingly turned out to be an umbilical hernia.

Methods:
Clinical presentation, examination findings, natural history including management and outcome to date is described. We present, with parental consent, clinical photographs, radiological images and results of laboratory investigations.
A review of the current available literature on this topic was also undertaken.

Results:
A female baby was born at 35+5 weeks to G3P3 mother with a birth weight of 2.8kg via emergency lower segment caesarean section with a subsequent uneventful post natal course. She was breastfed with some top up feeds. She presented to the Paediatric Emergency Department at the age of 7 weeks with a history of ongoing constipation not responding to lactulose or rectal suppositories for 3 weeks. She opened her bowels within 24 hours of life. Newborn screening was normal. A reducible inguinal hernia was noted but examination was otherwise normal. An abdominal X-ray revealed a rounded radio opaque shadow in the right flank raising the suspicion of a calcified abdominal mass. Abdominal ultrasound reported a 2.3cm well defined echogenic lesion calcified lesion posterior to bladder. Alpha-fetoprotein was raised 714 ng/ml.
MRI abdomen did not demonstrate any calcified mass rather giving the final impression of rounded umbilical hernia filled with gas and free fluid inside, appearing as a rounded opacified lesion on plain x ray.

Conclusion:
Umbilical hernias are common in neonates and rarely require treatment. This was an unusual radiological presentation of a common scenario prompting further investigation to reach this final and reassuring diagnosis.

PAIN MANAGEMENT IN PRETERM BABIES IN UNIVERSITY MATERNITY HOSPITAL LIMERICK

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Aim

To look for pharmacological and non pharmacological measures being followed to reduce acute and procedural pain in preterm babies admitted in neonatal intensive care unit.

Methodology

Audit was done prospectively. We followed 20 pre term babies who were admitted in NICU during 15/12/18 to 31/01/19. An already designed proforma was used to collect data regarding prematurity, name of procedure and method of pain relief used. Data was analyzed on the basis of pharmacological (sucrose, paracetamol) and non pharmacological measures.

Results

1. Gestational age varies from 28+0 weeks to 35+2 weeks.
2. Birth weight varies from 1.01kg to 2.80kg
3. Out of 20 preterm babies 17 (85%) had some form of pain relief.
4. 3 (15%) of babies had received no pain control measures.
5. Non pharmacological measures were used in 15 (75%) of babies.
6. Pharmacological measures were used in 13 (65%) babies.
7. Oral sucrose was used in 10 (50%) babies.
8. 3 (15%) babies received topical analgesia for ROP screening.
9. Combined methods of pharmacological and non pharmacological pain relief were used in 13(65%) babies.

Conclusions

Overall pain management was satisfactory in our unit when we looked at the results. However Oral sucrose was used only in 50 per cent of the babies and also it was used inappropriately. In most of the babies it was given just before procedure or during the procedure. There were no records found for how many doses of oral sucrose given to any neonate in twenty four hours.
While giving vitamin K injection to babies they received no pain relief.
The use of combination methods of pain relief was relatively low.

Recommendations

Oral sucrose should be given at least 2 minutes before the procedure as per recommendations. We can do better by following the use of combination methods.
While doing any procedure there should be documentation of pain relieving methods followed along with procedure notes.

Also keeping a record of number of doses of sucrose given to any pre term baby.

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The Diagnostic Odyssey of the Neonatal Rash

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Background and Aims

Neonatal skin is structurally unique because it is exposed to greater heat and fluid loss due to its immaturity. Dermatological conditions in neonates are mostly benign and self limiting but at times it is difficult to differentiate from serious life threatening conditions. Differential diagnosis for pustular lesions includes erythema toxicum, benign pustular melanosis, impetigo and disseminated herpes infection
Our aim is to report the interesting case of an 8 day old baby who presented with a pustular rash the ultimate diagnosis for which was Herpes simplex virus 1 infection.

Methods

Clinical presentation, examination findings, natural history including management and outcome to date is described. We present, with parental consent, clinical photographs, radiological images and results of laboratory investigations. A review of the current available literature on this topic was also undertaken.

Results

A female baby was born at 39 weeks to 29 years old primigravida mother (Irish)with a birth weight of 4kg via spontaneous vaginal delivery with no septic risk factors and good APGARS. Uneventful post natal course and baby was sent home on exclusive breast feeds. At 8 days of life mom noticed a rash on the scalp with no associated symptoms. Next day mom noticed few more lesions on the trunk. On examination baby was afebrile with stable vital signs and normal newborn examination except multiple scattered pustular lesions with surrounding erythema on trunk and scalp. No lesions noticed in oral cavity or eyes. Baseline septic work-up work up was normal. Lumbar puncture did not reveal any evidence of Herpes simplex or varicella infections but skin swab was positive for Herpes simplex virus (HSV) confirming the diagnosis of HSV 1.

Conclusion

A clear knowledge and understanding of each entity with its clinical presentation, progression, prognosis and treatment should enable correct diagnosis and treatment avoiding needless confusion and over treatment.

RETROSPECTIVE COMPARISON OF LABORATORY BASED VERSUS POINT -OF- CARE HAEMOGLOBIN A1C TESTING IN THE PAEDIATRIC DIABETES CLINIC AT UNIVERSITY HOSPITAL LIMERICK

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Aims: To determine the accuracy of Point of Care (POC) that is done for all patients attending clinic by a finger prick method on DCA Vantage machine as compared to laboratory Hba1c conducted on laboratory analyser Tosoh G8.

To examine the glycaemic control of the patients attending the paediatric diabetes clinic in UHL. (HbA1c between 53 to 58mmol/mol).

Methodology:
Data were obtained from retrospective chart reviews.
Inclusion Criteria: All the patients who attended diabetes outpatient clinics during January 2018 to July 2019 were included in this study. Patients who had their lab HbA1 done within 4 weeks of POC HbA1c were enrolled.

Exclusion Criteria: Patients whose lab HbA1c was done in more than 4 weeks duration from POC HbA1c were excluded from study.

All data were collected after designing a proforma including patient age, sex, time duration of recording of HbA1c and readings of HbA1c.

Results:
Total 117 patients were meeting the inclusion criteria out of total 240 patients.
57(48%) were male and 60(52%) were females.

Age range varies from 1.3 years to 19.5 years.

Regarding the time duration between lab HbA1c and POC HbA1c:

- 73 (44%) patients had POC done on same day
- 28 (17%) patients had POC done within 14 days.
- 16 (10%) patients had POC done between 14 and 28 days.

22(19%) patients had their HbA1c in the target range.

Five (3%) Patients were reported to have same POC HbA1cfrom clinic as reported from the lab.

Overall 111 (86%) POC HbA1c readings were lower than the lab HbA1c.

- Difference of 0 to -5 mmol (44 patients)
- Difference of -5 to -10 mmol (46 patients)
- Difference of -10 to -15mmol (7 patients)
- Above -15 mmol (14 patients)

Six (5%) patients POC HbA1c were recorded higher than the lab HbA1c.

Conclusions: Only 22 % patients had the HbA1c in the target range that reflects suboptimal glycemic control. 2.This study showed mainly negative bias (94%) for POC readings as compared to lab Hba1c.

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INDUCTION AS PART OF SAFE PRACTICE: INCORPORATING A DEPARTMENTAL HANDBOOK TO JUNIOR DOCTOR INDUCTION AT CHILDREN'S HEALTH IRELAND AT TALLAGHT.

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Introduction

Every six months, at least fifty percent of junior doctors rotate through hospital departments. For some, their paediatric rotation is their first exposure to children since medical school. The effective induction of junior doctors is a critical part of delivering safe and efficient care (1). The need for a non-consultant hospital doctor (NCHD) induction booklet was identified and we sought to create a document which will contain essential information for junior doctors and serve as a reference, even after the induction period was over.

Aim

To produce an induction booklet for NCHDs which will contain essential information on how the department is run, informs teaching and research expectations, with the aim of circulating it 2-3 weeks prior, to new doctors due to commence paediatric rotation.

Methods

A short questionnaire containing four questions was distributed to current NCHDs asking their opinion about an induction booklet and what they considered to be essential information and guidance. Questionnaires were placed in each doctor’s postal box and returned to researcher’s postal box. All questionnaires were answered anonymously.

Results

All participants indicated a positive interest in an induction booklet, highlighting components they felt would be essential in the document such as team structure and cross-cover, directory of useful numbers, teaching schedule, link to formulary and guidelines, etc. They also indicated their preferred format (40% - electronic, 13% - paper based, 47% both electronic and paper).

Conclusion

This questionnaire shows a definite interest among junior doctors in having an induction booklet prior to their starting their paediatric rotation. The booklet will aid in preparation for the new post and serve as a guide to junior doctors as they settle into working in the Paediatric Department at Children's Health Ireland at Tallaght. A pilot run will be held with GP trainees starting in November 2019, prior to it being established ahead of the January 2020 rotation.

1) Allen E, Palmer E, Lloyd J. Improving medical induction in obstetrics and gynaecology. BMJ Open Quality 2014;3:u205293.w2166. doi: 10.1136/bmjquality.u205293.w2166.

Poster No: 143
Medical/Education Management

BANKING ON MILK: AN ETHNOGRAPHY OF DONOR HUMAN MILK RELATIONS

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Donor human milk services are expanding around the world at an exponential rate, linked most often to infants born prematurely, but is also being provided to other vulnerable infants in need. The importance of human milk for vulnerable infants has been extensively identified, even among the recent social scientific work that has questioned the efficacy of human milk and health considerations. Based on the largest comparative ethnographic research conducted by a senior researcher, this discussion goes beyond the everyday life of donor human milk banking, to empirically discuss current medical social scientific theoretical debates regarding the biosocial nature of human milk.

Extensive ethnographic observations were conducted in four of the largest donor human milk banks across the UK, which is triangulated with narrative interviews from key stakeholders, as well as extensive archival and other documentary data. In addition, these data are further informed by several visits to human milk services across Europe and North America, as well as by close research associations with the global human milk exchange (HME) community. This discussion is able to extrapolate communalities of experience from a very deliberately diverse set of populations, asking critical questions, such as: Why do people decide to donate? How do parents of recipients hear about human milk? How does human milk exchange impact on lifestyle choices?

Despite the global growth of this service, it continues to be relative unfamiliarity among the general public, including healthcare providers, leading to confusion and sometimes even revulsion (the so-called 'ick' factor). The future of human milk healthcare services will involve not merely rational calculations of cost, risk and plausible benefit, but far vaguer, more pervasive and more visceral attitudes to the permeable human body. *Banking on Milk* seeks, therefore, to inform discussions of how the gendered body is used to define supposedly public and supposedly private realms of social and asocial experience.

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TO BOLUS OR NOT TO BOLUS – A COMMON QUESTION ASKED BY NCHD'S IN PAEDIATRIC EMERGENCY DEPARTMENT

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Introduction:

Acute Gastroenteritis is a common childhood illness and its severity is linked to etiology. Dehydration is a frequent association and its severity must be monitored by established scoring system[1].

Aim:

To analyse the adherence to guidelines for assessment and management of dehydration in children presenting with acute gastroenteritis in Pediatric ED.

Method:

40 charts were reviewed retrospectively over three months for children who had symptoms of vomiting and/or diarrhea. HSE clinical guidelines for assessment and management of Gastroenteritis were used as a standard[2]. Specific emphasis was given to the appropriate prescription of normal saline and dextrose boluses[3].

Results:

While assessing hydration status, the degree of dehydration was documented in 17.5% of cases. However, individual components of degree of dehydration were noted as follows; mucous membranes in 42.5%, skin turgor in 22.5%, urine output in 40% and neurological status in 92.5% of cases. 100% documentation was noted for vital signs and capillary refill time.

Our results showed that 80% of children were managed optimally.

20/40 of children required IV rehydration, and the rest tolerated oral rehydration therapy.

Of those who required intravenous fluids, 70% (14) were administered fluid boluses, but only 21.5% (3) were appropriately prescribed. 30% (6) of children were given dextrose boluses, which was only appropriate in half (3) of the cases.

Conclusion:

Acute gastroenteritis in our department is being correctly managed most of the time. Although children are invariably being assessed by examining their degree of dehydration, its documentation was very poor. This is important in order to correctly guide further management. In our department, fluid boluses are mainly reserved for children who are shocked; however, adherence was suboptimal.

As proven by this audit, assessment and management of gastroenteritis, although common, can still prove tricky in the acute emergency setting. A dehydration assessment and management tool will be drafted to aid NCHD's to correctly manage cases.

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TIPS FOR MEDICAL STUDENTS AND NON-NEONATOLOGISTS ON CHALLENGING ASPECTS OF PHYSICAL EXAMINATION OF THE NEWBORN

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Appropriate physical examination technique of the newborn infant is vital to ensure detection of pathology and the timely instigation of required management or onward referral. No infant should be viewed as 'routine' and all babies must have a comprehensive physical examination completed prior to discharge home from hospital.

Medical students are typically instructed on neonatal physical examination during their paediatric placements and may not receive any additional neonatal training prior to graduation. Many medical specialties interact with neonatal patients besides neonatal or paediatric departments including ophthalmology, orthopaedics, general surgery, dermatology and general practice. Not all pathology may be immediately evident at the time of the newborn discharge examination. Therefore, it is critically important that all professionals involved in newborn care including junior doctors, surgeons, midwives and advanced nurse practitioners who are subsequently reviewing infants in the first months of life are fully versed in appropriate physical examination technique.

This paper will outline an approach to good physical examination technique of the newborn for a number of the more challenging and error-prone aspects of the physical exam including head circumference measurement, eye examination, palpation of the femoral pulses, palpation of the testes and examination of the hips, which non-neonatal specialists and medical students may find helpful.

NOT SLEEPING LIKE A BABY: SELF-REPORTED FATIGUE IN A NEONATAL NCHD COHORT

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Background: It's widely accepted that getting adequate high quality sleep is essential for normal daily function and is paramount in maintaining a healthy lifestyle. Working extended shifts is a common occurrence for NCHDs, however, there can be a negative impact on their wellbeing as a result. Assessment of fatigue can be difficult to standardise as it is a subjective feeling. The Karolinska Sleepiness Scale (KSS) is a commonly used tool for assessing sleepiness. The KSS has been validated using EEG and behavioural variables and has been found to be a reliable method of measuring fatigue.

Aims: The aim of this study was to assess the impact of overnight on-call shifts on fatigue levels in a neonatal NCHD cohort.

Methods: This is a prospective observational study carried out over two months (April/May 2019) involving the neonatal NCHD staff at the National Maternity Hospital, Dublin. NCHDs were asked to rate their level of sleepiness on the KSS at the beginning and end of an on-call shift.

Results: Data was collected from 17 neonatal NCHDs over a 2-month period (7 SHOs, 10 Registrars). 71% of the participants were female and 29% were male. In a comparison of the pre-call and post-call KSS scores, statistical significance was found in both the SHO and Registrar groups.

Conclusions: Working outside the conventional 9am to 5pm is commonplace in the medical field. There have been a number of studies looking at the effects of sleep deprivation on physicians and the implication for safety, health, and wellbeing. Reports state that fatigue can result in increased medication use, alcohol consumption, and road traffic accidents. While hospital care is a continuous 24 hour service, it is important to ensure that NCHDs are encouraged to practice self-care in order to reduce some of the negative sequelae of working extended hours.

ARE WE LOSING THE BATTLE AGAINST INFECTONS? AN AUDIT ON ANTIMICROBIAL RESISTANCE

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Aim: To analyse the practice of prescribing outpatient antibiotics and check adherence to antimicrobial guidelines in the Paediatric Acute Emergency Department of Portiuncula University Hospital, Ireland.

Method: All children, prescribed antibiotics before discharge from Paediatric ED were included.

Pre-intervention, 55 charts in between Feb-April 2019 were audited retrospectively for prescribing 1) Correctly indicated antibiotics against certain infections based on clinical judgement and/or investigations, 2) Correct choice, 3) Duration & 4) Dose against standards as mentioned below in references[1, 2, 3, 4, 5, 6, 7]

Post-intervention, 30 charts were audited between May-July 2019 to re-check adherence to recommended standards.

Standards were redefined and implemented for common infections encountered in ED by physicians as per results of the audit. Clinical judgment was deemed optimal if it followed the standard[1, 2, 3, 4, 5, 6, 7]

Results: Pre interventions, only 56% of antibiotics were correctly indicated for certain infections. Post intervention, 96% were correctly indicated, resulting in an improvement of 20%.

Regarding prescribing the correct type of antimicrobials, antibiotic guidelines were adhered to 84% of the time. This rose to 100% post-intervention.

Of the antibiotics prescribed, 41% of outpatients were prescribed an insufficient dose which declined to 3% after intervention.

Conclusion: Despite, substantially reduced mortality from infectious diseases by advances in antimicrobials, resistance is growing at an alarming rate. This rise in antimicrobial resistance is one of the greatest potential threats to human health at global levels with serious consequences for public health, animal health and welfare[8,9]

Outpatient antimicrobial scripts are being written at PUH ED on a daily basis by junior doctors who rotate from different specialities every 6 months. Also, factors such as sub-optimal clinical judgement, parental reassurance and heavy workload in ED might contribute to excessive prescription. Our audit prompted us to make standards clear for all NCHDS. Our interventions reduced the margin of error substantially.

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PRACTICE MAKES YOU PERFECT: AN AUDIT TO IMPROVE OUTCOMES IN STRESSFUL SITUATIONS

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Aim:

To verify whether simulation-based-teaching (SBT) has an influence on an NCHDs baseline knowledge, confidence, comfort levels and situational awareness while dealing with Paediatric/Neonatal resuscitations and beyond.

Method:

A two-part survey was designed and distributed at the start of the rotation in a formal setting of 'SAFE' by lead consultant.

The first part included a comprehensive questionnaire outlining Paediatric BLS, ALS and Neonatal resuscitation to assess the baseline knowledge of all NCHDs.

The second part helped us establish NCHDs experience, confidence and comfort levels when participating in SBET sessions.

Interventions in the form of weekly alternate Paediatric/Neonatology simulation sessions were put in place. NRP and APLS instructors were designated to plan/coordinate among all NCHDs. Team leaders with 'the situation being tested' were pre-determined each week.

Overtime, situational awareness of team members was also assessed

After six months, the same survey was re-distributed to analyse the usefulness of SBT interventions.

Results:

NCHDS' were categorised according to their level of experience in Paediatrics.

Physicians who had between 0-1 years' experience in Paediatrics were not very confident, not very comfortable and scored on average 63% on the baseline knowledge questionnaire. Post intervention most NCHDs had become very confident and fairly comfortable to deal with stressful situations and better retained baseline knowledge, scoring an average of 92%

NCHD's who had 3+ years' experience were confident and comfortable to begin with and those levels only improved over 6 months. Baseline knowledge was maintained, further refining from 81 – 96%.

Conclusion:

Our main cohort of junior doctors are GP trainees who rotate from different specialities every six months with none - minimal Paediatric/Neonatal exposure and knowledge as evident from the above results. Being on call, they are the first ones to deal with Paediatric/Neonatal emergencies. Our SBT boosted their knowledge, confidence and comfort levels as well as situational awareness to deliver better patient care in stressful situations.

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NEONATAL DIABETES MELLITUS PRESENTING WITH FEATURES MIMICKING SEPSIS: THE IMPORTANCE OF CONSIDERING A DIFFERENTIAL DIAGNOSIS

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Aim: To report a rare case of six week old infant presenting with severe Diabetic-Keto-Acidosis (DKA), a life-threatening complication of Neonatal-Diabetes-Mellitus.

Method: Case History: A 6 week-old-baby girl presented with a 24-hour history of lethargy, irritability, vomiting and breathlessness.
Further information from the mother revealed: large wet nappies, bad nappy rash and oral thrush ongoing for 5-weeks. Furthermore, there was documented weight loss of 800gms from the 6-week-check, 48 hours before presentation.
Physical examination found an unwell, emaciated and pale looking baby with signs of severe dehydration and deep-breathes.
Her vitals were: RR-90/min, Spo2 90%-room air, HR-190/min, BP-103/70(82), central-cap-refill4-5-*sec*, Temp-36.3ºC.
There was a moderate increase in work of breathing and good bilateral equal air entry with unremarkable initial systemic exam.
Initial impression was late onset neonatal sepsis or gastroenteritis with severe dehydration with or without an underlying metabolic condition.

Management: Airway was supported with Airvo with a good response Two IV-lines, with a septic screening excluding LP, were inserted. She was given normal saline bolus over 10 mins and covered with Empiric antimicrobial therapy.

Results: Investigations: A heel prick blood sugar was high and ketones were 7.
A venous gas (PH:6.8, Pco2:2.8, HCO3:4, BE: -28, Lactate:4, Glucose:47) after 10 mins of arrival confirmed severe DKA.
Electrolytes were: Na+ 150, K+ 6.7,Cl 131,Ca++ 1.60
She was further managed under National-DKA-Protocol including insulin commencement, fluid management and close neuro-observation with an advice from diabetes team in the tertiary centre. Arrangements were made for safe transfer to a Paediatric-Intensive-Care-Unit (PICU) in tertiary care.
Outcome was normal with diagnostic confirmation of permanent neonatal Diabetes through KCNJ11 gene mutation. She was commenced on oral trial of Sulfonylurea (Glibenclamide) which she tolerated to obtain optimal control of glucose.

Conclusion: Neonatal diabetes is treatable and may or may not require insulin so a diagnosis by genetic testing is recommended. Diagnosing DKA in this age group is crucial as any delay in initiating right treatment may result in significant morbidity and mortality.

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NATIONAL ADHERENCE TO THE NEW NRP 7TH EDITION GUIDELINES TO DETERMINE INITIAL ENDOTRACHEAL TUBE INSERTION DEPTH FOR OROTRACHEAL INTUBATION

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Aim:

To determine the chance of error of the '6cm+birth-weight' guide for calculating oro-tracheal ETT position and further review the compliance with new 'tip-to-lip' guidelines on a national scale

Methodology:

Three years (2016-18) retrospective data of pre-terms (<32weeks), requiring oro-tracheal intubations, was collected from various hospitals. These hospitals used 'weight+ 6cm' as a guide to measure the insertion depth for oro-tracheal intubations. Using the Radiology database, chest X-ray PA view of the first intubation counter-verified by the senior radioligist, was considered as our standard to check optimal (T1-T3) and sub-optimal (above T1& below T3) 'Tip to Lip' ETT position. Data was then analysed based on birth-weight and categorised: 500-1000 g and 1000-2000g.

The results then prompted us to conduct a telephonic survey of 18 hospitals across Ireland, providing level 1-3 neonatal services. Paediatrics/neonatal registrars were contacted by phone to answer a five question survey regarding the current practice of calculating 'Tip-to-Lip' insertion depth of ETT in pre-terms at their hospital.

Results:

We found that as birth-weight decreases, the percentage of error, increases using 'birth-weight+6cm'. For birth-weight between 500-1000g, our results showed a 58% (22/38) error in tube insertion depth, which fell to 50% (11/22) for neonates between 1000-2000g.

The results from the telephonic survey showed hospitals across Ireland used the following methods: Eight hospitals: 'weight+6cm', Two hospitals: 'NTL+1cm', Six hospitals: 7th edition guidelines and Two hospitals: Don't know.

Conclusion:

Correct positioning of ETT in neonates is vital in providing adequate ventilation and avoiding life-threatening complications. As proven in our study, 'weight+6cm' is an obsolete guide and gives a greater margin of error. New 'Tip-to-Lip' guidelines have replaced it to calculate insertion depth for oro-tracheal intubation. However, nationally there is still poor compliance and 55% of hospitals across Ireland still haven't adopted the NRP 7th edition guidelines.

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Implementing a Paediatric High Dependency Unit Nursing Training Program in Tallaght University Hospital

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Background

Tallaght University Hospital is a level 2 hospital located in Dublin, Ireland. Due to its unique location with close proximity to two level three paediatric hospital centres it receives a unique case mix in its paediatric high dependency care unit.

Aim

This quality improvement project aims to identify the unique case mix presenting for admission to the Paediatric High Dependency Care Unit (PHDU) at Tallaght University Hospital and use this information to implement a bespoke training program.

Methods

To identify the case mix presenting to Tallaght University Hospital a retrospective descriptive study was performed identifying admissions to the PDHU using the admissions log book. The presenting complaint, age on admission and duration of stay was recorded from the period 1st January 2018 to 31st December 2018 was recorded. From the above record a 3 day PHDU training course was designed and implemented for nursing staff at Tallaght University Hospital.

Results

During the one year study period there were 254 admissions to the HDU. Of these 92.9% required PHDU care and 7.1% were due to no capacity on general wards. Average age at admission was 6.3 years (Range 9 days to 18 years). The average duration of stay was 2.1 days for PHDU patients (Range 1 to 14 days). In order of frequency admissions were Respiratory(40.9 %), Post-op(22.8%), Endocrine(10.2 %), Infection(6.7%), Neurology(6.7%), Toxicology(3.9%), Trauma(2.4%), Cardiovascular(1.6%), Haem/Onc(1.6%), Other(1.6%), Urological(0.8%) and Gastrointestinal(0.8%). The three day training program was conducted on the 4th, 5th and 10th June 2019. Feedback forms were evaluated and recommendations considered for the implementation of future versions of the training program.

Discussion

The PHDU training program was an overall success. Determining the case mix in advance allowed for blueprinting of the training program curriculum to the unique case load presenting for admission to the PHDU.

AN AUDIT OF PREGNANCY OUTCOMES IN WOMEN WITH CHILDHOOD ONSET TYPE 1 DIABETES MELLITUS

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Background
Pregnancy in women with type 1 diabetes mellitus (T1DM) is associated with an increased risk of congenital malformations, obstetric complications and neonatal morbidity. This study aims to investigate maternal, perinatal and neonatal outcomes of pregnancies in women with onset of T1DM less than 18 years of age.

Methods
This retrospective descriptive study was conducted from 1st July 2007 to 1st July 2017 using cases identified from the diabetes in pregnancy register at University Maternity Hospital Limerick.

Results
Seventeen women with juvenile onset T1DM gave birth to 23 live infants during the study period. 88.2% women had medical problems apart from T1DM. 95.7% neonates were admitted to the neonatal unit, 60.9% developed hypoglycaemia and 43.5% required treatment for jaundice.

Conclusion
Childhood onset T1DM is associated with significant risk of adverse maternal and neonatal outcomes. Paediatric and neonatal clinicians should have a low threshold for admission of this cohort to the neonatal unit.

PICC Line Placement in Newborns:

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The PICC line is a long thin flexible tube inserted in the infant's upper limb (basilic, cephalic, axillary veins), lower limb (saphenous, popliteal veins) or scalp (temporal, posterior auricular veins) and placed in the superior/inferior vena cava. It has become an invaluable tool in the delivery of PN, antibiotics, medications, vasopressor agents, and hyperosmolar solutions. The great advantage is that it can be undertaken at the cotside.

During the period Jan '18-Jan'19 a total of 100 PICC were inserted in our NICU.
The gestation of the infants was: <34 weeks (87%), 34-37 weeks (7%), ≥37 weeks (6%).
The catheters used were either 28G (1 Fr) or 24 G (2Fr) Permicath catheters. A full aseptic technique was employed.
The insertion sites were: upper limb (73%), lower limb (25%), and scalp (2%).
Following insertion, a confirmatory x-ray was performed. The catheter needed repositioning in 66% cases. The time taken to carry out the procedure ranged from 45 – 90 minutes. The PICC lines are left in situ for usually 1 week.

The subsequent PICC infection rate was 4 %. Coagulase-negative staphylococcus was the causative organism in all cases.

PICC lines have in use in our Unit for almost 2 decades. Over time the complication rates have steadily declines. The infection rate is best KPI when assessing the efficacy of a neonatal PICC service.

OF AUDIT: USE OF INFLORAN IN CWIUH

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Aims: Asses the current practice of probiotics use per hospital guidelines and correlating the evidence of effects of probiotic supplementation on enteral nutrition in preterm neonates

Methods: This study included the neonates admitted to neonatal unit over 4months period from January to April'2018.

Among the identified 25 neonates with inclusion criteria (Gestational Age less than 32 weeks and birth weight less than 1.5 kg) there were 4 early neonatal deaths.

Primary data collected regarding Gestational age, Birth weight,timing of initiation and discontinuation of probiotics

As secondary outcome, data were collected regarding timing of establishment of full enteral feeds, incidence of necrotizing enterocolitis,rate of weight gain,number of episodes of feeding intolerence and mortality.

Study conducted retrospectively reviewing medical charts of 21 babies (using hospital HIPE) and using Microsoft Excel for descriptive statistical analysis.

19 neonates: singleton pregnancy, 2: multiple pregnancies. Gestational age ranging from 25+3 to 31+4 (Average 27+3) Birth weight from 650 grams to 1420 grams (Average 974gm) Duration of probiotics range from 3 weeks to 8 weeks (average 6wks)

Results: 14 (66.66%)neonates received probiotic therapy as recommended within 24hrs of initiation of enteral feeds 5 (23.8%)were given supplementation within 48 hours and 2(9.5%) were in more than 72 hours Average rate of weight gain 26.4gm/day 8 (38%) neonates reached full enteral feeds by DOL 6; 9 (42.8%) were by DOL 7, 3 (14.2%) babies at DOL 8 and 1 (4.7%) neonate reached at DOL 9 Among the babies who reached the full enteral feeds at earliest time, 7 (87.5%)were commenced on probiotics within 24hrs and 1 (12.5%) received infloran after 72 hours None developed NEC and mortality rate is nil. 11 neonates developed intolerance in form of vomiting, abdominal distension and gastric aspirates

Conclusion: This study represents our current practice regarding Infloran supplementation where the timing of initiation of therapy is in much accordance with hospital policy and we are fully compliant with the duration of probiotic supplementation

Alfaleh K, Anabreees J. probiotics for prevention of Necrotizing Enterocolitis in preterm infants: The Cochrane Database Systematic Review 2014

AUDIT OF THE MANAGEMENT OF NEONATAL JAUNDICE ON THE POSTNATAL WARD

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Background: Jaundice occurs in most newborns. RCPI and AAP guidelines are followed in post-natat ward regarding management of neonatal jaundice. As part of the newborn examination, risk assessment is carried out using the Bhutani nomogram to plan postdischarge follow up.

Objective: To assess management of newborns with neonatal jaundice on the post-natal ward, aiming to reduce readmission rate to the Paediatric department University Hospital Limerick (UHL).

Methods: Retrospective chart review of babies readmitted to UHL between July - December 2018 with neonatal jaundice. Babies born less than 35 weeks gestation, who were previously admitted to the neonatal unit or where chart was not found were excluded. Data regarding risk factors for developing neonatal jaundice and its management were collected.

Results: Nineteen babies met the inclusion criteria, four of them were excluded. Eight babies had one risk factor and 3 babies had 2 risk factors as identified by the RCPI guideline (2). All babies had been assessed on the day two clinical check, 14 had transcutaneous bilirubin (TCB) measured. 13 babies were identified having increased risk for needing treatment based on the Bhutani nomogram and had follow up plan in place when discharged. Serum bilirubin (SBR) and direct Coombs test (DCT) were checked in 6 and 3 babies respectively prior to discharge after birth. DCT was performed in all babies when readmitted for treatment and all were negative. One patient was discharged with a serum bilirubin above the phototherapy threshold most likely due to misinterpretation of the results.

Conclusion: All babies need TCB as part of the day two check. Where blood testing is indicated both DCT and SBR needs to be requested. Interpretation of the bilirubin results needs to be more precise using both phototherapy and Bhutani nomograms. Newly appointed NCHDs need to be educated on the management of neonatal jaundice.

1. AAP Clinical Practice Guideline. Management of hyperbilirubinemia in the newborn infant 35 or more weeks of gestation. Paediatrics 2004. 2. RCPI guideline: Term infant with neonatal jaundice on the postnatal ward

A ONE-YEAR RETROSPECTIVE REVIEW OF NEONATAL TRANSPORTATION IN UNIVSERSITY MATERNITY HOSPITAL LIMERICK, MID-WEST REGION OF IRELAND.

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Neonatal transfers are a vital part of care possibly required in the first 6 weeks of life. Despite in-utero transfers of high-risk pregnancies; post-natal transfers are still prevalent.

Aims: Assessment of transfers to and from the University Maternity hospital in Limerick (UMHL).

Methods: Retrospective review of transportation documents in UMHL between July 2018 and June 2019.

Results: A total of 88 patients transferred, however three sets of twins were transported simultaneously. Seventeen (19.3%) transfers were on weekends or bank holidays (incomplete date documented for six transfers).

Midwives completed 48 of the transfers. 17 were by the National Neonatal Transport Programme (NNTP). 14 cases required a local registrar or advanced nurse practitioner (ANP).

Sixty-two (70.5%) of the transfers were from UMHL to other hospitals; including Dublin (28), Cork (4) and to the regional hospital in Limerick for admission for on-going care (11), clinic (5) or imaging (10).

Conclusion: UMHL is a tertiary referral centre for Ireland's mid-West region. Commonly, tertiary NICUs are at full capacity, resulting in numerous inter-hospital transfers[1]. Staffing in neonatal units is an on-going dilemma and information on transfers can aid rota organization.

The regional hospital's paediatrics department is used to continue care if the neonatal intensive care unit (NICU) is full. Clinic assessments are sometimes performed at this separate location. Moreover, if acute imaging (other than x-ray) is required, UMHL is unique in that transfer is required to another hospital (~4.3km distance).

Rapid resuscitation and transfer to appropriate services improve infant mortality[2]. Almost one-fifth of transfers were on weekends or bank-holidays with minimal staff. The NNTP Transport service is tailor-made to Irelands geography; however, if unavailable, local staff should be trained. Transport is high-risk; hostile environment and making the infants comfortable is priority.[3]

Prompt return to local units is paramount; ensuring acute bed-spaces are available. Antenatal transfers of high-risk pregnancies due to closed NICUs can occur; meaning women deliver babies miles from their family.

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ANTERIOR URETHRAL VALVES: A CURIOUS CASE OF LOWER URINARY TRACT OBSTRUCTION.

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Introduction: Anterior urethral valves are very rare congenital lesions, prevalence 1/50000-80000 live births. These lesions often result in lower urinary tract obstruction, which when unrecognised can lead to serious renal and urinary tract complications.

Case: A late preterm baby boy born at 2.645 kg by caesarean section to a multiparous mother who had developed pre-eclampsia with otherwise unremarkable antenatal history and normal scans. He presented on day 1 of life with the unusual symptom of intermittent dribbling of urine from the urethra. There was mild abdominal distension noted and later a palpable bladder below the umbilicus. An abdominal ultrasound revealed findings in keeping with lower urinary tract obstruction. Micturating cysto-urethrogram confirmed anterior urethral valves with a linear filling defect along the anterior wall of the urethra. He was treated endoscopically with valve cautery and has been well since with no residual signs of lower urinary tract obstruction. His electrolytes and renal function tests were normal.

Discussion: The exact aetiology is undetermined, and as a result of the very low prevalence and subtlety of presenting signs most cases are missed in the neonatal period. They present later on in childhood with complications of lower urinary tract obstructions and renal failure. The diagnostic investigation of choice is the micturating cysto-urethrogram, which will have characteristic findings such as; a dilation of the urethra proximal to the valve and a narrowing distal to it, a linear filling defect along the anterior wall, a dilated urethra ending in a smooth bulge or an abrupt change in the calibre of the urethra. In stark contrast to diagnosis, the definitive treatment is simple; consisting of a straightforward endoscopic procedure involving valve destruction by electrocautery or resecting hook with strict fluids and electrolytes monitoring.

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DIFFUSION TENSOR IMAGING IN NEONATAL ENCEPHALOPATHY

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Aims

Neonatal encephalopathy is a heterogeneous clinical syndrome of disordered neurological function in the term-born neonate. Diffusion tensor imaging (DTI) during the first few days of life can be used to assess brain injury in neonates with neonatal encephalopathy in order to predict outcome. The goal of our review was to identify specific white matter tracts of interest that can be quantified by DTI as being altered in neonates with this condition, and to investigate its potential prognostic power.

Methods

Searches of Medline and the Cochrane Database of Systematic Reviews were conducted to identify studies with diffusion data collected in term-born neonates with neonatal encephalopathy, using combinations of the terms (neonatal encephalopathy), (hypoxic ischaemic encephalopathy) and (diffusion tensor imaging). Extracted data included population characteristics, imaging protocols, definition of NE, the results of any conventional MRI findings or scoring criteria, diffusion metrics for the white matter, and any recorded outcome assessments.

Results

Nineteen studies were included in the systematic review, describing restricted diffusion in encephalopathic neonates as compared to healthy controls, with the posterior limb of the internal capsule and the genu and splenium of the corpus callosum identified as particular regions of interest. Restricted diffusion was related to adverse outcomes in the studies that conducted a follow-up of these infants.

Conclusion

Obtaining diffusion measures in these key white matter tracts before pseudonormalization can not only identify the extent of the damage, but can be used to assess the impact of therapeutic hypothermia on the injury, and as a prognostic tool to predict possible neurodevelopmental outcomes.

CLINICAL AUDIT LIAISON CASELOAD.

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Aim

To examine the incidence of hypoglycaemia and Hypothermia between May to October 2018 and to demostrate the effect of initiatives introduced mid way through audit to address hypothermia. Finally, to evaluate compliance to current hypoglycemia guideline.

Method

Data was collected from charts including, demographic data, gestational age, birth weight, risk factor for hypoglycemia and compliance to hypoglycemia guidelines (dextrose bolus, glucogel, metabolic work up and later developmental follow up).First cohort(May-July 2018) and second cohort(August-October 2018).July –August concern by Liaison staff regarding number of infants with mild hypothermia during heat wave. Initiative introduced to address same (like the use of hat, not to place babies beside draft and try to check the blood sugar beside their mother and so forth).

Result

1,561 episodes of care by the Liaison Nurse over the study period.106 (7%) infants reviewed for Hypoglycaemia, Hypothermia or both, and 39 (37%) cases required full admission. This audit showed that babies born to mother with gestational diabetes was the most common risk factor for hypoglycemia with 23.5% and prematurity and low birth weight were second with 15% and hypothermia was the third most common risk factor for hypoglycemia with 14%.In the first cohort 24% of babies were Hypothermic and this was reduced to 11% following intervention. In addition, all babies received two doses of glucogel as per hypoglycemia guidelines and only one baby required metabolic work up with blood sugar less than 1mmol/l, in other hand , compliance to give dextrose bolus ,doing fasting blood sugar and developmental follow up, did not follow the current guidelines in majority of babies.

Conclusion

Hypoglycemia and hypothermia or both, contributed to 7% of the cohort. Hypothermia was the third commonest cause of hypoglycaemia, and the initiative has reduced the number of babies with Hypothermia and consequently hypoglycaemic. In addition, further education is required with regards to current hypoglycemia guidelines.

LABORATORY INVESTIGATION FOR VIRAL INFECTION IN CLINICALLY UNWELL NEONATES AT CWIUH.

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Aim

The objectives of this audit is to review the number of detected viral infection in neonate in 2018 and to develop a Porforma of viral testing in neonate in the Coombe Hospital.

Method

Babies with diagnosis of clinical sepsis and negative blood culture at 48 hours from January 2018 to December 2018 were included. Data was obtained from IT department in the hospital and with guidance from virology laboratory to detect the number of babies who had viral testing.

Result

In 2018,429 babies were admitted to the neonatal units with clinical sepsis and had negative blood culture at 48 hours. Of whom ,102(23%) of babies had viral testing done,
9 of 102 patients tested were positive,4 positive for Human Herpes virus 6,1 positive in throat, CSF and blood,2 in CSF,1in blood. In additon,2 patients positive CMV in blood, mouth and urine,1 patient was Enterovirus positive in serum, CSF and throat swab,1 patient was positive for Rhinovirus in nasal swab,1 infant was positive for paraecho virus on both CSF and throat and respiratory secretions.

Conclusion

Worldwide viral infection is underestimated. It can result in significant morbidity and mortality. The incidence of viral infection in this audit is 2% which is similar to worldwide figure. A porforma based on the West of Scotland guidelines is discussed and further modifications are suggested for example to add images of request form required and the swab for each particular test. In addition, it showed which test to do based on clinical presentation, for example, suspected upper or lower respiratory tract infections, throat NPA and ETT secretion for respiratory viruses. Furthermore, if you suspect meningitis or encephalitis, so you require to send throat, NPA, ETT, urine, feces, blood and CSF for paraecho and enteroviruses.

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48 NO MORE

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Background:

NICE guidelines recommend reporting negative blood cultures at 36 hours in asymptomatic infants at low risk of early-onset sepsis and delaying routine CRP testing until 18-24 hours post initial evaluation[1]. Our aim was to benchmark our practise against national and international standards of care.

Methods:

Retrospective review of all babies with positive blood cultures in a tertiary neonatal unit over ten years. Review of current national and international guidelines. Re-auditing of practice 6 weeks after introduction of updated guideline. Updated guideline includes reporting of negative blood cultures at 36 hours, new gentamicin dosing allowing prescribing as a stat dose and use of CRP levels only in the presence of clinical signs of sepsis.

Results:

In the cohort of late preterm/term infants, there were 83 positive blood cultures over a 10 year period (2009-2018). 82% became positive within 36 hours. Fifteen cultures grew after 36 hours, with 14 cultures reported as contaminants in healthy infants.

In the cohort of preterm infants (<35 weeks gestation), there were 172 positive blood cultures over 4 year period (2014-2018). 93.6% became positive within 36 hours. Eleven cultures grew after 36 hours, 5 reported as contaminants.

Time-to-positivity in all cases of E.coli sepsis was <36 hours from sampling in both cohorts.

Reauditing of positive blood cultures after introduction of new guideline showed there were no missed cases of culture proven sepsis after changes to our protocol and no gentamicin errors.

Conclusions:

By changing reporting of blood culture samples to 36 hours, there was significant reduction in antibiotic administration to well infants, thus reducing hospital stay for infants and mothers, reducing potential for adverse gentamicin errors and antibiotic resistance, and reducing interference with maternal bonding. Antibiotics also come with the risk of potential life long effects on the newborns microbiome[2], and thus their exposure should be minimised where possible.

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DOCUMENTATION OF NEUROLOGICAL EXAMINATION WHEN DETERMINING ELIGIBILITY FOR THERAPEUTIC HYPOTHERMIA.

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Aim

Neonatal encephalopathy (NE) is a clinical syndrome characterized by disturbed neurologic function. Standardised assessment must be performed in the first six hours of life. Our aim was to assess if grade of encephalopathy and complete neurological exam was documented among infants admitted with NE, when determining eligibility for therapeutic hypothermia (TH).

Methods

A retrospective chart review of infants admitted with NE over a one year period was performed. Approval to conduct this audit was obtained from the local clinical research and ethics committee. The documentation of all assessments conducted following admission was reviewed; including grade of encephalopathy and details of any neurological exam documented. The results were presented to staff and trainees, in tandem with educational sessions on performing and documenting a standardised exam.

Results

Thirty-one patients were admitted with NE during this time period. Of these infants, twenty-four received TH, and seven did not.

During the first six hours of life, an overall grade of encephalopathy was documented in only nine (29%) of these infants. The majority of infants, twenty-eight (90%), did have at least part of a neurological exam documented during this time. No infant had all components of the standardised exam included in the documentation, thus preventing retrospective assessment of grade of NE. There was no difference in the quality of documentation between those that did and did not receive TH. By the time of discharge documentation had improved, and the grade of encephalopathy was detailed in twenty-five patients (81%).

Conclusion

The documentation of the neurological examination when determining eligibility for TH is inadequate. Though the documentation improves by discharge, initial documentation must be improved to ensure appropriate clinical practice and patient safety. To achieve this, educational sessions for staff and trainees have been initiated, after which repeated audit will be conducted as part of this quality improvement initiative.

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THE FORGOTTEN FRONTLINE… TRANSFUSION DEPENDANT THALASSAEMIA IN A CONFLICT SETTING.

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Aim

There is a high carrier rate of thalassemia amongst the Syrian population. Thalassaemia services, including regular blood transfusion (BT) and Iron Chelation Therapy (ICT), are not reliably available since 2011 when the Syrian conflict started. Our Non-Governmental Organisation (NGO) supports a district hospital in North-eastern Syria. For a time when the context had stabilised, our support focus expanded to improve care for chronic disease, including thalassemia and Iron chelation therapy was re-introduced. This abstract describes the clinical characteristics of the thalassemia cohort.

Methods

Thalassaemia patients seeking BT were registered in database on which eligibility for ICT was established. Routine biometric, clinical, and laboratory data, collected before commencing chelation was retrospectively analysed.

Results

Hundred-ninety-seven thalassemia patients attend our services regularly for BT, 52% (103/197) were female; median age: 9 years (range 0,5-39, IQR: 9); median BMI 16.6 kg/m^2 (range 11.3-26.1, IQR=3.2). Patients received blood transfusion on average every 19.1 days (median 15, range 5-60 days, IQR: 10, N=178); median pre-transfusion haemoglobin was 7.5 g/dL (range: 3.9-12, IQR=2). More than 80% (164/197) of the cohort comes from outside the district to our centre seeking ICT. Forty-nine (49/197; 25%) had previously been on ICT; 51/197 (26%) were previously splenectomised and 44/155 (28%) tested were Hepatitis C positive. Hundred-twelve patients (112/175; 64%) displayed clinical evidence of mild to moderate cardiac overload and 3/175 patients (2%) were in overt clinical heart failure. Ferritin pre-treatment test was done in 155 patients: 136/155 (87%) had a ferritin level above 1000ng/ml (Figure 1). Patients with cardiac compromise were prioritised for DFO pump, others were commenced on oral chelators.

Conclusion

The poor nutritional status and clinical features of this cohort illustrates the indirect consequences of war on the health status of this patient group and the need for safe, free and accessible blood transfusion, iron chelation therapy and supportive care.

48, XXX, +21: TRIPLE XXX IN A PATIENT WITH TRISOMY 21 AND VENTRICULOMEGALY

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Antenatally this female foetus was noted to have ultrasound features suspicious for Trisomy 21. Subsequent scans showed ventricular septal defect and bilateral ventriculomegaly. An amniocentesis diagnosed 48, XXX, +21.

She was born at 39 weeks by elective caesarean section due to her ventriculomegaly. Phenotypically she has distinct features of Trisomy 21 including wide epicanthic folds, up slanting palpebral fissures, hypotonia and macroglossia.

A postnatal karyotype confirmed 48, XXX, +21. A cranial ultrasound identified an absent septum pellucidum, ventriculomegaly but no parenchymal abnormality. Echocardiogram confirmed an atrioventricular septal defect.

MRI Brain confirmed moderate dilatation of the lateral ventricles especially posteriorly and dilatation of the third ventricle with a suggestion of aqueduct stenosis. It also demonstrated some deficiency of the splenium of her corpus callosum and absence of her septum pellucidum.

This case report demonstrates a rare finding of double trisomy of 48, XXX, +21 with interesting MRI findings which have not been previously described.

Literature Review:

Double trisomy is a rare phenomenon that can occur, there are few case reports in the literature describing this. The most common trisomy is 48, XXX, +21. It is likely that this aneuploidy is a result of nondisjunction which is linked with increasing maternal age. When looking at products of spontaneous abortion, a significant number of these demonstrate large chromosome trisomies. The absolute number of 48, XXX, +21 found in products of miscarriage is low, therefore the percent of 48, XXX, +21 resulting in early pregnancy loss remains unclear. Patients are phenotypical of Trisomy 21 however it is not clear whether or not this double trisomy reflects an increased risk of significant neurodevelopmental problems as compared with Trisomy 21 alone.

This female infant will require ongoing multidisciplinary input and review to monitor her developmental progress and hydrocephalus.

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22q11 DELETION SYNDROME: NEONATAL WORKUP AND CHILDHOOD FOLLOW-UP

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Aims: 22q11 deletion syndrome (22q11DS, also known as DiGeorge syndrome, velocardiofacial syndrome) is the most common microdeletion syndrome. Presentation is typically with one or more of congenital heart disease, palatal and ear nose and throat abnormalities, hypocalcaemia and hypoparathyroidism, immune deficiency and developmental delay. The aim of this study was to review current literature and guidelines on this syndrome, and to develop a clinical tool to aid in recognition, investigation and appropriate follow-up from the neonatal period.

Methods: A systematic literature search was conducted through EMBASE using search terms ‘DiGeorge syndrome’ and ‘new-born’ or ‘infant’. Current published guidelines, consensus statements and experts of the field were also consulted during the development of a comprehensive clinical summary of the condition.

Results: The initial search returned 446 results, of which 57 articles were included in the systematic analysis. The literature reflected the wide variety in the phenotypes of 22q11DS. The most common presentations were cardiac malformations, developmental delay, palatal abnormalities, immunodeficiency and hypocalcaemia.

Conclusion: A multidisciplinary approach to the complex clinical picture of 22q11DS is essential as the age and features at the time of diagnosis are variable. Early diagnosis is becoming more common with the advance of genetic testing. However, follow-up protocols for patients with the syndrome are not well-established, making the work-up and long-term management of this patient population a clinical challenge.

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A CASE OF AMNIOTIC BAND SYNDROME ASSOCIATED WITH EXOMPHALOS

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Aim:

To present a case of exomphalos (omphalocele) associated with amniotic band syndrome

Methods:

We describe a case of antenatally diagnosed exomphalos with amniotic band syndrome

Results:

L.H was born at 36 weeks gestation with an antenatal diagnosis of exomphalos. At birth she was noted to have a 5cm x 6.5cm abdominal defect with a neck of less than 2cm containing small and large bowel with no solid organs consistent with a minor exomphalos. She was also noted to have a deep constriction defect of her right lower limb and a small skin tag on the radial aspect of the left index finger. She had no dysmorphic features and a normal palate.

She was transferred to a tertiary paediatric centre for surgical management and underwent primary closure of exomphalos at Day 6 of life with an uncomplicated course to full feeds on day 11 of life and discharge home on day 15. The constriction band was managed with regular meptid dressings.

Further imaging including cardiac echo, abdominal ultrasound and cranial ultrasound were unremarkable. Genetic investigations showed a normal 46XX karyotype with postnatal microarray showing a very small 849kb gain in the long arm of chromosome 9, also present in her father and felt to be non significant.

Follow up at 6 weeks showed good epitheliasation of the constriction band with somewhat limited ankle and foot movements, abdominal wound was well healed and the patient was thriving.

Conclusion

Amniotic band sequence is a well known condition associated with a variety of birth defects. While constriction ring defects of the limbs are the most commonly seen manifestation, visceral defects including exomphalos have been recognized. [(1)] This case demonstrates an association between an exomphalos minor and amniotic band syndrome in a patient with no other significant genetic or chromosomal abnormalities.

1. Seeds JW, Cefalo RC, Herbert WN. Amniotic band syndrome. Am J Obstet Gynecol. 1982 Oct 1;144(3):243-8

AN AUDIT OF THE NEONATAL SCREENING EXAMINATION IN CAVAN GENERAL HOSPITAL

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Aims

The neonatal screening examination is routinely carried out on all newborns prior to discharge. It is an opportunity to screen for congenital abnormalities and illness. (1) Our audit was prompted by a late presentation of critical congenital heart disease in which oxygen saturations were not documented at birth.

We sought to review over a one month period our compliance with hospital standards for completion and documentation of the neonatal examination in the medical notes.

Methods

We conducted a retrospective chart review of 117 neonates born in June 2018. We assessed compliance with completion of the neonatal screening form. We analysed the document in each chart and collected information on complete and incomplete fields.

Results

117 charts were analysed. Only 27 (23%) showed full completion of all fields. 90 (77%) charts had one or more fields incomplete. The fields most commonly omitted were the growth centiles with 69 (59%) missing head centile and 68 (58.1%) missing length centile.

Other fields omitted included hearing screening (30.7%), haemoglobinopathy screening (13.7%), feeding method (4.3%), oxygen saturations (1.7%), hip exam (1.7%), genitalia (0.9%) reflexes (0.9%) and movement (0.9%).

We noted 9 babies (7.8%) referred for outpatient hip screening and 4 charts lacking an identifying Doctors' MCRN.

Conclusions

This audit shows that, while the majority of newborns in CGH have a complete neonatal examination, required documentation of centiles, hearing and haemoglobinopathy screening is often omitted. Other important aspects of the examination have also been occasionally omitted. This is concerning due to the risk of poor health outcomes if pathology is missed. For example, oximetry screening has been shown to enhance detection of critical CHD in asymptomatic newborns. (2) We suggest that education of incoming NCHDs includes an emphasis on the rationale behind each aspect of screening and the importance of 100% completion.

1. The Newborn Clinical Examination Handbook, Publication of The National Healthy Childhood programme HSE 2018 2. Impact of pulse oximetry screening on the detection of duct dependent congenital heart disease: a Swedish prospective screening study in 39,821 newborns. Granelli et al, BMJ 2009

REVIEW OF TIGHT JUNCTION PROTEINS AS POTENTIAL BIOMARKERS FOR NECROTIZING ENTEROCOLITIS (NEC)

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Aim: Necrotizing enterocolitis (NEC) is a severe inflammatory bowel disease afflicting micropreterms weighing less than 1500g[1]. The intestinal epithelial surface is the primary barrier protecting the body against invasion of pathogens, with its dysfunction believed to have a role in the pathogenesis of NEC[2]. The intestinal epithelial layer is stabilized by tight junctions[3]. Tight junctions are cell-cell adhesion complexes found in of intestinal epithelial cells, with the major two constituent proteins being occludin and claudin proteins[4-6]. This review of literature highlights the role of claudin proteins in relation to intestinal stability and the stability of the gut epithelial barrier, as well as their use as a potential novel non-invasive biomarker for NEC.

Methods: A systematic review was conducted using articles from: Pubmed, Embase, Medline, Web of Science, and ScienceDirect.
Search terms: Claudin + Necrotizing Enterocolitis. Tight Junction + Necrotizing Enterocolitis.
Inclusion criteria: Studies performed on above terminologies and overlapping terminologies.
Exclusion criteria: Studies performed prior to 2010. Studies that focused on research methods.

Results: Altered expression of claudin isoforms correlates with elevated intestinal permeability in the context of appreciated risk factors for NEC[7-11]. Alterations to the gut microenvironment (formula feeding, nutritional supplementation) has been shown to influence gut permeability through the modification of tight junctions[12-18]. Tight junction stability and subsequently protection from the development of NEC has been supported by claudin expression changes in the presence of commensal bacteria[19-21]. Correlations between claudin expression levels the intestine and urine, reflective of the temporality and severity of NEC has been appreciated in human neonates, making claudin protein expression a possible biomarker for the early detection of NEC to allow for appropriate intervention[22,23].

Conclusion: Changes to claudin isoforms has been shown to correlate with understood risk factors for NEC and may represent a promising future direction for the development of a clinical biomarker.

1. Neu J, Walker A. Necrotizing enterocolitis. N Engl J Med. 2011;364:255-64. 2. Ng P. An update of biomarkers of necrotizing enterocolitis. Semin Fetal Neonatal Med. 2018;23(6):380-386. 3. Cukrowska B, Sowinska A, Bierla J, et al. Intestinal epithelium, intraepithelial lymphocytes and the gut microbiota - Key players in the pathogenesis of celiac disease. World J Gastroenterol. 2017;23:7505-7518. 4. Mitic L, Van Itallie C, Anderson J. Molecular physiology and pathophysiology of tight junctions I. Tight junction structure and function: lessons from mutant animals and proteins. Am J Physiol Gastrointestin Liver Physiol. 2000; 279:250-4. 5. Tsukita S, Furuse M, Itoh M. Multifunctional strands in tight junctions. Nature Rev Molecul Cell Biolog. 2001;2:285-93. 6. Salim S, Soderholm J. Importance of disrupted intestinal barrier in inflammatory bowel diseases. Inflamm Bowel Dis. 2011;17:362-381. 7. Ares G, Buonpane C, Sincavage J, et al. Caveolin 1 is associated with upregulated claudin-2 in Necrotizing enterocolitis. Sci Rep. 2019; 9(1):4982. 8. Bein A, Eventov-Friedman S, Arbell D, Schwartz B. Intestinal tight junctions are severely altered in NEC preterm neonates. Pediatr Neonatol. 2018;59(5):464-473. 9. Ravisankar S, Tatum R, Garg PM, et al. Necrotizing enterocolitis leads to disruption of tight junctions and increase in gut permeability in a mouse model. BMC Pediatr. 2018;18(1):372. 10. Bergmann KR, Liu SX, Tian R, et al. Bifidobacteria stabilize claudins at tight junctions and prevent intestinal barrier dysfunction in mouse necrotizing enterocolitis. Am J Pathol. 2013;182(5):1595-606. 11. Högberg N, Stenbäck A, Carlsson P, et al. Genes regulating tight junctions and cell adhesion are altered in early experimental necrotizing enterocolitis. J Pediatr Surg. 2013;48(11): 2308-12. 12. Shen H, Lei Y, He X, et al. Role of lactoadherin in intestinal barrier integrity in experimental 13. Shen H, Lei Y, He X, et al. Role of lactoadherin in intestinal barrier integrity in experimental neonatal necrotizing enterocolitis. J Cell Biochem. 2019. doi: 10.1002/jcb.29255. 14. Zhu H, Wang H, Wang S, et al. Flaxseed oil attenuates intestinal damage and inflammation by regulating necroptosis and TLR4/NOD signalling pathways following lipopolysaccharide challenge in a piglet model. Mol Nutr Food Res. 2018;62(9):e1700814. 15. Xiao S, Li Q, Hu K, et al. Vitamin A and retinoic acid exhibit protective effects on

necrotizing enterocolitis by regulating intestinal flora and enhancing the intestinal epithelial barrier. Arch Med Res. 2018;49(1):1-9. 16. Rentea RM, Liedel JL, Welak SR, et al. Intestinal alkaline phosphatase administration in newborns is protective of gut barrier function in a neonatal necrotizing enterocolitis rat model. J Pediatr Surg. 2012;47(6): 1135-42. 17. Roy SK, Meng Q, Sadowitz BD, et al. Enteral administration of bacteria fermented formula in newborn piglets: A high fidelity model for necrotizing enterocolitis (NEC). PLoS One. 2018;13(7):e0201172. 18. Li Y, Ostergaard MV, Jiang P, et al. Whey protein processing influences formula-induced gut maturation in preterm pigs. J Nutr. 2013;143(12):1934-42. 19. Siggers J, Sangild P, Jensen T, et al. Transition from parenteral to enteral nutrition induces immediate diet dependent gut histological and immunological responses in preterm neonates. Am J Physiol Gastrointest Liver Physiol. 2011. 301(3):435-45. 20. Ling X, Linglong P, Weixia D, et al. Protective effects of Bifidobacterium on intestinal barrier function in LPS - induced enterocyte barrier injury of Caco-2 monolayers and in a rat NEC model. PLoS One. 2016;11(8):e0161635. 21. Patel RM, Myers LS, Kurundkar AR, et al. Probiotic bacteria induce maturation of intestinal claudin 3 expression and barrier function. AJP. 2012;180(2):626-35. 22. Khailova L, Dvorak K, Arganbright KM, et al. Bifidobacterium bifidum improves intestinal integrity in a rat model of necrotizing enterocolitis. Am J Physiol Gastrointest Liver Physiol. 2009;297(5):940-9. 23. Blackwood P, Wood R, Yuan Y, et al. Urinary claudin-2 measurements as a predictor of necrotizing enterocolitis: A pilot study. J Neonatal Surg. 2015; 4(4): 43. 24. Thuijls G, Derikx JP, van Wijck K, et al. Non-invasive markers for early diagnosis and determination of the severity of necrotizing enterocolitis. Ann Surg. 2010;251(6):1174-80.

SYSTEMATIC REVIEW: DEFINITIONS OF NEONATAL SEPSIS IN RANDOMISED CONTROLLED TRIALS

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Introduction:

Neonatal sepsis is a leading cause of infant mortality worldwide, causing over 400,000 annual deaths. Neonatal sepsis presents with non-specific and varied clinical and biochemical findings. There is no definitive test and consequently randomised controlled trials (RCTs) utilise widely heterogenous definitions of neonatal sepsis. This study aims to catalogue the current wealth of definitions of neonatal sepsis in the literature.

Method:

A systematic search of the Embase and Cochrane databases was performed. Only RCTs in the English language which reported neonatal sepsis as an outcome and which explicitly stated a definition for neonatal sepsis were included. All other publications, including RCTs for which a full text was not available, were excluded. The primary outcome was definitions of neonatal sepsis. Definitions were sub-divided into five primary criteria for infection (culture, laboratory findings, clinical signs, radiological evidence and risk factors). Definitions were stratified by qualifiers (early/late-onset and likelihood of sepsis).

Results:

80 RCTs were included. Many studies offer multiple definitions of neonatal sepsis, thus we identified 128 individual definitions. The single most common definition was neonatal sepsis defined by culture alone (n=35), followed by culture + clinical signs (n=29), and laboratory tests + clinical signs (n=25). Either alone or in combination with other primary criteria, culture featured in 83 definitions. Laboratory testing featured in 48 definitions whilst clinical signs and radiology featured in 80 and 8 definitions respectively. Clinical risk factors for infection featured in 2 definitions.

Discussion:

A diverse range of definitions of neonatal sepsis are currently employed in the literature. This is problematic, as it does not allow reliable reproducibility of studies, or accurate comparison of results from different trials. This frustrates the practice of evidence-based medicine. Thus, it should be a priority for the community to devise, disseminate, and adopt a consensus definition of neonatal sepsis.

NEAR MISSED ORDERS FOR HIP ULTRASOUND IN BREECH BABIES

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Aim

To assess the impact of a change in workflow practice on the rate of near-missed orders for hip ultrasound in babies in a breech presentation on or after 36 weeks gestational age.

Method

Previously, it was the responsibility of the physician performing the discharge baby examination to check the presentation of the baby and refer on for hip ultrasound screening as appropriate. In addition, administrative staff, also check that a hip ultrasound order has been placed on all breech deliveries and highlight any "near misses". In July 2019, we implemented a new workflow whereby a daily record of breech babies was compiled and a designated senior house officer confirms all orders for screening hip ultrasound. As previously, following discharge administrative staff double check and highlight any near misses.

We recorded the number of near-missed orders for hip ultrasounds in breech babies during a 4 week period in September 2018 and compared it with a 4 week period in September 2019, after the implementation of the new workflow. The neonatal senior house officers were blind to this audit.

Results

In September 2018 there were 37 breech babies that required a hip ultrasound and 1 near-miss (2.7%). Following implementation of the new workflow in September 2019, 2(twins) out of 44 orders were near-missed (4.2%). The twins were not originally recorded as breech, this was noted a few days later. The Neonatal Senior House Officer missed the new record, which administrative staff recognised after discharge.

Conclusion

The rate of near-missed orders for hip ultrasound increased from 2.7% to 4.2% following implementation of the new workflow. However, the time period reviewed was limited. Following a further educational session with all senior house officers, we plan to re-audit an extended period to fully assess whether this new workflow is beneficial.

WHEN, HOW AND WHERE ARE WE PERFORMING MRIS FOLLOWING THERAPEUTIC HYPOTHERMIA?

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Background:

In infants with moderate to severe hypoxic ischaemic encephalopathy, MRI provides excellent prognostic information. In the Total Body Hypothermia for Neonatal Encephalopathy Trial (TOBY) trial, MRI studies were performed at a median of 8 days after birth. [1] The British Association of Perinatal Medicine (BAPM) recommends imaging be performed between 5 days and 14 days.[2]

Aim:

To identify the timing and mode of sedation of MRI in infants following therapeutic hypothermia (TH) in a tertiary referral Neonatal Intensive Care Unit

Methodology:

Using the NIMIS Radiology system MRIs booked in the Coombe hospital and performed in Our Lady's Children's Hospital Crumlin in 2018 were identified. The patients who received TH were identified using discharge coding. Charts were reviewed retrospectively to collect demographic data, day of life (DOL) MRI was performed, mode of sedation and MRI findings. Data was anonymized at time of collection into an electronic data collection tool.

Results:

In 2018, 17 infants were treated with TH; 6 were inborn and 11 out-born. MRI's were completed between DOL 6 to 30 (Mean: 10; Median 9). Forty-seven per-cent (n=8) were done by DOL 8 and ninety-four per cent (n=16) by DOL 14. Only one MRI was completed outside the first two weeks of life on DOL 30. Forty-one per cent (n=7) of MRIs were performed under general anaesthetic, 41% (n=7) under feed and wrap technique and 18% under oral sedation.

Conclusion:

The median time to MRI in our cohort was slightly longer than in the TOBY trial. However, the vast majority of patients (94%) acquired their MRI between DOL 6 and 14 as recommended by the BAPM. A high proportion of patients in our cohort received a general anaesthetic to facilitate their MRI. Although timing of MRI has been shown to be in line with current recommendations, mode of sedation has been identified as an area where further research may be done.

1.The TOBY Study. Whole body hypothermia for the treatment of perinatal asphyxial encephalopathy: A randomised controlled trial Dennis Azzopardi, Peter Brocklehurst, David Edwards, Henry Halliday, Malcolm Levene, Marianne Thoresen, Andrew Whitelaw & The TOBY Study Group. BMC Pediatrics volume 8, Article number: 17 (2008) 2.British Association of Perinatal Medicine - Fetal and Neonatal Brain Magnetic Resonance Imaging: Clinical Indications, Acquisitions and Reporting—a Framework for Practice. A Framework for Practice 2016

THE APPLICATION OF LOCAL NEONATAL INFECTION RISK GUIDELINES IN A GENERAL HOSPITAL

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Aims:

Identifying newborns who may be at risk of sepsis is challenging. In order to highlight risk factors and identify the clinical indicators of early onset neonatal infection the above guideline was developed. This local guideline was developed from *NICE guidelines* in 2018. We aim to review if these guidelines are being adhered to locally.

Methodology:

We performed a retrospective chart review of 22 randomly selected neonates admitted to Special Care Baby Unit (SCBU) between January and October 2019, and an additional 20 randomly selected infant charts from post-natal ward during same period.

The following information was gathered: red/yellow flag risk factors present, mode of delivery, neonatal SCBU admission, maternal/neonate antibiotic treatment, neonatal septic workup, blood culture results, birth-weight and gestation.

Results:

The red flag/yellow flag guideline was followed appropriately in all cases. Of the 22 infants admitted to SCBU, 18 infants required a partial septic work-up. Of these, 1 had a positive blood culture growth (likely contaminant).

The most common red flag identified was maternal treatment with IV antibiotics (77%) and the most common yellow flag was maternal GBS colonisation (75%).

There were no instances of missed red/yellow flags among the neonatal and maternal charts we reviewed. Although it was not our clinical question we noted that septic risk factors were not always clearly documented in SCBU admissions.

Conclusions:

The local guideline was applied correctly in the sample of patients we reviewed, however, risk factors were not always appropriately recorded in the infant's chart. Each patient commenced on antibiotics met the criteria as per our guideline. Following this audit, we identified a need to develop a SCBU admission proforma, and this process has begun. We also recommend a review of guidelines in other maternity units nationally to compare them with our own.

CONGENITAL LARYNGEAL WEB: AN IMPORTANT CAUSE OF STRIDOR IN THE NEONATAL PERIOD

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Introduction

The aim of this case report is to examine an unusual cause of stridor in the neonatal period.

Case Description

Baby X was born at 41+6 weeks. Antenatal scans were unremarkable. At birth she was noted to have biphasic stridor, hoarse cry and received 4 minutes of CPAP. She was transferred to NICU with intermittent desaturations and increased work of breathing over her first days of life, which worsened on feeds. She had an acute respiratory deterioration on DOL 7 requiring intubation. At intubation her vocal folds looked abnormal with possible paralysis of the left cord. She was transferred to the paediatric ICU in our centre for ENT review.

She underwent microlaryngoscopy and bronchoscopy (MLB) on DOL 12 and was diagnosed with a grade 3 anterior laryngeal web which was dilated. A further respiratory deterioration occurred on DOL 15. She underwent two further MLBs which revealed 50% reformation of the laryngeael web with extension to the subgottis and a biodesign absorbable graft was placed in the subglottis. A final MLB was performed on DOL 24 which showed stable appearances of the web.

Given the association between 22q11 deletion[1] baby X had a microarray and ECHO both of which were normal.

Discussion

The incidence of CLW is estimated at 1 in 10,000 births and accounts for 5% of laryngeal malformations.[2] 90% are located anteriorly.[3] Presentation varies from an incidental finding on intubation, a misdiagnosed asthma to severe respiratory distress as was seen in this case. CLWs are often associated with syndromes, such as Digeorge Syndrome.

Conclusion

A laryngeal web is a rare, albeit important, consideration in neonates with respiratory distress out of the expected pattern of progression. In these cases, it's imperative to seek advice from an airway expert and intubation should only be attempted by the most experienced practitioners.

1. Miyamoto, R., Cotton, R., Rope, A., Hopkin, R., Cohen, A., Shott, S. and Rutter, M. (2004). Association of Anterior Glottic Webs with Velocardiofacial Syndrome (Chromosome 22q11.2 Deletion). Otolaryngology–Head and Neck Surgery, 130(4), pp.415-417.2.Pascual, M. (2015). 2. Stridor at Birth: Congenital Laryngeal Web. Philippine Journal of Otolaryngology-Head and Neck Surgery, 30(2), pp.59-61.. 3. Tiwari, M., Fernandes, V., George, S., Sanzgiri, V. and Khandolkar, P. (2018). Congenital Laryngeal Web: A Laryngology Rarity. International Journal of Otolaryngology and Head & Neck Surgery, 07(04), pp.143-147.

ADHERENCE TO NEONATAL SEPSIS GUIDELINE

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Aims: To audit compliance with sepsis guideline in Special Care Baby Unit in University Hospital Kerry.

Methods: This was a retrospective study which included every baby admitted to special care baby unit and commenced on antibiotics after septic work up at one or more than one occasion for presumed sepsis or at risk for sepsis. Data was collected from 01/01/2019 to 31/01/2019 and multiple parameters were recorded from the computerized clinical notes (Cerner).

Results: During the audit period, the total numbers of admissions to SCBU was 40 and out of them 24 babies were admitted with suspected sepsis or at risk of sepsis and all were started on IV antibiotics (100%).All babies started on antibiotics had their bloods taken for FBC, initial CRP, repeat CRP and blood culture. In total 5 babies (20.8%) had an abnormal CRP result. Initial CRP was high (>10) at 3 occasions(12.5%) and repeat CRP was noted to be high at 4 occasions (16.6%).Only 2 babies (8.3%) were noted to have both initial and repeat CRP>10.15 babies (62.5%) had at least one red flag,4 babies (16.6%) were noted to have at least 2 yellow flags and 5 babies (20.8%) were started on antibiotics with only 1 yellow flag for Early Onset Sepsis (EOS). Chest X-ray was done in 5 babies (20.8%) and only 2 babies (8.3%) had abnormal CXR findings. Lumber puncture was done in 1 baby which was negative. Antibiotics were stopped at 36 hrs in 18 babies (75%) and all of them were asymptomatic, had negative blood cultures at 48 hours, and repeat CRP was<10.In comparison antibiotics were continued for >36 hours in 6(25%)babies with either on-going symptoms, raised markers or abnormal CXR findings.

Conclusions: This study showed an overall compliance of (79%) with our current sepsis guidelines regarding starting the antibiotics for suspected EOS. The study highlighted that only 5 babies were inappropriately started on antibiotics. We have a good practice of performing blood culture, FBC, Initial and repeat CRP, but need improvement in checking MSU and performing LP as a part of septic work up.

NICE Clinical guideline [CG149]: Neonatal infection (early onset): antibiotics for prevention and treatment

EXPLORING ASSOCIATION BETWEEN VITAMIN D DEFICIENCY AND INCREASED LEVELS OF ALKALINE PHOSPHATASE IN PRETERM BABIES BORN AT UNIVERSITY MATERNITY HOSPITAL LIMERICK.

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Aim:

1. To establish the significance of raised Alkaline Phosphatase levels (ALP) in relation to low vitamin D levels in Preterm infants.

2. To determine if adequate Vitamin D treatment was administered to preterm babies in NICU at UMHL between Jan 2018-July 2019 after looking at vitamin D and ALP levels.

3. To determine if vitamin D deficient babies were followed up post-discharge in the OPD.

Methods:

A retrospective study was conducted looking at infants born less than 34weeks or below 1.5kg between January 2018- July 2019 needing Vitamin D therapy while looking at their ALP levels. Data from Infants clinical, laboratory, drug Kardex and parenteral nutrition chart were collected.

Results:

A total of 44 infants were found with a mean gestational age of 28.8 weeks. 34% (n=15) had increased Alkaline Phosphatase level and 7%(n=3) showed hypocalcemia. Out of the 34% (n=15) with raised ALP, 73%(n=11) had a Vitamin D level screened, which were deficient in 45.5%(n=5) and inadequate in the remaining 54.5%(n=6).

In the 36% (n=16) who had Vitamin D level done, 50% (n=8) had inadequate and the other 50%(n=8) were deficient. 800-1000IU of Vitamin D was given at a mean gestational age of 31.04 weeks in 34% (n=15) of infants.16% (n=7) had Vitamin D level followed up at discharged from our unit.

98% of our patients had an OPD appointment as follow up care. 65.9%(n=29) of the babies were with a head circumference above the 9th centile at birth while 88.6%(n=39) were above the 9th centile at discharge.

Conclusion:

The importance of Vitamin D in premise is widely acknowledged. According to European Society for Paediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) guidelines, supplementation of Vitamin D for preterm infants should reach 800–1000 IU/day.[1] Only 34% (n=15) of our patients received the recommended dose between Jan 2018-July 2019 and 16%(n=7) had a follow up arranged for the Vitamin D titre.

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AUDIT OF THE USE OF NEONATAL PLATELET TRANSFUSIONS IN A TERTIARY NICU

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Aim:

Platelet transfusions are often administered to thrombocytopaenic infants in neonatal intensive care units. The aim of this audit was to assess if our transfusion practice was compliant with the British Committee for Standards in Haematology 2016 guidelines[1], particularly in view of the recent evidence provided by the PLANET 2 Study[2].

Methods:

This was a retrospective audit. The study population was neonates who received platelet transfusions in the Rotunda NICU between January 2018 and September 2019. Audit approval was obtained from the Rotunda Clinical Audit

Department. The audit tool was comprised of 8 questions and anonymised data was collected in Excel from MN-CMS.

Results:

We identified 69 platelet transfusions, given to 35 patients. Infants received between 1 and 10 transfusions, median 1. Only 3.3% of the neonates were actively bleeding at the time of transfusion, the remainder were prophylactic. Coagulopathy was documented in 40% of patients prior to transfusion. Only one infant received a transfusion for an invasive procedure.

Eighteen platelet transfusions (26%) were given to neonates whose platelet count was <25 x 10^{9}/L, 25 transfusions (36%) to neonates whose platelets were between 25-49 x 10^{9}/L, 11 (16%) to neonates whose platelets were 50-100 x 10^{9}/L and the remaining 6 (9%) to neonates whose platelets were >100x10^{9}L. Overall, 30 transfusions (43%) were administered in compliance with the 2016 BSH guideline recommendations

Conclusion:

The release of the “PLANET 2” study in 2019 provided evidence to support the level of 25 x 10^{9} recommended in the BSH guideline. In summary, the audit concluded that only 43.3% of neonatal platelet transfusions in the Rotunda were in compliance with the 2016 BSH Guidelines. We plan to disseminate the results of this audit to key stakeholders and develop a Rotunda Guideline for neonatal platelet transfusions. We will re-audit this in 2020 to assess our compliance.

1) New, H.E. (2016). Guidelines on transfusion for fetuses, neonates and older children. London: British Committee for Standards in Haematology. 2) Curley, A.E. (2019). Randomized Trial of Platelet-Transfusion Thresholds in Neonates. New England Journal of Medicine, 380:242-251.

CHANGING TO A 48-HOUR USE POLICY FOR PN REPLACEMENT- POTENTIAL TO SAVE €50,000 PER YEAR

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Background

Established guidance and international practice in neonatal intensive care advocates that aqueous parenteral nutrition (PN) solutions can be continued for 48 hours before replacement (1-5). Current practice in our unit is to replace PN after 24 hours of use. As PN remains an expensive intervention in neonatal care there are substantial cost implications to changing practice from 24 to 48 hours of use.

Aim

To evaluate PN use noting the duration of use of each aqueous PN infusion used to ascertain the cost benefit if the solutions were continued for 48 hours before replacement.

Methods

Hospital databases were reviewed to identify infants fitting criteria for PN born between January 1st and March 31st, 2019. Records were reviewed to calculate the time each bag was in use before replacement, the corresponding cost and potential savings had replacement been deferred.

Results

23 infants fitting criteria for PN use were identified. Gestational age ranged from 24.0 to 35.6 weeks (mean 29.1 weeks) and weight from 580g to 1.71Kg (mean 1.17Kg).
154 bags of PN were used, of which 35 were standardised PN1, 109 were standardised PN2, and 10 were individualised PN (iPN). The total costs for the period equate to €26,065 combined.
Average infusing time for SPN1 was 24.4 hours, for SPN2 was 24.5 hours and for iPN was 25.3 hours. If a 48-hour policy was adopted, €2,727 would have been saved on SPN1 and €8,503 on SPN2. IPN may be altered daily on clinical grounds but could have saved a further €1,185.

Conclusions

Overall potential cost savings from this period would have been €12,415 which would equate to a very significant saving of €49,660 per year. Given the data supporting the safety along with national and international adoption of the change from a 24 to 48-hour policy of aqueous infusion it should be implemented in our unit.

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ANTENATAL VACCINATION – ARE WE READY TO PREVENT GBS AND RSV?

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Introduction

Maternal immunisation strategies have potential to impact the health of infants as part of a life-course approach. GBS and RSV are significant illnesses with invasive GBS affecting 1 in 1000 infants and over 3000 cases of RSV being reported annually. The WHO has identified these illnesses as priorities for vaccine development and several candidate vaccines are in trials.

Aims

To evaluate maternal knowledge and to assess likely acceptance if vaccines for use in pregnancy become available.

Methods

Pregnant women were surveyed during antenatal visits using a convenience sample approach. An information leaflet on the conditions was provided, consent obtained, and ethical approval was granted. We aimed to survey >10% of the annual birth rate of UMHL (4650).

Results

377 women completed the study in its initial part, a response rate of 80%. Mean age was 32 years with mean gestation of 29 weeks. 85% of women had GBS status ascertained prior to study with 23% positive.

Regarding GBS, 34% had never heard of it and 8% indicated they had previous experience. 59% responded that they would accept an antenatal GBS vaccine if available.

Regarding RSV, 74% had never heard of it and <1% indicated they experienced it in their own child. 50% responded that that they would accept an antenatal RSV vaccine if available.

36% of women felt recommended vaccines would protect their infant from illness, 20% were confident in recommended vaccines, and a further 29% agreed with both- a combined positive response from 85%. 57% indicated consulting their GP best influencing their decision making, 23% preferred midwife, 10% obstetrician. The remainder preferred leaflets, online resources and family members.

Conclusions

Over half of women indicated that they would accept a vaccine to protect their infants with high rates of vaccine confidence. Women's preferences for advice regarding vaccination during pregnancy should be considered when planning such programmes.

HSE Health Protection Surveillance Centre, Annual Report on Invasive Group B Streptococcal Infection 2017. Health Protection Surveillance Centre Annual Epidemiological Report. Influenza and Other Seasonal Respiratory Viruses in Ireland, 2017/2018 Modjarrad K, Giersing B, Kaslow DC, Smith PG, Moorthy VS, Group WRVCE. WHO consultation on Respiratory Syncytial Virus Vaccine Development Report from a World Health Organization Meeting held on 23-24 March 2015. Vaccine. 2016;34(2):190-7 Kobayashi M, Schrag SJ, Alderson MR, Madhi SA, Baker CJ, Sobanjo-Ter Meulen A, et al. WHO consultation on group B Streptococcus vaccine development: Report from a meeting held on 27-28 April 2016. Vaccine. 2016.

Poster No: 179
Sub-Specialty

DUCHENNE MUSCULAR DYSTROPHY - ARE WE MEETING STANDARDS OF CARE?

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Background: Multidisciplinary management of children with Duchenne Muscular Dystrophy (DMD) focuses on anticipatory diagnostic and therapeutic approaches with emphasis on quality of life. Recommendations from a 2014 steering committee has been incorporated into a model of care with a view to improving patient care in this vulnerable population across the life-course. The standards, tailored at the individual's stage of disease, incorporates the range of disciplines and subspecialties central to this process including neuromuscular management, rehabilitation, endocrine, gastrointestinal and nutrition, respiratory, cardiac, bone health, orthopaedic, psychosocial and transition.

Aims: To audit the management of children with DMD attending the dedicated paediatric neuromuscular clinic in Tallaght Hospital with reference to the established standards of care and with a view to improving the quality of the service.

Methods: Hospital records and systems were reviewed to identify all children with DMD and examine the components of care received in comparison with standards.

Results: 25 boys with DMD attend the service in Tallaght and are seen at the recommended 6 month intervals. Age ranged from 4 to 17.5 years with an average of 11.4 years. Preliminary results show close alignment with the standards for neuromuscular management and rehabilitation, respiratory, cardiac and bone health and increased variance in the areas of nutrition, psychosocial (mental health and neuropsychological assessment) and transition care.

Conclusion: Medical care and surveillance of children with DMD attending our service shows high levels of alignment with standards of care. A more holistic care approach requires further emphasis on the psychosocial and transition components. The psychosocial aspects of living with this chronic illness and adjusting to the changes that define the disease certainly require specialist input and ongoing emotional support for children and their families extending across the lifespan into the transition period.

1. Bushby KMD, Finkel RMD, Birnkrant DJMD, Case LEDPT, Clemens PRMD, Cripe LMD, et al. Diagnosis and management of Duchenne muscular dystrophy, part 1: diagnosis, and pharmacological and psychosocial management. Lancet Neurology, The. 2010;9(1):77-93.

22q11 DELETION SYNDROME- REVIEW OF MENTAL HEALTH NEEDS IN CHILDREN FROM A NEWLY ESTABLISHED CLINIC

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Background: 22q11 Deletion Syndrome is a complex, multi-system disorder. Affected children may present with a diverse range of medical conditions and they are extremely vulnerable to psychiatric illness throughout their lifespan. This population are widely known to be at risk of developing psychotic illness with 10% of adolescents and over 25% of adults with 22q developing psychotic disorders. Studies have also shown that up to 57.7% experience social anxiety and up to 50% are diagnosed with Autistic Spectrum Disorder.

Aims: To review the mental health needs of children with 22qDS at the time of their first dedicated tertiary clinic review and establish if a dedicated clinic can identify and address unmet needs within this population.

Methods: Retrospective audit of outcomes of all first clinic appointments since the establishment of the new dedicated 22qDS paediatric clinic from October 2017 to January 2019. Previous mental health service input along with referrals made were recorded.

Results: In the first 14 months of the 22q11DS clinic 43 children were assessed. 11 children (26%) had been seen by mental health services previously. Of those, 5(45%) children had anxiety, 1(9%) ADHD, 1(9%) both anxiety and ADHD, 1(10%) both anxiety and autism, 2(%) not specified and 1(9%) had a normal assessment.

Overall 22(48%) children have been referred from the clinic for psychiatric input. 11(24%) have been seen to date with 55% of those seen having a diagnosis of anxiety and 27% a diagnosis of ADHD. A further 11(24%) children are currently waitlisted for assessment.

Conclusion: Significant mental health needs were identified in this group of children. Early assessment and intervention to address these needs at an appropriate time in their development could prevent deterioration and use of crisis and acute services in this vulnerable population and help maintain well-being and quality of life for children and families.

Schneider M, Debbane M, Bassett AS, Chow EW, Fung WL, van den Bree M, et al. Psychiatric disorders from childhood to adulthood in 22q11.2 deletion syndrome: results from the International Consortium on Brain and Behavior in 22q11.2 Deletion Syndrome. Am J Psychiatry. 2014;171(6):627-39. Angkustsiri K, Leckliter I, Tartaglia N, Beaton EA, Enriquez J, Simon TJ. An examination of the relationship of anxiety and intelligence to adaptive functioning in children with chromosome 22q11.2 deletion syndrome. J Dev Behav Pediatr. 2012;33(9):713-20. Antshel KM, Aneja A, Strunge L, Peebles J, Fremont WP, Stallone K, et al. Autistic spectrum disorders in velo-cardio facial syndrome (22q11.2 deletion). J Autism Dev Disord. 2007;37(9):1776-86.

IS THERE A ROLE FOR PUBLIC HEALTH NURSES IN THE DETECTION OF DEVELOPMENTAL DYSPLASIA OF THE HIP?

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Aims

Developmental dysplasia of the hip (DDH) is an important and common congenital abnormality[1]. Despite perinatal screening, late-diagnosed DDH continues to present to paediatric and orthopaedic clinics[2]. Late-diagnosed DDH is associated with more invasive treatment and poorer long-term outcomes[3,4]. Public Health Nurse (PHN) screening may act as a safety net in identifying DDH during the first year of life. There is a possibility that PHN screening for DDH may be discontinued in the Republic of Ireland.

Our study aimed to assess the proportion of babies requiring treatment for DDH who were first identified at PHN screening.

Methods

Using the South Eastern DDH Database, a retrospective study was conducted of all babies born in 2018, and 2019 to date, who presented with DDH to University Hospital Waterford. All babies with late diagnoses were identified. Details of the referral pathway, demographics and clinical information on these patients were scrutinised from hospital records.

Findings

Over the eighteen-month study period, 261 babies were treated for DDH. 56 cases were identified whose diagnosis occurred later than 3 months of age and outside the standard screening pathway – 21% of all cases of DDH. 33 of these – 59% of late diagnoses – originated with a PHN referral.

Of the 56, 7 babies presented with established dislocation, of whom 4 were first identified by a PHN.

8 babies were diagnosed by abnormal ultrasound findings at 3-5 months of age and received harness treatment; of these, 4 were identified by a PHN.

41 babies were diagnosed by abnormal X-ray findings above 5 months of age and were treated with a brace; of these, 22 were identified by a PHN.

Conclusion

Our findings suggest that public health nurses continue to play an important role in identifying DDH in the first year of life, in babies who might otherwise remain undiagnosed.

1 - Artz TD, Lim WN, Wilson PD, Levine DB, Salvati EA. Neonatal diagnosis, treatment and related factors of congenital dislocation of the hip. Clin Orthop Relat Res. 1975 Jul-Aug;(110):112-36. 2 - Perry DC, Paton RW. Knowing your click from your clunk: is the current screening for developmental dysplasia of the hip fit for purpose? Bone Joint J. 2019 Mar;101-B(3):236-237. 3 - Price KR, Dove R, Hunter JB. Current screening recommendations for DDH may lead to an increased rate of open reductions. Bone Joint J. 2013 Jun;95-B(6):846-50 4 - Donnelly KJ, Chan KW, Cosgrove AP. Delayed diagnosis of developmental dysplasia of the hip in Northern Ireland: can we do better? Bone Joint J. 2015 Nov;97-B(11):1572-6

SUSTAINED IMPROVEMENT OVER 18 MONTHS OF PRIME (PRETERM INFANTS NEED MILK EARLY), QUALITY IMPROVEMENT INITIAVE IN A TERTIARY NEONATAL UNIT

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Aim

Maternal milk (MM) protects against necrotizing enterocolitis, sepsis and other morbidities. PRIME is a multi-disciplinary initiative to improve the early provision of MM for high-risk preterm infants. Our aim was to increase the number of high-risk infants receiving MM in the first day of life in our tertiary neonatal unit.

Method

We reviewed time to first MM for infants born <32 weeks gestational age (GA) or with a birth weight (BW) <1500g in 2016. We conducted a cross-sectional survey to evaluate the knowledge and attitudes of staff towards breast milk for preterm infants. Deficits in background knowledge and training informed a teaching programme. Education involved training sessions, development of guidelines, introduction of PRIME breast milk diaries, distribution of posters, and feedback to staff. All infants born <32 weeks GA or BW <1500g since implementation of PRIME were included in the post-intervention analysis. Time to first MM was our key performance indicator.

Results

We reviewed 121 inborn infants born in 2016 [median (IQR) GA 29 (26, 31) weeks, BW 1140 (820, 1410) g]. Many infants experienced a delay starting feeds as MM was not available; median (IQR) time to 1st MM 35 (17, 55) hours, 34% of infants received MM within 24 hours of birth. Data was collected from 177 inborn infants, born May 2018 – October 2019, following interventions [median (IQR) GA 30 (27, 31) weeks, BW 1200 (855, 1499) g]. The median (IQR) time to 1st MM was 20 (11, 39) hours and 60% of infants received MM in the 1st 24 hours.

Conclusion

Following the introduction of our PRIME initiative, the time to first MM has improved and this effect has been sustained over time. Areas for improvement have been identified. Further PDSA cycles are indicated to ensure ongoing progress.

RE-AUDIT OF COMPLIANCE WITH FILLING TRANSFUSION CONSENT FORMS IN NICU, UMHL

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Background:

- Transfusion of blood and blood products is not uncommon in neonatal department.
- Transfusion is not a risk-free procedure despite the advances in blood bank preparations. Blood transfusion procedure need to be followed up carefully to ensure patients' safety.
- The chance of having a reaction to a blood transfusion is very small. The most common adverse reactions from blood transfusion are allergic and febrile reactions, which make up over half of all adverse reactions reported. Rare but serious adverse reactions include infection caused by bacterial contamination of blood products and immune reactions due to problems in blood types/matching between donor and recipient.
- Double checking the patient ID, blood group ,right product to the right patient are very important but on the other hand obtaining consent for blood transfusion product is essential along with explaining why transfusion is needed, how the procedure is done, the amount that will be transfused, and the possible complications.

Objective:

- To achieve 100% compliance with filling consent forms by December 2019.

Methodology:

- Retrospective data collected from transfusion forms on a random pattern between December 2018 to July 2019.
- The consent page was analyzed whether completely filled, unfilled or incomplete (partially filled).
- The check includes addressograph label, date and time consent obtained, doctor ID information, and whether leaflet given to parents.

Standards:

- Record of transfusion support (ROTS) booklet. page (1): verbal transfusion consent and information leaflet.

Results:

- Ten forms were assessed to check compliance (N10).
- Five were accurately completed (50%).
- Five were incomplete (50%).
- In all charts assessed there is none left only filled with addressograph label attached.
- None of the charts were left unfilled completely.

Conclusion:

- There is improvement in filing blood transfusion consent forms compared with two previous audits.
- Recommendations of the last two audits were not followed to ensure compliance.

Recommendations:

- How to Fill blood transfusion consent forms accurately to be Part of NCHDs induction.
- Random check of blood transfusion forms to achieve 100% compliance.
- Re-audit in 3 months.

DISCHARGING BABIES WITH DOWN SYNDROME: ASSESSMENT OF THREE YEARS OF A DISCHARGE CHECKLIST

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Aims: The Down Syndrome Medical Interest Group guidelines suggest standards of medical care for people with Down Syndrome, including what should be organised upon postnatal hospital discharge. Retrospective audit in 2016 in our unit demonstrated that there was poor compliance with elements of these guidelines.

We developed a multidisciplinary discharge checklist for babies with Down Syndrome in 2017. This re-audit aimed to demonstrate if there was any long-term improvement in the compliance with this guideline after introduction of the checklist.

Methods: Cases of babies with Down Syndrome discharged from our unit in 2017, 2018 and 2019 were identified using the maternity information system. Medical records were reviewed. Results were compared with the results of the retrospective review undertaken prior to the introduction of the checklist (babies born in 2014, 2015 and 2016)

Results: Fifteen babies with Down Syndrome were discharged from our unit after the introduction of the checklist. All babies had the checklist complete in their medical chart. All babies had karyotype confirmation of their diagnosis of Down Syndrome, referral to Early Intervention Services and physiotherapy and newborn bloodspot and hearing screening, maintaining the high standards of the previous audit. All babies had cardiology referral prior to discharge, an improvement from 90% before the checklist. All babies had a blood count with film performed before discharge, an improvement from 65% previously. All babies had their centiles plotted on appropriate charts – up from 35% beforehand. The most significant improvement was seen in the proportion of babies who were referred to ophthalmology – all babies were referred in the post-checklist period compared to only 25% of babies prior.

Conclusion: The multidisciplinary engagement with this simple checklist has led to sustained improvement in the completeness of follow-up for babies with Down Syndrome in this unit, and could be considered for national adaptation.

MANAGEMENT OF A MYCOBACTERIUM TUBERCULOSIS(MTB) EXPOSURE IN A NEONATAL UNIT: A CASE REPORT

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Aims:

Women are at highest risk of MTB during pregnancy and the postnatal period[1]. Infants born to mothers with active MTB may develop congenital or postnatally acquired MTB. Both are serious conditions, with a high mortality[2]. We describe the case of a maternity patient diagnosed with MTB in the postnatal period.

Methods:

Written consent was obtained, and a review of the medical notes was performed.

Results:

The index case was diagnosed with MTB on day three post-partum. She had delivered a 32-week infant by caesarean section due to intrauterine growth restriction. The infant had respiratory distress syndrome, managed with non-invasive ventilation. The infant was nursed in a closed incubator and there were several short maternal visits to the neonatal unit.

The infant had a negative evaluation for congenital MTB including blood cultures, gastric aspirates, lumbar puncture, chest x-ray to exclude infiltrative disease and liver US to exclude granulomatous disease.

In view of the postnatal MTB exposure, the infant received prophylactic isoniazid. They were discharged at 35 weeks CGA and a Tuberculin Skin Test (TST) performed at two weeks CGA was negative. The infant was prescribed nine months Isoniazid and a repeat TST after treatment.

One other infant, nursed in the same room as the index case, required screening and nine months prophylactic treatment. The parents of infants in NICU were informed of the exposure but no NICU infant met the criteria for screening or treatment.

Conclusion:

This case highlights the challenges of maternal MTB. The management of other neonates in the NICU is controversial and various approaches have been described[3]. TST is often negative in infants less than six weeks due to the immaturity of their immune system.[4] For this reason, any significantly exposed neonate should be prophylactically treated, as a negative TST is not reliable in this age group.

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CORTICAL HUBS IN THE HEALTHY NEONATE BRAIN USING RESTING STATE FUNCTIONAL MRI

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Graph theory models the brain as a complex network represented as a graph comprised of nodes and edges (Bullmore & Sporns, 2009). Using this approach, we can better understand the developmental trajectory in the functional brain network architecture which is unknown. In this study, we used data from the developing human connectome project (dHCP) to characterize functional brain connectivity of healthy neonates using graph theory measures.

High resolution structural and functional MRI data from 37 term-born neonates (21 male, 13 female) were acquired through the first release of the dHCP. Images were processed and analysed in SPM8 and CONN. Residual time series within 90 cortical and subcortical ROIs based on the AAL parcellation mapped to neonates (Shi et al, 2011) were averaged to represent the BOLD signal for that region. Graph metrics included; betweenness centrality (BC), degree centrality (DC), clustering coefficient (CC) and global efficiency (GE).

Brain hubs were found to be well-established by the time of birth. Specifically, hubs in neonates, calculated with BC, were found to be located in the precuneus, which were adult-like, and in lateral regions including the rolandic operculum and sensorimotor regions which were neonate-specific ($P < 0.001$, in all cases, FDR-corrected). Moreover, DC hubs, the parietal lobule and the cuneus have also been consistently located in adults. CC and GE hubs were also found to be located in sensory and motor regions ($P < 0.001$, in all cases, FDR-corrected).

Our results show that cortical hubs in healthy full term infants are bilaterally connected and mainly found in homodal primary sensorimotor brain regions, suggesting that primary sensorimotor networks are highly functioning at birth. This is in contrast to adults where most cortical hubs are located in heteromodal association cortex. Our findings indicate that hub patterns while not fully mature in the neonate brain – are transitioning to an adult configuration.

EX-UTERO INTRAPARTUM TREATMENT (EXIT) IN IRELAND: HIGHLIGHTING THE URGENT NEED FOR CO-LOCATION OF MATERNITY AND PAEDIATRIC TERTIARY SERVICES IN IRELAND.

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Aims:
Ex Utero Intrapartum Treatment (EXIT) is a rare form of neonatal resuscitation and has dramatically improved the survival of neonates with antenatally diagnosed airway obstruction.[1,2]
The procedure involves delivering the baby's head and securing the airway, while the body stays in utero, and oxygenation and placental circulation is maintained.[3]
EXIT requires antenatal and intrapartum interdisciplinary management of the pregnant woman and the foetus, and is ideally carried out in a specialised delivery unit in a tertiary level paediatric hospital.[4]
Due to the absence of co-location of maternity and paediatric tertiary level hospitals in the Republic of Ireland, a dedicated team was established in 2017 to facilitate EXIT in Irish tertiary level maternity hospitals.
The EXIT team includes Paediatric Otolaryngologists, Paediatric Anaesthetists, and specialist surgical nursing staff, collaborating with Paediatric Radiologists, Foetal Medicine Specialists, Consultant Neonatologists and the National Neonatal Transport Team (NNT).
This case series describes three cases of infants who required EXIT, born in separate tertiary level maternity hospitals in Ireland, from 2018 to 2019.

Methods:
Three cases of EXIT procedures in Ireland from 2018-2019 were reviewed, one from each of the tertiary level maternity hospitals in Dublin.

Results:
The three cases were of infants with cervical teratoma, cystic hygroma, and severe micrognathia and Pierre Robin Sequence, respectively. Each case presented different challenges to their management. All infants were postnatally transferred, ventilated via tracheostomy, to the local tertiary level paediatric hospital for further management.

Conclusions:
These cases demonstrate that EXIT team mobilisation, and multi-specialist collaboration across maternity and paediatric services, necessitated rescheduling of operative lists in both the paediatric and maternity centres, and required postnatal inter-hospital transfer of neonates with critical airways.
This report highlights the urgent need for co-location of maternity and paediatric services in the Republic of Ireland, to ensure optimal standards of care for critical neonates.

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A REVIEW OF CLINIC ACTIVITY IN THE COOMBE HOSPITAL BEFORE AND AFTER IMPLEMENTATION OF A COMBINED NCHD CLINIC

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Aims

To review NCHD clinic in the Coombe Hospital over two distinct clinic settings: separate SHO and Registrar clinics and a combined NCHD clinic.

Methods

Firstly, a retrospective chart review was carried out on NCHD appointments over a four week period in March 2019. 215 episodes were identified with SHOs (153/215) and Registrars (37/215).

Following implementation of a combined NCHD clinic prospective data was collected over a four week period in April/May 2019. 188 episodes were identified.

Data collected included referral source, reason for attendance, senior input and outcome from appointment. The data was collected, anonymised and analysed in Excel.

Results

Overall, SHOs went from seeing 70% (153/215) of attendances to 58% (109/188) in combined NCHD clinic. There was a modest reduction in senior reviews (Registrar and consultant) from 31% (47/153) in the original clinics to 27.5% (30/109) in NCHD clinic.

Naturally, the number of attendances seen by Registrars increased from 30% (37/215) to 42% (79/188) which reflected their increase in clinic hours from 10 hours per week in separate registrar clinic up to 25 hours per week in the combined NCHD clinic. Overall, consultant reviews at clinic reduced by two-thirds from 9.7% (21/215) to 3.7% (7/188).

There was a relative reduction in numbers discharged back to GP care from 42% (91/215) to 34% (64/188). There was no difference in consultant follow-up between the two clinic settings – 19% (37/195) vs. 19% (33/176).

Conclusions

A change in the format of clinics increased the number of Registrar hours spent in clinic significantly with a modest reduction in consultant reviews but no change in consultant follow-up appointments. A reduced number of babies were discharged back to GP care in the combined NCHD clinic which is unclear whether it reflects appropriate follow-up for a longer duration with extra Registrar presence or whether clinical indecision and reduced consultant input led to longer follow-up.

AN AUDIT OF INTRAVENOUS CANNULATION FOR ORAL FOOD CHALLENGE: ARE WE IN LINE WITH BEST PRACTICE?

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Aims

To audit the establishment of intravenous (IV) access in oral food challenges (OFCs) against the standards set in the PRACTALL consensus report[1] for OFCs.

Methods

A retrospective chart review of all OFCs carried out in the paediatric day unit between January 2018 and April 2019 was carried out. Data collected included age, history of previous reaction, challenge outcome, management during OFC and IV access. Data were collected, anonymised and analysed using Microsoft Excel. Data were compared to the PRACTALL consensus report standards.

Results

Sixty-one completed OFCs were included. Of the 61, there was a prior history of food related anaphylaxis in 11%, asthma 34%. IV access was established in 11 of 61 (18%) patients prior to OFC; only 43% of those with history of prior anaphylaxis and 29% of those with history of asthma.

Of the 11 with IV access, 64% were peanut challenges and 36% baked egg challenges; five of the 11 with IV access in place required oral antihistamine for mild allergic reaction during OFC.

In total 21% of OFCs were positive. Intramuscular adrenaline was required in two cases. Neither case had IV access established. No child required IV medication during OFC.

Conclusions

The PRACTALL consensus report advises that children with a history of anaphylaxis and severe asthma require IV access prior to OFC. Our audit has shown we are not fully adherent to this guidance. However, our study was limited in defining “severe asthma” from the data set available.

IV access can be a traumatizing event for children and the basic emergency management of anaphylaxis can be performed using intramuscular adrenaline as demonstrated by our two severe reactions. Is the PRACTALL consensus too stringent in its guidance concerning IV cannulation?

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Sub-Specialty

AN AUDIT OF ORAL FOOD CHALLENGE PERFORMANCE: IS THERE ROOM FOR IMPROVEMENT?

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Aims

To audit oral food challenge (OFC) practice and procedure in Galway University Hospital against international best practice standards as outlined in the PRACTALL consensus report[1]. OFC is a commonly used tool in the management of paediatric food allergy (FA).

Methods

We performed a retrospective chart review of all OFCs conducted in the paediatric day unit, Galway University Hospital, January 2018 to April 2019. Data collected included documentation of previous food allergy events, documentation of consent, intravenous (IV) access use, indications for terminating OFC, OFC outcome, adverse reaction management, and follow-up phone call c.24 hours post challenge. Data were collected, anonymised and analysed using Microsoft Excel.

Results

Sixty-one completed OFCs were included. A history of previous food allergy events was documented in all cases. Evidence of written, informed consent was documented in 91.8% of cases. There was variation in the documentation of subjective and objective symptoms, and the indication for termination of OFC was not clear in all cases. Reaction management was clearly documented in all cases where it was necessary. OFC outcome was documented in 98% (one case not documented). Follow-up phone call in the days following challenge was not documented in 4.9% of cases.

Conclusions

The PRACTALL consensus report sets out guidance for standardisation of OFCs. Overall documentation was in line with best practice. Indication for terminating OFC was poor. We have introduced care bundles for a safer, more streamlined, clinically informed OFC procedure.

1. Sampson HA, Gerth van Wijk R, Bindslev-Jensen C, Sicherer S, Teuber SS, Burks AW et al. Standardizing double-blind, placebo-controlled oral food challenges: American Academy of Allergy, Asthma & Immunology-European Academy of Allergy and Clinical Immunology PRACTALL consensus report. J Allergy Clin Immunol 2012; 130: 1260– 1274.

ORAL FOOD CHALLENGE: A WEST OF IRELAND EXPERIENCE

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Aims

Oral Food Challenges (OFC) are frequently used in the management of paediatric food allergy. We reviewed our current use and outcome of OFCs in Galway University Hospital (GUH) from January 2018 to April 2019.

Methods

A retrospective chart review was carried out for all patients admitted to the Paediatric Day Unit (PDU) for open OFC between January 2018 and April 2019. Charts were identified from PDU admission records. Data extracted included: age, challenge food, prior exposure, recent skin-prick testing, recent food specific IgE testing, history of asthma/eczema/anaphylaxis, documentation of consent, intravenous access, positive skin/respiratory/gastrointestinal/cardiovascular/neurological reaction to challenge, reaction management, challenge outcome and follow-up phone call.

Results

Sixty-one completed challenges were included. The mean age was 6.33 years (range 0.75 – 16 years). The challenge foods included: peanut (57.4%), baked egg (16.4%), hazelnut (11.5%), baked milk (4.9%), salmon (3.3%), almond (3.3%), cashew (1.6%), and raspberry (1.6%). Fifty-six percent of patients had a history of prior exposure to the challenge food. Approximately two-thirds had a history of eczema and one-third had a history of asthma. Seventy-seven percent of patients passed their OFC. Of those with a history of previous reaction to peanut, two-thirds successfully completed the OFC. Mild urticaria was the most frequent positive reaction finding, occurring in approximately one-third of all cases. Required reaction management included: oral antihistamine (13%), inhaled bronchodilator (3.3%) and intramuscular adrenaline (3.3%). Both cases requiring intramuscular adrenaline were during OFC to peanut.

Conclusion

We describe demographic and outcome data for OFC in GUH. These data are in keeping with the demographics of other large allergy centres, with peanut and egg as the most frequent challenge foods. Avoided foods were successfully reintroduced to 77% of those challenged. Peanut was successfully reintroduced in two-thirds with a previous reaction which greatly exceeds international data for the resolution of peanut allergy at 20%[1].

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THE LINK BETWEEN GASTRO-OESOPHAGEAL REFLUX AND COW'S MILK PROTEIN INTOLERANCE: A SYSTEMATIC REVIEW OF THE LITERATURE

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Aims: Gastro-oesophageal reflux (GOR) and cow's milk protein intolerance (CMPI) are two frequently occurring conditions found in infancy. The aim of this review is to highlight an association between GOR and CMPI with a view to educating both practitioners and parents who consider them as separate entities.

Methods: A systematic review was conducted using articles from: PubMed, Sciencedirect

Search Terms: Gastro-oesophageal reflux + cow's milk protein intolerance
Inclusion Criteria: studies from 1985-present, studies involving infants, studies involving both GOR and CMPI
Exclusion Criteria: studies not including infants, studies pertaining to GOR or CMPI independently

Results: a review of 12 articles examining the link between GOR and CMPI revealed varying degrees of coexistence. Iacono G et al[1], Farahmand F et al[2], Kamer B et al[3], and Semeniuk J et al[4], yielded similar results showing co-occurrence of GOR and CMPI in 41.8%, 33.3%, 46.5%, and 44.9% of infants studied respectively. Cavataio F et al[5,6] in two separate studies highlighted both GOR and CMPI to be present in 41.6% and 30% of infants. Kelly KJ et al[7] studied 10 infants with resistant reflux and treated them with elemental formula- 8 had symptom resolution, 2 had symptom improvement, and relapse occurred in 7/10 on open challenge. Forget P et al[8], McLain BI et al[9], Staiano A et al[10], and Milocco C et al[11] produced somewhat inferior results with a link apparent in 20%, 20%, 16%, and 16% of infants respectively. Nielsen RG et al[12] found 18/42 children to have severe GORD, 10 of whom also had concomitant CMPI.

Conclusion: This review highlights a link between GOR and CMPI. Both present similarly, most commonly with vomiting. CMPI should be considered, particularly in cases of reflux resistant to pharmacological therapy, as a co-existing or causative entity accounting for symptoms.

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TEMPERATURE STABILITY OF THE PREMATURE INFANTS TRANSPORTED OUTSIDE THE NEONATAL UNIT

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Aims

To monitor temperature stability of the infants undergoing body composition measurements while they are inpatients in the Neonatal Unit (NNU).

Methodology

All clinically stable premature infants enrolled in PiNPoINT study (Personalised Nutrition for the Premature Infant) have their body composition measured during their stay in NNU, at 34+/-2 weeks CGA and/or term CGA. These assessments take place outside NNU, as the device is located on a different floor.

A SOP was developed in order to support our effort to maintain a safe body temperature for these infants during transportation. After having their temperature checked while in their cot/incubator, they had all their clothing removed, were wrapped into pre-warmed blankets and then transported to the PeaPod room using a pram. After assessments, they were wrapped again into the blankets and returned to NNU, where they had their temperature checked again.

All data were collected prospectively.

Results

We included twenty-four infants, 16 females (66.6%) and 8 males (33.3%) over a 6-month period (October 2018 – April 2019). The mean (SD) gestational age (GA) at birth was 30.15±1.87 weeks, with a mean (SD) birth weight of 1.31±0.26 kg.

At the time of assessment, the mean (SD) corrected GA was 35.98 ±1.75 weeks with a mean (SD) weight of 2.39±0.51 kg; their median (IQR) age was 35.5 (29.5-49.75) days.

The mean (SD) temperature before transport from NNU was 36.7±0.18°C and the mean (SD) on return was 36.6±0.12°C ($p<0.010$). One infant had a temperature of 36.4°C before transport (returning with 36.5°C) and 2 infants returned with 36.4°C (from 36.7°C and 36.6°C respectively).

Conclusions

We observed a statistically significant drop in the body temperature of the premature infants transported outside NNU, but this was not a clinically significant one. Our SOP brought closer attention to the temperature control during the transfer outside NNU and the body composition measurement of these patients, making it a safer procedure for them.

MANAGEMENT AND PROGNOSIS OF PERINATAL STROKE

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Introduction: Perinatal stroke refers to an acute neurological syndrome with chronic sequelae that develops between 20 weeks gestation & 28 days post-partum caused by cerebral injury of vascular origin (arterial thromboembolism, cerebral sinovenous thrombosis [CSVT], or primary intracranial haemorrhage [ICH]). Wide variations in morbidity & mortality rates are seen following perinatal stroke depending upon the location & extent of brain injury. Chronic disabilities may include cerebral palsy, epilepsy, cognitive impairment, behavioural & mood disturbances, visual problems & language issues.
Method: A comprehensive search of PubMed & EMBASE from January 2000 to October 2019 was made using 3 search items: perinatal stroke, antithrombotic therapy in neonates & children, & stroke rehabilitation. The search items were combined using the Boolean operator. A further search was made of the society guidelines of American Heart Association/American Stroke Association, American College of Chest Physicians, Canadian Stroke Association, Cochrane library, & ClinicalTrials.gov with no language restriction.
Results: The mainstay of treatment in perinatal stroke cases is supportive care aimed at preventing further cerebral injury by ensuring adequate oxygenation and correction of dehydration, electrolytes imbalances, metabolic disturbances, hypoglycaemia, hypocalcaemia, & anaemia. Antibiotics are given if infection is suspected. Anticonvulsants are given if seizures are seen or suspected (prolonged video-electroencephalogram monitoring may be necessary as clinical identification of seizures is unreliable in neonates). Unlike adults, most thromboembolic perinatal strokes do not recur or progress. Antiplatelet therapy, anticoagulant therapy, thrombolysis & mechanical thrombectomy (the usual treatment options in adults) are therefore not indicated in significant majority of perinatal stroke patients. Rare indications of antithrombotic therapy include underlying thrombophilia, complex congenital heart disease (NOT including patent foramen ovale), & atrial fibrillation. Antithrombotic treatment options include aspirin, unfractionated heparin (UH) & low molecular weight heparin (LMWH). CSVT cases require treatment with UF or LMWH even when significant secondary haemorrhage has developed. ICH cases require vitamin-K (in all), correction of severe thrombocytopenia (if present) & replacement of clotting factors (if any deficiencies are found). Those who develop hydrocephalus are initially treated with ventricular drainage, followed by ventriculoperitoneal shunting if hydrocephalus persists. Other interventions beyond the neonatal period may include surgery for drugs-resistant epilepsy & embolization of arteriovenous malformations.
Conclusion: Long-term neuro-developmental outcomes are normal in only 19-41% of thromboembolic perinatal stroke cases. Frank hemiparesis and mild neuromotor dysfunction are respectively seen in approximately 25-30% & 30% cases. Perinatal ischaemic stroke is the commonest known cause of cerebral palsy accounting for roughly 30% of hemiplegic cerebral palsy cases amongst babies born at term. Survivors of perinatal ischaemic stroke are known to exhibit below-average IQ scores (mean 87 versus mean 100, in normal subjects). The estimated prevalence of epilepsy following perinatal ischaemic stroke is 10-40% during acute phase & 19-67% later in life. Although 93-97% of newborns with CSVT survive the acute phase, in one study, the mortality rate was 19% when followed-up at a mean age of 19 months. Prognosis in ICH cases is even worse with multiple studies showing mortality & morbidity rates ranging between 4-15% & 44-77% respectively.

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OPTIMAL MANAGEMENT APPROACH FOR PATENT DUCTUS ARTERIOSUS IN PRETERM INFANTS

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Introduction: Hemodynamically significant patent ductus arteriosus (PDA) in preterm infants is known to be associated with greater mortality and substantial morbidity in the form of pulmonary oedema/haemorrhage, bronchopulmonary dysplasia (BPD) and potential end-organ ischaemic injury. Considerable practice variability exists regarding different PDA management approaches from supportive care alone to pharmacological closure to surgical ligation.
Method: A comprehensive search of PubMed & EMBASE from their inceptions to October 2019 was made using 3 search items: patent ductus arteriosus, preterm infants, & management approaches. The search items were combined using the Boolean operator. A further search was made of the Cochrane Central Register of Controlled Trials, & ClinicalTrials.gov with no language restriction.
Results: Literature review suggests that the most appropriate management approach is a step-wise strategy beginning with supportive care provided to all preterm infants including a neutral thermal environment, moderate fluid restriction (110-130 mL/kg/day) & adequate respiratory support (target SpO_2 90-95%, $PaCO_2$ 55-65 mmHg, pH 7.3-7.4, & haematocrit above 35%). The next step is pharmacological closure attempted in infants who remain ventilator-dependent after one week. It is done in the form a course of non-selective COX inhibitors therapy (indomethacin, ibuprofen), or paracetamol. Latter is generally considered if COX inhibitor therapy is considered contraindicated (untreated infection, NEC, active bleeding, thrombocytopenia, significant renal impairment, concomitant congenital heart disease like pulmonary atresia, severe tetralogy of Fallot, severe coarctation of aorta). An echocardiogram is performed 1-2 days after completion of drug course. If it shows PDA closure, a positive response to therapy is confirmed. Unfortunately, a significant proportion of infants fail to respond to the initial course as evidenced by visualization of persistent PDA on follow-up echocardiogram & infants remaining ventilator-dependent. Limited date suggests that a second course of COX inhibitor is associated with 40% rate of ductal closure in such instances. Infants who fail to respond to even the second course & remain ventilator-dependent on maximum settings are unlikely to respond to drug treatment & therefore no further medical therapy is considered appropriate in such instances. Although rarely necessary in real life, surgical ligation should be considered in these cases.
Conclusion: Head-to-head comparison of different drugs used to attempt pharmacological closure of PDA (indomethacin, ibuprofen, & paracetamol) is particularly tricky due to variations of criteria used to define hemodynamically significant PDA and multiple treatment protocols used with variations in dosing & route of administration (enteral vs IV bolus vs IV continuous) across different studies. A recent meta-analysis however concluded that high-dose oral ibuprofen was the most efficacious regimen for pharmacological closure of PDA. Because surgical ligation has become increasingly uncommon & published data is observational, it remains uncertain whether infants who fail pharmacological closure are more severely compromised to begin with, or in fact surgical intervention contributes to increased morbidity & mortality seen in such cases.

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SIRENOMELIA (MERMAID SYNDROME)- A RARE CONGENITAL DISORDER.

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Background:

Sirenomelia or mermaid syndrome is an extremely rare congenital disorder involving the lower spine and lower limbs. Although usually fatal in the newborn period, survival in a handful of cases beyond infancy have been reported. We would like to present a new born with sirenomelia and multiple anomalies brought in to our hospital soon after birth.

Case Report:

A 40 year old Romanian lady G 17, P 16, Ab 0, known diabetic poorly controlled on insulin, delivered at 38 weeks gestation in an ambulance en route to the hospital. On arrival, she was taken directly to the labour ward with ongoing resuscitation efforts with bag and mask and CPR carried out by the paramedics. The baby was noted to be cyanosed and in respiratory distress. Severe congenital abnormalities were obvious and included flattened dysmorphic features, low set malformed ears, upward slanting palpebral fissures, flattened nose, receding chin, short neck, small thoracic cage, ambiguous genitalia, absent anal opening and fused lower limbs. The feet however, were separated.

The mother was originally booked in a tertiary referral centre where she had undergone antenatal scanning and was counselled on the poor prognosis due to multiple abnormalities. When the mother was brought in by ambulance into our hospital, we were not aware of the management plan. Shortly after, we realized futility after resuscitation became obvious. We received more information regarding the poor prognosis and consequently, handed over the baby to the mother for comfort care.

Conclusion:

Sirenomelia is an extremely rare and usually fatal congenital malformation. Research in this area is lacking due to isolated cases reported worldwide. It needs more research to identify the cause and possible association for this condition.

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REVIEW OF MANAGEMENT OF NEONATAL HYPOGLYCAEMIA FOLLOWING THE INTRODUCTION OF A HYPOGLYCAEMIA PROTOCOL IN A REGIONAL CENTRE

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Aim

To identify adherence and review outcomes following the implementation of a standardised hypoglycaemia protocol. Identify characteristics of those patients requiring neonatal unit admission.

Method

A prospective chart review was conducted on all patients on the postnatal ward who received glucose gel for a blood sugar level less than 2.6 over a two month period following the introduction of a hypoglycaemia protocol. All patients who received glucose gel were analysed. Information was gathered regarding infant characteristics, the episodes of hypoglycaemia and further management.

Result

39 patients met the inclusion criteria for this study:10 infants (25%) were born to women with GDM (7 diet controlled,3 requiring insulin) 2 infants were LGA,1 was SGA,11 were born to women who were on beta blockers in pregnancy. All had at least one episode of hypoglycaemia (BSL <2.6) and received dextrose gel. All patients were greater than 36 weeks gestational age (3 < 37 weeks). 20 patients had sugar levels checked as part of routine observations due to the presence of a septic risk factor. 46% were fed in the first hour of life.41% of all patients breastfed, 42% formula fed, 17% combination.

10 patients (25%) were admitted to the NNU: 3 had a sugar level < 1.8,7 had levels between 1.8 and 2.6 after two treatment attempts. Of the 10, there was a history of GDM in 2(both diet controlled) and maternal beta blocker use in 1.Of those with BSL < 1.8,all 3 had further hypoglycaemic episodes in ICU.1 had a formal diagnosis of transient hyperinsulinism, requiring glucagon treatment. All babies that required admission had a septic risk factor including GBS positive mother or PROM. None of these babies were treated for sepsis.4 of the 10 babies had normal blood sugar levels checked by capillary gas when checked on arrival to the NNU.

Conclusion

Adherence with current guidelines for hypoglycaemia screening is excellent. This review reinforces the importance of using standardised guidelines to ensure the early identification and treatment of patients with neonatal hypoglycaemia.

A LITERATURE REVIEW TO HELP US UNDERSTAND AND MANAGE ACIDEMIA IN CORD BLOOD GASES

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Aim: To understand the pathophysiology and threshold of acidemia in cord blood gases and to produce local guidelines for managing low pHs in cord blood gases.

Background: Cord blood gas analysis is an objective measure of fetal metabolic condition at the time of delivery. By knowing the fetal acid base status it helps us identifying neonates who are at risk for HIE or other comorbidities. Pathological acidosis at birth reflects fetal distress due to hypoxic stress. Combining this evidence of acidosis with other abnormal clinical findings it strongly serves as an indicator for possible adverse neonatal neurological morbidity.

Indication: meconium stained liquor, assisted emergency delivery, shoulder dystocia, multiple pregnancy, IUGR, IPH, low APGARs.

Common causes of Acidemia: umbilical cord compression, fetomaternal hemorrhage, placenta previa/abruption, maternal hypotension, preeclampsia, prolonged labour.

PH threshold: Studies showed that the risk for adverse neurological outcomes starts below a PH of 7.10 with the risk being highest below a PH of 7.0. Lowest risk of adverse neurological outcome was between 7.26 and 7.30. Any infant born with PH of <7.0 should be reviewed by an experienced neonatologist and should be admitted to NICU and blood gas should be repeated in 30mins. Cerebral function monitoring/examination and candidacy checklist for neonatal therapeutic hypothermia should be filled. Babies born with cord ph 7-7.15 should have repeat bloodgas in 1 hour and if acidosis persists then baby should be admitted in NICU and observed for at least 24 hours.

Lactate threshold: Studies showed mean lactate 6.5 had twofold higher composite morbidity than lactate of 3.26. Lactate has high sensitivity and specificity for predicting neonatal neurological outcome.

Base deficit: Studies showed base deficit>12 is a high risk for moderate to severe newborn encephalopathy with BD>16 having 40% increased risk of such neurological complications.

We have developed an algorithm for our department how to manage acidemia in cord blood gases.

1.the relationship between umblical cord arterial ph and serious adverse neonatal outcome: analysis of 51519 samples. 2012 2. outcomes among term infants when two hour postnatal ph is compared with ph at delivery. 2001 3. threshold of metabolic acidosis associated with newborn complications1997 4.threshold of metabolic acidosis associated with newborn CP. 2019 5.umblical cord arterial lactate compared with ph for predicting neonatal morbidity at term. 2014 6. umblical lactate as a measure of acidosis and predictor of neonatal rsik. 2017 7. umblical cord lactate a valuable tool in assessment of fetal metabolic acidosis2008 8.strength of association between umblical cord ph and perinatal and long term outcomes. 2010 9. relationship between umblical cord arterialph and serious adverse outcome analysis of 51519 samples2012. 10.NHS Joint trust guideline for management of babies with severe umblical arterial acidosis2017.

IMPLEMENTING A JAUNDICE GUIDELINE: AN AUDIT OF COMPLIANCE

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Aims

To assess adherence to the jaundice guideline implemented on the postnatal ward/NICU by paediatric/midwifery staff and assess areas of improvement

Methods

Charts were collected for all babies admitted on the postnatal ward in January 2019 – 217 babies in total. Parameters assessed; TCB graph present in chart, Risk factor assessment documented on TCB graph, Plan documented based on TCB result, Plan followed through, Number of SBRs performed, Maternal Blood Group documented

Results

TCB Graph

166/217 (76.5%) babies had a TCB graph in their chart. 46/166 (27.7%) had risk factor assessment documented - Of the 46 completed, 19/46 (41.3%) had risk factors and 27/46 (58.75%) did not. 159/166 (95.8%) had a plan documented based on the TCB result - 155/159 (97.5%) of these had their plan followed through.

Blood group

4/217 mothers had no rhesus status or blood group documented and 26/217 mothers had only rhesus status documented.

Serum Bilirubin (SBR)

94 SBRs performed over one month on 42 babies, 19.4% of babies on postnatal ward had SBR taken. 5 babies with SBR taken did not have DCT taken and 4 babies with DCT taken did not have SBR taken.

Admissions

2 babies admitted from ED for phototherapy; 1 did not have TCB graph in chart at discharge and 1 due follow up but represented prior to same

Conclusion

While implementation of the jaundice guideline was successful with 76.5% of babies having a TCB graph at discharge, 23.5% of babies were missed and were discharged without adequate assessment. Of the babies who had a TCB graph, there was excellent compliance with discharge plan and follow up. There was very poor compliance with documenting risk factors for jaundice and this led to changes of the risk assessment section to improve compliance. We plan for education of incoming staff regarding guideline, risk factor documentation with a plan to reaudit following same.

Maisels, M.J., Bhutani, V.K., Bogen, D., Newman, T.B., Stark, A.R. and Watchko, J.F. (2009). Hyperbilirubinemia in the Newborn Infant >=35 Weeks' Gestation: An Update With Clarifications. PEDIATRICS, 124(4), pp.1193–1198.

A CASE OF NEONATAL HIRSCHSPRUNG'S DISEASE

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Hirschsprung's Disease is a multifactorial disease with both genetic and environmental causes. It is a disorder characterised by the absence of ganglion cells in the distal bowel, as a result of the failure of the ganglion cells to migrate into the hindgut. This results in a portion of the bowel having an absence of peristalsis which leads to a functional intestinal obstruction, which can present in the early neonatal period with symptoms of a large bowel obstruction. Baby J was born by elective caesarean section fat 37/40. He weighed 4.36kg at birth. His mother had gestational diabetes which was controlled by insulin and had been an inpatient since 26/40 for psychosis which was being treated with haloperidol. There was no family history of Hirschsprung's disease. Baby J did not pass meconium in the first 24 hours and was noted to have abdominal distension. An abdominal X-ray showed dilated bowel loops and he was transferred to a tertiary centre for further management. Rectal washouts resulted in the passage of meconium and rectal biopsies confirmed short segment Hirschsprung's disease. He was discharged home having spontaneous bowel motions and will be followed by the surgical team. This male neonate had numerous risk factors identified for Hirschsprung's disease: he was born to a multiparous mother was on an MDI regime of insulin for gestational diabetes, and was also treated with haloperidol for psychosis. There is a lot of supporting literature for the correlation between maternal diabetes, the use of certain antidepressants and Hirschsprung's disease. Although there is no documented literature to date regarding the impact of taking haloperidol and the incidence of Hirschsprung's disease, we postulate if there may be a link between these.

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UNDER PRESSURE: WHAT IS THE EVIDENCE THAT HYDROCORTISONE IS USEFUL IN THE MANAGEMENT OF NEONATAL HYPOTENSION?

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Aims: To determine the evidence for the use of hydrocortisone as a first line or add on agent to conventional vasopressor therapy in the treatment of neonatal hypotension.

Methods: The EMBASE literature database was searched. A total of 13 studies, including RCTs, prospective and retrospective cohort studies and case series' that investigated the use of hydrocortisone in neonatal hypotension were included, after strict exclusion and inclusion criteria were applied.

Results: The use of hydrocortisone was shown to reduce the incidence of neonatal hypotension when compared with placebo. In cases where hypotension did develop, subsequent necessary vasopressor therapy in the hydrocortisone group was both of lower dose and shorter duration. There was no statistically significant difference in the number of cases of successfully treated neonatal hypotension, between the hydrocortisone group and the control group treated with dopamine in one study. The patient cohort with hypotension due to patent ductus arteriosus was more successfully treated with dopamine compared to hydrocortisone. In relation to refractory hypertension, it was found that there was a statistically significant increase in blood pressure in neonates who were administered hydrocortisone. It was reported that there was no statistically significant difference between changes in blood pressure in the group administered a high vs low single dose of hydrocortisone.

Conclusions: There is sufficient evidence for the use of hydrocortisone in the management of neonatal hypertension. This review highlights the disparity of treatment plans for neonatal hypotension from physician to physician and shows the necessity of a standardised evidence based management plan to improve care.

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ADVERSE EFFECTS OF ABNORMAL CARBON DIOXIDE LEVELS: HYPOCAPNIA AND HYPERCAPNIA IN NEONTAOLOGY. WHAT ARE SAFE PARAMETERS?

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Aims: To review on the adverse effects of hypercapnia and hypocapnia and existing carbon dioxide thresholds in neonatal disorders.

Methods: A systematic search of Pubmed, Embase and Scopus was conducted. The eligibility and quality of the papers were assessed. Relevant data was extracted and analysed and the results were tabulated.

Results: Hypocapnia is associated with neurological side effects whilst hypercapnia is associated with worse neurological, respiratory and gastrointestinal outcomes and retinopathy of prematurity (ROP). Permissive hypercapnia was not found to decrease the rates of periventricular leukomalacia (PVL), ROP, hydrocephalus and air leaks. For hypocapnia, safe parameters for cerebral palsy (pCO_2 >4.7 kPa), neonatal encephalopathy ($PaCO_2$ >2.6 kPa) and PVL ($PaCO_2$ >4.67 kPa) were identified. For hypercapnia, safe parameters for bronchopulmonary dysplasia (BPD) (pCO_2 <6.67 kPa), intraventricular hemorrhage ($PaCO_2$ <7.7-8.0 kPa) and congenital diaphragmatic hernia (CDH) ($PaCO_2$ <5.2 kPa and $PcCO_2$ ≤8.7 kPa) were described. For permissive hypercapnia, safe parameters for BPD ($PaCO_2$ 6.0 - 7.3 kPa) and CDH ($PcCO_2$ ≤8.7 kPa) were identified.

Conclusion: The adverse effects of hypocapnia and hypercapnia in neonates were discussed in this literature review. Safe CO_2 parameters were indirectly inferred from existing research as there are no established guidelines for optimal CO_2 ranges for neonatal pathologies. Contradicting findings on the effectiveness of permissive hypercapnia highlights the need for rigorous evidence to establish its role in clinical practice and if beneficial, the safe upper limit of permissive hypercapnia.

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INTRAVENOUS INFUSIONS IN PAEDIATRIC INTENSIVE CARE, HOW MUCH OF THE INFUSION AM I GIVING?

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Aim:

Intravenous infusions are used for most patients in PICU and include relatively straightforward medications eg sedative agents and the more complicated and sensitive like vasoactive drugs. New pumps are smart and include features of dosage calculations and safety measures, however, these smart features are not used in our PICU. The aim of this study is to explore the related practice in other regional and nationwide PICU units and to evaluate the introduction of pump programming in Belfast PICU.

Methods:

1. A telephone survey was carried targeting PICU units (Ireland and UK) enquiring regarding the local practice of drug infusions.
2. Our local staff were introduced to the programming of the pump individually and then asked to adjust the infusion rate in the pump using the current manual method as well as adjusting it using a programmed pump.
3. These tasks were timed, and observations were made whether or not there is an error. A paired-t-test and p-value and Significance level (α) of 0.05 was chosen

Results:

14 units responded to the survey. 9 units are using electronic prescriptions. 10 units display designated units in the infusion pump (e.g. mg/kg/hr) while 4 PICU display only Ml/Hr.

22 staff members participated in the study in Belfast PICU. They were faster by a mean of 57 seconds when adjusting infusions using a programmed pump. 2 errors in calculations occurred when using manual calculation, none when using a programmed pump. These results were found to be statistically and practically significant (p-value equals 2.70542e-8)

Conclusion

Smart features in the infusion pump should be used to save time and reduce the potential for errors.

Staff training is required prior to the implementation of this change.

This can be considered as a forward step prior to endorsing a drug library with full safety measures interface (guardrail).

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IMPLEMENTATION OF THE LOW RISK ANKLE RULE IN AN IRISH PAEDIATRIC EMERGENCY DEPARTMENT: A QUALITY IMPROVEMENT PROJECT

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Introduction:

The Low risk ankle rule (LRAR) is a validated evidence-based decision rule with a sensitivity of 100% with respect to identifying clinically important paediatric ankle fractures and has the potential to safely reduce imaging by about 60%. It is estimated that the cost of performing and interpreting an ankle x-ray (aXR) in our PED is approximately 47 euros.

Objectives:

A quality improvement project to determine if we could safely reduce the amount of unnecessary aXR.

Methods:

A Retrospective review of all aXR performed from September 2018 to February 2019.Data was accessed using electronic patient records and eligible participants were children aged 3-16 years old who presented with an ankle injury. Repeated aXR of the same injury were excluded. The LRAR was retrospectively applied to determine what percentage of these x-rays could have been avoided. Official radiology reports were used to determine if the injury sustained was low or high risk.

Results:

A total of 500 aXR were performed during the study period.48 (10%) aXR were excluded 25 (5%) were repeat images of the same injury and in 23 (5%)there was insufficient clinical examination findings documented to apply the LRAR).Overall,186 (41%) patients had ankle injuries where aXR were not required when the LRAR was applied. Of these, 24 (5%) had low risk ankle fractures and no high risk injuries were missed. A total of 265 (59%) patients were deemed high risk when the LRAR was applied. Of the patients deemed high risk 65 (25%) had fractures and 32 (12%) were high risk injuries.

Conclusion:

Implementation of the LRAR would safely eliminate 41% of aXR performed with no high risk injuries missed. This reduction in xrays could potentially save the hospital approximately 19,000 euros over the course of a year. A multidisciplinary education program will be introduced to adopt the LRAR in our department.

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TOPICAL CORTICOPHOBIA IN NCHDS WORKING IN PAEDIATRIC HOSPITALS

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Aim

Atopic dermatitis (AD) is a common chronic inflammatory skin condition in children. Treatment is with emollients and topical corticosteroids (TCS). TCS are safe and effective however adherence is low. This can be due to "corticophobia" which describes the fears and reluctance surrounding the use of TCS. The attitudes of doctors may influence parents' feelings about TCS. This study aims to assess the beliefs and worries regarding TCS held by Non-Consultant Hospital Doctors (NCHDs) working in paediatric hospitals.

Methods

NCHDs of all levels and specialities in two Irish tertiary paediatric hospitals were invited to complete an online survey which recorded demographics and asked about participants' beliefs and worries regarding TCS use in children.

Results

There were 53 respondents. 70% were specialised in paediatrics and 66% were registrar level or above. When asked on a scale of 1 to 10 how confident participants were in prescribing TCS to children the mean answer was 7, with answers appearing to be related to experience. 19% believed TCS are equally dangerous to oral steroids in children. 32% believed TCS can increase susceptibility to infection, 15% believed TCS can cause weight gain and 28% believed TCS can cause poor growth in children. 43% thought TCS use should be restricted to severe flares of AD and 59% thought TCS should be stopped as soon as flare resolved.18% believed TCS should be avoided on the face and 4% believed they should be avoided on the hands. 92% were interested in further education regarding prescribing TCS for AD in children.

Conclusion

This is the first study that looks at topical corticophobia in NCHDs in paediatric hospitals and shows the widely varying beliefs and worries held by doctors working in paediatrics, which can lead to confusing advice given to parents. This study shows that NCHDs both need and want further education on prescribing TCS to children.

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PENDULUM SWINGING THYROID FUNCTION IN DOWN SYNDROME

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Background

There are two categories of TSH receptor antibodies; *stimulating* antibodies causing Graves' disease and *blocking* antibodies which are rarely clinically significant. Rare patients with both subtypes can develop thyroid dysfunction alternating between hyperthyroidism and hypothyroidism. It is rare in children and to our knowledge has not been described in Down syndrome.

Case Description

An asymptomatic 9 year old girl with Down syndrome had TSH 0.01 mU/L, free T_4 41.7 pmol/L on annual screening bloods. TSH receptor antibodies were > 40 mU/L and thyroid peroxidase (TPO) antibodies were 146 mU/L consistent with Graves' disease. Carbimazole 5mg TDS was commenced and initial response was as expected however with weaning, minor dose adjustments caused thyroid function to oscillate between mild biochemical hyperthyroidism and hypothyroidism.

After 30 months she became profoundly hypothyroid (TSH 257mU/L and free T_4 3.2pmol/L) on a small dose of carbimazole which was discontinued. Thyroxine 25mcg commenced which was initially increased followed by a progressive decrease, and ultimately discontinuation over the course of a year. Currently the patient is off medication for 6 months but has mild biochemical hyperthyroidism.

TSH receptor functional bioassay demonstrated the presence of both antibody types. Discussion continues as to whether radioactive iodine or surgery is the preferred definitive treatment.

Discussion

Pendulum swinging thyroid function is a remarkable and rare phenomenon. Antithyroid drugs can increase *blocking* antibody titres resulting in hypothyroidism. Thyroxine when commenced increases *stimulating* antibodies, resulting in Graves' disease. Continued medical treatment causes unremitting oscillation of thyroid function, necessitating definitive treatment in the form of surgery or radioiodine. Since diagnosis, this patient's most stable period of thyroid function has been achieved off all medical treatment. In patients with Down syndrome, Hashimotos' thyroiditis converting to Graves' disease is well recognised and needs to be considered in the differential if the initial presentation is hypothyroidism.

IS DOWN SYNDROME-ASSOCIATED ARTHRITIS (DA) A DISTINCT DISEASE FROM JUVENILE IDIOPATHIC ARTHRITIS (JIA)?

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Background

Arthritis is 20-times more common in children with Down syndrome (DS). It is an erosive, polyarticular-RF-negative arthritis with predominance in the small joints of the hands and wrists. Little is known about the underlying mechanisms that drive DA pathogenesis, however we hypothesise that it is a distinct disease from JIA.

Our aims were to compare the following in DA and JIA;

- B-cell subsets;
- T-cell cytokine profiles;
- Synovial membrane immunohistochemistry;
- Synovial fibroblast cell (SFC) functionality.

Methods

Multicolour-flow cytometry and Flowjo software were used to analyse B-cell subsets and T-cell cytokine expression in peripheral blood mononuclear cells (PBMCs) from 40 children (n=10/group - Healthy Control (HC), JIA, DS, DA).

Synovial tissue was obtained through Ultrasound-guided biopsy and analysed by immunohistochemistry for CD3, CD20, CD68, FVIII (DAn=3; JIAn=4). Levels of vascularity and lining layer hyperplasia were also scored.

DA-SFC (synovial fibroblast cell) and JIA-SFC migration was assessed by wound repair/scratch assays; invasion by Biocoat Matrigel™ Invasion Chambers; and bioenergetic activity using the XFe96-Flux-analyser where oxidative phosphorylation and glycolysis were quantified. Real-time PCR assessed glycolytic gene expression.

Results

Flow cytometry analysis revealed that children with DA had a significantly lower number of circulating B-cells when compared to children with JIA and HC. However, they had a greater proportion of memory B-cells when compared to children with DS. T-cell IFN-γ and TNF-α production was significantly greater in DA compared to both JIA and HC.

DA synovial tissue demonstrated greater synovial lining layer hyperplasia, vascularity and inflammatory cell infiltration compared to JIA.

DA-SFC showed greater migratory and invasive capacity, and increased basal metabolic activity and metabolic gene expression when compared to JIA-SFC.

Conclusion

Significant differences were observed in the immune, histological and SFC functionality profiles of DA and JIA. These differences may explain the erosive phenotype observed in DA and suggest it may be a distinct disease from JIA.

FAMILIAL REVERSIBLE STROKE-LIKE ATTACKS IN 12P DUPLICATION 15Q DELETION SYNDROME: A NOVEL PHENOTYPE IN A RARE DISORDER

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Background:

Duplication of the short arm of chromosome 12 is a rare chromosomal abnormality generally resulting from malsegregation of a balanced parental translocation[1]. Terminal deletions on 15q are relatively rare. The terminal end of the long arm of chromosome 15 contains numerous genes and reported phenotypes include developmental delay, dysmorphic features and cardiac defects[2]. Herein, we present a case of a female patient with an unbalanced chromosome translocation characterised by monosomy 15q.26.2-q26.3 and trisomy 12p13.33-p11.23 whose mother was a known carrier of a balanced translocation of chromosome 12 and 15.

Case report:

Dysmorphic features of low set ears, broad forehead, hypertelorism, short nose, anteverted nostrils, single palmer creases and clinodactyly were noted after birth. Gastro-oesophageal reflux was problematic although oral feeding was achieved. Subsequent musculoskeletal examination identified talipes equinovarus and bilateral developmental dysplasia of the hips. Significant developmental delay was observed; sitting was achieved aged 5 years and she remained non-verbal.

She presented aged 12 years with acute onset of dense left hemiplegia during an intercurrent illness, and focal seizures. Extended infectious screen was negative and MRI/MRA showed oedema of the right cerebral hemisphere with increased collateral vessels but no clear infarction or haemorrhage. A dramatic recovery of her left-sided hemiplegia occurred without treatment within 2 weeks. Follow up MRI brain 3 months later was normal.

Evaluation of her family history revealed a history of stroke-like episodes in two first cousins with the same chromosome abnormality during the second decade of life, years previously, also presenting during intercurrent illness to our tertiary neurology service. MRI findings were not typical of acute ischaemic events demonstrating oedema and dramatic resolution on follow up imaging.

Although many OMIM[3] genes are contained in the regions affected in this patient's chromosomal abnormality, none have previously been reported in association with stroke-like episodes. Thus, we report a striking novel phenotypic association of monosomy 15 and trisomy 12 in three first cousins.

Poirsier C, Landais E, Bednarek N et al. Report on 3 patients with 12p duplication including GRIN2B. European Journal of Medical Genetics Volume 57, Issue 5, April 2014, Pages 185-194 Davidsson J, Collin A, Björkhem G, Soller M. Array based characterization of a terminal deletion involving chromosome subband 15q26.2: an emerging syndrome associated with growth retardation, cardiac defects and developmental delay. BMC Med Genet. 2008;9:2. Published 2008 Jan 14. doi:10.1186/1471-2350-9-2 Online Mendelian Inheritance in Man. https://omim.org/about. Accessed 15/10/2019

TRANSPORTING CRITICALLY ILL CHILDREN IN THE REPUBLIC OF IRELAND: AN AUDIT OF CURRENT PRACTICE

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Aims

The paediatric intensive care units (PICUs) in the Republic of Ireland accept approximately 450 external admissions each year. PICU transfer is provided by the National Neonatal Transport Programme (NNTP) or the Irish Paediatric Acute Transport Service (IPATS) where possible. However, local teams are frequently tasked with the transfer of these children, as the transport teams' availability, activation time and hours of service, as well as the time sensitive nature of certain conditions can dictate the team tasked. The aim of this audit was to review the modality of transport for all children admitted to the PICU's of Children's Health Ireland @Temple Street and @Crumlin and assess the national burden of locally mediated transfers.

Methods

External PICU admissions between 1st September 2018 and 31st March 2019 were reviewed via the PICU Electronic Health Record. Anonymised patient data was analysed in Microsoft Excel.

Results

300 children were transferred during the audit. 41% of children by local team, 36% by NNTP, 19% by IPATS, 1% by NiSTAR (Northern Ireland specialist transport and retrieval) and 3% were unknown. 20% of neonatal and 22% of paediatric transfers had time critical diagnoses. NNTP transferred 91% of these children. IPATS did not transfer any children with a time critical diagnosis. Excluding time critical transfers, NNTP transferred 89% of eligible patients (<6weeks corrected gestational age and <5.5Kg) and IPATS transferred 39% of theirs (>4 weeks corrected gestational age and >3.5Kg).

Conclusions

It is widely accepted that a dedicated transport service provides the optimum transport environment for critical ill children. NNTP is facilitating nearly all neonatal transfers, reflecting its 24/7 365 service delivery. IPATS is currently only achieving 39% of appropriate transfers, reflective of its restricted hours. Without further allocation of resources to IPATS there will be an ongoing onerous pull on local teams to deliver this critical service.

WHEN WILL THEY GET HERE? AN ANALYSIS OF TRANSFER TIMES TO PICU IN THE REPUBLIC OF IRELAND

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Aims

There are 25 hospitals which refer to CHI @Temple Street or @Crumlin when a PICU bed is required, with transport distances ranging from 2Km to 300Km. A neonatal or paediatric critical care team is utilised when possible to facilitate transfers. Varying activation times, team availability and hours of service, along with the time sensitivity of some transfers can impact on the ability to utilise the transport team and local teams are frequently tasked with these transfers. Our aim was to audit the time taken for children to be admitted to PICU from the time of bed acceptance, looking at geographical and transport team factors.

Methods

All external admissions from September 1st 2018 to March 31st 2019 were identified using the PICU Electronic Health Record. Time of acceptance to PICU was identified when available. Estimated transport times were calculated for each Referring Hospital. A median IPATS activation time of 45min was used as per latest audit data.

Results

Data on transport times was available for 219 (73%) of the 300 children transferred. For the 5 hospitals less than an hour away, mean transport times were 3hr 7min by local team, 2hr 28min by IPATS and 4hr 5min by NNTP. For the 11 centres 1-2hrs away, they were 4hr 23min by local team, 4hr 26min by IPATS and 6hr 37min by NNTP. For centres >2hr away, mean time was 6hr 52min by local team, 8hr 12min by IPATS and 8hr 54min by NNTP.

Conclusions

IPATS was quicker or similar to local teams for journeys of under two hours. Given that the IPATS times include activation, transport in two directions and stabilisation, there is potentially scope for one-way local team transfer times to be further optimised and better resourced. Furthermore, IPATS retrieval for time critical transfers <2hrs away could now be considered.

A MIXED-METHODS INVESTIGATION OF PHYSICAL ACTIVITY ENGAGEMENT AND BARRIERS TO ENGAGEMENT IN CHILDREN WITH TYPE 1 DIABETES.Title:

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Introduction

Diabetes mellitus type 1 (T1DM) affects over 2,500 children in Ireland. If unmanaged, high levels of sugar in the blood can have harmful repercussions. In addition, pharmacotherapy, recent research has shown that physical activity is an important component of T1DM management [1-3]. A significant proportion of children with T1DM remain physically inactive. Thus, the aim of this research was to examine physical activity levels in children with T1DM and to investigate barriers to physical activity engagement in children with T1DM.

Methods

Quantitative (accelerometry using 8 day wear protocol) and qualitative (validated self-report questionnaire - BAPAD1) methods were used. 21 participants (9 females, 12 males) between 10 - 17 years (mean 13.7 years) were recruited from the Outpatients Diabetes Clinic in UHL. Total steps, METS per hour, sedentary bouts and sedentary duration were recorded.

Results

Mean total steps were recorded as 8,220 per day, mean daily METS = 27.80, sedentary bouts > 30 mins = 6.16, mean sedentary duration (during waking hours) = 365mins per day.

Conclusion

The findings of this study show participants are not achieving the required steps per day to sustain physical health (recommended minimum 11,500, average recorded 8,220). Furthermore, 86% of participants did not achieve the MET equivalents to meet Moderate to Vigorous Activity recommendations during the 8 day recording. The findings from this study show that whilst participants are active, the majority of individuals are not achieving the recommended intensity of activity on most days of the week. The purpose of this research was to pilot methodologies for further empirical research. There are no evidence-based guidelines for physical activity or exercise prescription (for healthcare practitioners) or management guidelines (for parents) to support physical activity in children with T1DM Further research is warranted to contribute to the understanding of physical activity prescription for the management of T1DM.

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Poster No: 212
Sub-Specialty

PAEDIATRIC EMERGENCY MEDICINE (PEM) RESOURCE UTILISATION - CAN WE PLAN IN ADVANCE?

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Aims:
Best practice protocol suggests that complete 'audio-visual separation' of paediatric and adult patients is optimal for a child's care in the Emergency Department (ED) [1]. This essentially requires two individual EDs within a hospital and so establishing when demand is highest would enable more accurate advance resource allocation. This study aims to establish trends in paediatric presentations to ED and the resources required to care for these patients in order to optimise resource allocation.

Method:
Data was collected from the hospital database and patient clinical records, for all paediatric presentations to the ED of a General Hospital (Letterkenny) over 4 weeks. Data regarding the day and time of presentation, length of time in the ED (Patient Experience Time or PET), investigations performed, treatment provided and disposition were collected, anonymised and entered in SPSS for statistical analysis. Comparisons were drawn between school term and school holidays/weekends.

Results:
570 paediatric patients attended the ED over the 28 day period, 319 during school term (14 days) and 251 during holidays/weekends (14 days). Attendance peaked between 1pm and 5pm during school term and 3pm to 9pm during school holidays/weekends. Over this period, Wednesdays were the busiest (103 presentations) and Fridays were quietest (71 presentations). The effects of the academic calendar on the nature of presentations (illness, injury or other) were analysed using a Pearson Chi Square test but there was no significance ($x^2 (2) = 2.737$, $p = 0.255$). Mean PET was 3.6 hours. Resource demand was greatest during school term but the nature of care required didn't change significantly based on the academic calendar.

Conclusion:
Demand for PEM services is greatest during school term and peak presentation time for paediatric patients to ED varies with the academic calendar. The data from this study may assist with planning for paediatric services within this ED and hospital.

[1] Martin C. A National Model of Care for Paediatric Healthcare Services in Ireland Chapter 24: Paediatric Emergency Medicine. HSE (Health Service Executive) – Clinical Strategy and Programmes Division, RCPI. 2014.

TAKAYASU ARTERITIS PRESENTING IN AN 11 YEAR OLD BOY

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Aims:
We present a case of Takayasu arteritis in a Caucasian Irish eleven-year-old male. Takayasu Arteritis, which usually involves the Aorta and its main branches, is an idiopathic granulomatous vasculitis of unknown aetiology with significant associated morbidity and mortality.

Methods:
Case presentation of Paediatric Takayasu Arteritis.

Results:
A previously well Caucasian eleven year old boy, with no past medical history of note, presented with an insidious onset of persistent, intermittent abdominal, flank and back pain, wakening him form sleep and exacerbated by exercise.
Examination was normal, including pulses and 4 limb Blood Pressure measurements. Inflammatory markers on presentation- CRP (90) and ESR (120)- were markedly raised. Full blood count, renal and liver profiles were normal.
CT Angiogram showed upper periaortic soft tissue surrounding the origin of the coeliac axis and superior mesenteric artery (SMA) causing marked stenosis of the SMA.

An extensive infectious work up was performed which proved negative including exclusion of tuberculosis.

PET scan confirmed uptake in the proximal abdominal aorta with associated periaortic soft tissue suggestive of Aortitis.

A diagnosis of Takayasu arteritis- large vessel granulomatous vasculitis, was made.

Treatment was instigated with high dose intravenous methylprednisolone for three days followed by high dose oral prednisolone and subcutaneous methotrexate at a dose of $15mg/m^2$ weekly.

Inflammatory markers slowly began to normalise with immunosuppressive treatment. Follow up ultrasound at one month showed interval improvement in the aortic mass with increase in the aortic lumen size. On corticosteroid wean a further ultrasound 6 weeks later showed no improvement in the mass and was associated with a rise in inflammatory markers. Biologic therapy with adalimumab subcutaneously has since been added with plan for serial imaging to assess response to therapy.

Conclusion:
This is a rare presentation of a large vessel vasculitis- Takayasu arteritis in a male child of Caucasian origin.

Mathew, A. J., Goel, R. , Kumar, S. and Danda, D. (2016), Childhood-onset Takayasu arteritis: an update. Int J Rheum Dis, 19: 116-126. doi:10.1111/1756-185X.12718 Johnston SL, Lock RJ, Gompels MM. Takayasu arteritis: a review. J Clin Pathol. 2002;55(7):481–486. doi:10.1136/jcp.55.7.481 Schnabel A, Hedrich CM. Childhood Vasculitis. Front Pediatr. 2019;6:421. Published 2019 Jan 10. doi:10.3389/fped.2018.00421 Russo RAG, Katsicas MM. Takayasu Arteritis. Front Pediatr. 2018;6:265. Published 2018 Sep 24. doi:10.3389/fped.2018.00265 Eleftheriou D, Varnier G, Dolezalova P, McMahon AM, Al-Obaidi M, Brogan PA. Takayasu arteritis in childhood: retrospective experience from a tertiary referral centre in the United Kingdom. Arthritis Res Ther. 2015;17(1):36. Published 2015 Feb 25. doi:10.1186/s13075-015-0545-1

PARENTAL PERSCEPTIVES ON THE IMPACT OF HOMELESSNESS ON CHILDREN PRESENTING TO TSCUH

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Introduction:

Of 53,000 children seen in the Emergency Department (ED) of Temple Street Children's University Hospital (TSCUH), 842 children were discharged with no fixed address, typically into emergency accommodation in 2018. Children born into homelessness are more likely to have low birth weights and are at greater risk of death.[2]The aim of this study was to compare a random cohort of children presenting to the ED and compare differences between children living in homelessness to those living in stable accommodation.

Methods:

A self-administered questionnaire was handed to parents checking in. An information sheet was given to explain the purpose of the research. Results were analysed using Microsoft excel.

Results:

n=120 questionnaires were filled out by a random selection of parents over the study period. Age range was 1 month to 15 years. Number of General Practice (GP) attendances ranged between 0 and 6 in past 6 months, ED ranged between 0 and 12.

50% (n=60) owned their own homes. 96% (n=115) were fully vaccinated. 89% (n=106) thought their child had a nutritionally complete diet. However, 24% (n=29) thought their living situation did not enable the parent to adequately prepare / cook meals for their child.

18% (n=22) lived in homelessness /emergency accommodation or with family. In this group 27% (n=6) vs 19% (n=17) had fast-food/ready-meals twice or more per week. Accommodation had a negative effect on their child's health in 19% (n=4) vs 6% (n=6) in this group. Making and maintaining friends was thought to be affected by accommodation in 20% (n=4) vs 7% (n=7). The effect on ability to exercise / play of living situation was 36% (n=8) vs 12% (n=12).

Conclusion:

The above demonstrates parental perspectives on the impact of homelessness on children. This demonstrates the detrimental effects homelessness has on children's health and well-being.

Data compiled by Nurse Brigitta Joyce, Community Liaison Nurse TSCUH ED, Department of Housing, Planning and Local Government (2018) Homeless Report

DO YOU ACCEPT? AN AUDIT OF THE ACCEPT PAEDIATRIC CRITICAL CARE REFERRAL LINE

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[3]Paediatric Intensive Care CHI@Crumlin

Aims:

In 2012 a single number to access Paediatric Intensive Care (PIC) in either CHI @Temple Street or @Crumlin was established. The addition of the Irish Paediatric Acute Transport Service (IPATS) to this referral process led to the tasking of the National Emergency Operations Centre (NEOC) to take over call handling in September 2018. This call identifies an appropriate PICU bed, provides access to immediate Intensivist advice and activates the IPATS team when available. The aim of this audit was to review the number of referral and advice calls whilst assessing the time required to manage these referral calls.

Methods:

A retrospective review of all calls referred through this pathway from September 2018 to March 2019 was undertaken. We identified all external admissions to the PICUs through the PICU EHR and correlated this data and analysed it in Microsoft Excel.

Results:

There were of the 300 admissions to PICU between 1st September 2018 and 31st March 2019. Of these, 235 (78%) had a documented record of referral via the ACCEPT pathway, leading to 346 total calls. November, December and January had the highest number of admissions and number of calls per patient per referral. The median length of calls was 20 minutes. Approximately 8,220 minutes of calls were recorded for accepted patients. 113 advice calls for 62 patients accounted for an additional 2260 minutes of calls and avoided the need for transfer to PICU in 18% of cases.

Conclusion:

The ACCEPT Referral line is an effective, rapid method to obtain advice, a PICU bed and IPATS activation. Advice calls make a significant impact on admission rates. There are significant staffing concerns to be considered, as the CNM2 and Consultant Intensivist are occupied on the referral line on average 50minutes per day rising to 80minutes per day during December.

BIZARRE EATING HABITS IN ADOPTED BIOLOGICAL BROTHERS: A CASE REPORT

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Background and Aims

We report 2 cases of possible Pit-1 mutation in adopted biological brothers who presented with hyperphagia and bizarre eating patterns. Pit-1 is a transcription factor which plays a key role in pituitary gene expression and development. Mutation of the Pit1 gene is characterised by severe deficiencies in growth hormone and prolactin and patients often develop secondary hypothyroidism [1].

Methods

A retrospective review of clinical notes and investigations was undertaken, and final genetic results are pending. A review of the current available literature was performed.

Results

Our patients, aged 10 and 11, were reviewed in Paediatric Endocrinology clinic for work up of ongoing pathological eating habits (i.e. frozen pizza, frozen bread, eating from compost bin), consistent with hypothalamic hyperphagia.

Previously, both boys had been reviewed in General Paediatrics Outpatients. Prader-Willi and any karyotype abnormality was out-ruled and they were discharged back to GP with the working diagnosis of PICA. They were supplemented with Iron and underwent psychological follow up due to their ongoing behavioural issues.

Baseline pituitary evaluation showed that both boys had low prolactin, low growth hormone (height 2-9th centile) and uncompensated hypothyroidism, with an otherwise normal pituitary profile. MRI Brain was performed on both boys and no structural abnormality was detected. Genetic evaluation specifically looking for Pit-1 mutations are in progress to date.

Conclusion

These cases raise awareness of this rare genetic mutation, whose individual symptoms could easily overlap with other more common diagnoses. Our management plan for these patients includes, monitoring of pituitary function, replacement of their growth hormone and thyroid hormone. We will ensure continued psychological and dietetics input and follow the result of our genetic test.

Red flags in this history of paediatric obesity include very abnormal eating patterns, short stature and uncompensated hypothyroidism.

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DOUBLE DIABETES: THE IMPORTANCE OF ALWAYS CONSIDERING THE DIFFERENTIAL

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Aim: The purpose of this case report was to highlight to clinicians that the confirmed genetic diagnosis of a medical condition does not obviate the possibility of developing a clinically similar but genetically different condition.

Methods: The index case described is a member of a traveller family known to carry a novel insulin receptor [INSR] mutation (p. (Met1180Lys), c.3539T>A). This mutation is transmitted in an autosomal dominant fashion and causes insulin resistance, hyperlipidaemia, hirsutism and hypertension due to high levels of circulating insulin. In adults, this leads to hyperglycaemia due to insulin resistance and a Type 2 diabetes phenotype. The index case was identified on sibling screening as other members of the family had presented with hypoglycaemia in infancy. Previous investigations at time of genetic diagnosis did not suggest dysglycaemia. The boy then presented at 2 years of age with a one week history of polyuria and polydipsia, vomiting and abdominal pain.

Results: Biochemistry at presentation was consistent with Diabetes ketoacidosis [pH 7.22, glucose 26.5 mmol/L, ketones >5]. He was commenced on the DKA protocol but required minimal insulin for correction suggested that he was sensitive to insulin administration despite his underlying diagnosis. Diabetes autoantibody screen was positive for IA-2 and ZnT8 [confirming autoimmune Type 1 diabetes]. A Diabetes polygenic score which ascertains the genetic risk of developing Type 1 diagnosis by screening his HLA haplotype confirmed a >99% likelihood of having Type 1 diabetes. He is currently managed on an insulin pump and dietary measures.

Conclusion: There are no published cases of co-existence type 1 and type 2 diabetes due to genetic causes. Recent studies in obesity suggest that acquired insulin resistance accelerates progression to type 1 diabetes in high-risk individuals with islet autoimmunity. His long-term outcome is also unclear as insulin resistance is linked with early onset of complications.

AN EYE-OPENING CASE OF ANISCORIA

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Introduction: Aniscoria is a condition characterised by pupils of unequal size, often benign and physiological. However, it is also associated with life-threatening conditions prompting alarm in clinicians.

Case Description: A 4-year-old boy with a sudden onset dilated and un-reactive left pupil. He did not appear to be in pain and his vision was unaffected. His awareness and behaviour were unaltered. There was no history of trauma and he was systemically well.

Background: This boy had a diagnosis of an inherited metabolic disorder associated with learning disability and epilepsy; he was mobile and active with a mild torticollis, recurrent epistaxis and excessive salivation. There was no history of headache, nausea or change in seizures. Medications included Epilim Chrono (450 mg nocte), Flixotide (125 mcg) and a Scopoderm patch.
Examination confirmed a fixed dilated left pupil with a left esotropia but otherwise normal eye movement, no ptosis and no obvious conjunctival injection, no altered awareness and no motor deficit.

Discussion: Aniscoria is common, approximately 20% of children (Fierz, F 2017). However, the asymmetry is mild and the pupil reactive. Aniscoria of > 1.3 mm is unlikely to be physiologic in a child (Suh 2016).
In the absence of a third nerve lesion or trauma to the eye, a pharmacological agent with mydriatic effect is the most likely explanation in childhood. Scopoderm patches have been reported as causing aniscoria (Shah 2017) (Lin 2001). The use of hyoscine patches to reduce drooling in children with neurodisability (Parr 2017) cited aniscoria as one of a number of side-effects when compared to glycopyronium liquid.

Conclusion: Following discussion a Scopoderm patch was felt to be the most likely cause and no further investigations necessary. The mydriasis fully resolved over 3 days. Children with neurodisability can be extremely active making it difficult to keep all medicines out of their way!

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WHAT MAKES A SAFE MULTIDISCIPLINARY TEAM MEETING? ASSESSING ADHERENCE TO DOCUMENTATION AND MANAGEMENT PLANS

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Aims: We aimed to determine whether hospital policies were being adhered to at the Nephro-Urology/Radiology and General Surgery/Radiology multidisciplinary team meetings at Our Lady's Children's Hospital, Crumlin. Hospital policy requires completion of a multidisciplinary meeting (MDM) proforma for each patient discussed. This proforma has boxes for the MDM discussion point and the management decision made. Also, it is policy that the primary Consultant caring for the child should be present and patients should not be added on the day of the meeting as Radiology will not have adequate preparation time.

Methods: We assessed whether an MDM proforma was completed accurately for each patient discussed at the MDMs. We determined if management decisions were carried out for each patient. Also, we assessed whether the primary Consultant was present at the meeting and if the patient was added late to the meeting. Finally, we documented whether a patient was cancelled due to inadequate pre-meeting preparation.

Results: Our study is ongoing. However, out of 16 MDM cases, in 81% of cases the proforma was completed, in 88% of cases the plan was enacted, in 100% of cases the referring Consultant was present, 6% of cases were cancelled due to inadequate preparation and 20% of cases were added on the day of the meeting without time for the Radiologists to prepare.

Conclusion: Upon completion, this study will give an excellent insight into the importance of accurate documentation at an MDM. It will also indicate the importance of assigning roles to individuals in order to ensure that the management plans are carried out and that adequate pre-meeting preparation is made. Learning from the results of a study such as this can be very significant for patient safety, as decisions made at the MDM are highly significant for the clinical outcome of a child.

LARYNGEAL SARCOIDOSIS RESPONSIVE TO TREATMENT WITH SIROLIMUS: A CASE REPORT

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Aim:

To report a case of laryngeal sarcoidosis (LS) which was successfully treated with sirolimus after treatment failure with first and second line agents - a first case report.

Methods:

A retrospective chart review was conducted to include relevant case details including presentation, investigations and course of illness. This was supplemented with radiology, histology and laryngoscopy findings. A review of relevant literature of LS treatments, mTOR inhibitors and their role in sarcoidosis and similar conditions was undertaken.

Results:

A fifteen year old girl presented with gradual onset dysphonia and dysphagia. Laryngoscopy revealed significant supraglottic airway obstruction with swelling of both the epiglottis and arytenoids. After emergency tracheostomy, biopsy of the epiglottis revealed lymphoid hyperplasia with focal non-necrotizing granulomata, leading to a presumed diagnosis of laryngeal sarcoidosis. Treatment with prednisolone and methotrexate produced minimal clinical improvement. A switch to sirolimus was followed by significant reduction in the laryngeal swelling, allowing de-cannulation of the tracheostomy. As mTor inhibitors, such as sirolimus cause the arrest of lymphocytes in the G1-S phase of the cell cycle and are known to be effective in treating other lymphoproliferative disorders [1,2], based on the histology a trial of sirolimus was suggested. Further supportive evidence arises from high quality evidence of mTOR pathway signalling dysfunction in familial sarcoidosis [3], animal models [4], cellular studies [5] and a case of incidental regression of a case of sarcoidosis on commencing sirolimus during post-transplant immunosuppression [6]

Conclusion:

Treatment with sirolimus should be considered as a steroid sparing agent in laryngeal sarcoidosis, particularly in the presence of lymphoid hyperplasia on biopsy.

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POLYMERASE CHAIN REACTION IMPROVES THE DIAGNOSTIC YIELD OF PARAPNEUMONIC EFFUSION AND EMPYEMA IN CHILDREN

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Introduction:
Parapneumonic effusion or empyema is not an uncommon complication of bacterial pneumonia in children. The diagnostic yield of blood and pleural fluid culture is frequently disappointing.

Aims:
To evaluate the laboratory diagnosis of children with pleural effusion or empyema admitted to a tertiary-level paediatric hospital.

Methods:
A retrospective observational study of all pleural fluid samples received in the Microbiology laboratory of the Children's University Hospital Temple Street over a five-year period (January 2014-December 2018). Data collected included: gender; age; results of culture and PCR of blood and pleural fluid.

Results:
Samples of pleural fluid were received from 28 children during the study period. The majority were male (17= 60.7%). Average age was 4.5 years.
One of 25 (4%) blood cultures was positive. Ten of 20 (50%) blood Polymerase Chain Reaction (PCR) were positive for *S. pneumoniae*. Four of 27 (15%) pleural fluid cultures were positive (Group A *streptococcus*, 2; *S. pneumoniae* and *S. intermedius*, 1 each). 22 of 28 (80%) pleural fluid PCR were positive (*S. pneumoniae*, 16 (73%); Group A *streptococcus*, 4 (18%); Group B *streptococcus*; and *E. coli*, 1 each).
A causative microorganism was identified in 23 of 28 cases (82%) during the study period. 22 of 23 (96%) cases were PCR positive (pleural fluid, 22; blood, 10). 18 of 23 (78%) cases were PCR positive in pleural fluid alone. A single patient (4%) was culture positive in pleural fluid alone.

Conclusion:
The diagnostic yield of blood and pleural fluid culture is low (14%) in children with parapneumonic effusion or empyema. PCR of blood and pleural fluid increased the diagnostic yield to 82%. PCR of pleural fluid was the most useful diagnostic investigation of parapneumonic effusion and empyema in this paediatric population. *Streptococcus pneumoniae* was the most common microorganism identified.

Byington CL, et al. 2002. 'An epidemiological investigation of a sustained high rate of pediatric parapneumonic empyema: risk factors and microbiological associations'. Clinical Infectious Diseases. 34(4):434.

SHOULD RHEUMATIC FEVER AND POST-STREPTOCOCCAL REACTIVE ARTHRITIS BE MANAGED IN THE SAME WAY? A LITERATURE REVIEW.

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Introduction

Although the incidence of rheumatic fever (RF) in the world is declining, the incidence of post-streptococcal reactive arthritis (PSRA) is on the rise. It remains unclear whether both diseases are separate entities or if PSRA is a form of RF. The management of PSRA varies. This review investigates and evaluates the similarities and differences between RF and PRSA, with a specific emphasis on the evidence base for current management guidelines for PSRA in literature.

Methods

In this literature review, a focused and methodical search was done on PubMed, Cochrane Library, Google Search, using the words rheumatic fever and post-streptococcal reactive arthritis. Studies which were published between 1999 and 2019 were reviewed with regard to definition, aetiology, epidemiology, clinical presentation, diagnosis and treatment, with the intention of establishing if there is an evidence-based definitive management for post-streptococcal reactive arthritis.

Results

In terms of clinical presentation, RF and PSRA present differently. The age at which paediatric patients are affected by both RF and PSRA is similar, although PSRA has a second peak in adulthood. Additionally, the arthritic presentation in RF is more prolonged (2-3 weeks), whereas in PSRA lasts for 7-10 days. In terms of response to treatment, RF responds better than PSRA, which further indicates the need and importance for defining clear management guidelines for PSRA. There is limited evidence to support antibiotic prophylaxis in PSRA.

Conclusion

Current literature supports rheumatic fever and post- streptococcal reactive arthritis as separate entities. However, the management for post-streptococcal reactive arthritis remains unclear. The lack of evidence supporting commonly used management guidelines in PSRA demonstrates the need for further research in this area.

THE SEROPREVALENCE OF CONGENITAL INFECTIONS IN THE FIRST YEAR OF LIFE IN KENYA

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Introduction

Congenital infections are a group of important infections that may contribute to perinatal and infant mortality due to association with adverse pregnancy outcomes and congenital anomalies. These include the 'TORCH' infections; *Toxoplasma gondii*, rubella virus, cytomegalovirus, herpes simplex virus 1 and 2 and many 'other' infections including parvovirus B19, varicella zoster virus, human immunodeficiency virus, enterovirus, hepatitis B and C virus and more recently, zika virus. The contribution of congenitally acquired infections to infant mortality and morbidity is poorly defined, particularly in low and middle-income countries (LMIC).

Methods

We performed a systematic review to summarise the existing literature on the burden of congenital infections in LMIC. We subsequently characterised maternal and infant seroprevalence of congenitally acquired infections in a nested birth cohort study in Kilifi Demographic Health Surveillance System, Kenya. We used sero-positivity as an indirect measure of infection or maternal antibody transfer to infer temporal changes in disease exposure via enzyme linked immunosorbent assay of antigen-specific IgM and IgG to congenital infections of interest.

Results

Serum samples from 50 infants at birth and every three months for the first year of life were collected. The maternal seroprevalence of protective antibodies against congenital infections was inferred from umbilical cord antigen-specific IgG levels. The maternal seroprevalence rates were; cytomegalovirus (80%), rubella (10%), herpes simplex 1 (10%), herpes simplex 2 (50%), varicella zoster virus (10%), human immunodeficiency virus (20%), and zika virus (0%). One infant cord sample was positive for anti-CMV IgM indicating potential congenital infection and one sample was positive for anti-HSV 2 IgM.

Discussion

This study provides an overview of seroprevalence of antigen-specific IgM and IgG responses at birth and in the first year of life for congenital infections in Kilifi, Kenya. When compared to higher income regions the rates of congenital infection are significantly higher and this should be borne in mind when planning health policy, screening and intervention in LMIC.

AGAINST ALL ODDS: REVERSING TYPE TWO DIABETES IN PRADER WILLI SYNDROME THROUGH EDUCATION AND MDT APPROACH - A CASE STUDY

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AIMS: To examine patient C's case - A ten year old girl with Prader Willi Syndrome, whose type 2 diabetes mellitus was effectively reversed (based on Hba1c and blood glucose readings) by the child and caregivers following intense education and multidisciplinary team input

METHODS: Chart Review

RESULTS: A HbA1c drop of 61mmol/mol, from 94mmol/mol (10.7%) to 33mmol/mol (5.1%) over a seven month period, and stabilised blood glucose readings. BMI change from 35.8kg/m^2 to 19.9kg/m^2, due to a 27kg weight loss (43% body weight)

CONCLUSION: The results in this case demonstrate that, through intense education and dedicated multiple disciplinary team input - given in both inpatient and outpatient settings, and through frequent phone contact and family support - type 2 diabetes can be reversed in Prader Willi Syndrome

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ACUTE HAEMORRHAGIC OEDEMA OF INFANCY: FIRST REPORTED CASE OF AN UNUSUAL SMALL VESSEL VASCULITIS IN THE NEONATAL PERIOD

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Background

Acute haemorrhagic oedema of infancy (AHOI) is a rare cutaneous small vessel vasculitis with a characteristic presentation in infants. It consists of a clinical triad of large bruise-like lesions (purpura), oedema, and fever. Considered a mild variant of Henoch-Schoenlein purpura, the aetiology is thought to be immune complex mediated, reported following infections, medications, and immunisation. It generally develops in children between the ages of 4 months and 2 years of age. It has never previously been reported in the neonatal period.

Case Report

A 23 day old male infant presented to the Emergency Department with pyrexia of 38 degrees Celsius, associated with a three day history of rhinorrhea, conjunctivitis, and cough. An exuberant eruption had been noted on the face, trunk, and all four limbs in the 24 hours before admission. The neonate had been born at full term as part of a singleton pregnancy. His Mother was Irish and Father was from Sudan.

On examination there were extensive urticarial wheals with bruising on the face, trunk, and limbs. Some lesions were targetoid. Mucous membranes were spared. The baby was clinically well. A clinical diagnosis of AHOI was made.

Full blood count, renal function, liver function, and c-reactive protein were normal. Intravenous antibiotics were administered in light of neonatal pyrexia. The eruption improved considerably over 48 hours and the baby was discharged. The eruption cleared over two weeks.

Discussion

AHOI is a rare leukocytoclastic small vessel vasculitis with a benign self-limiting course. Spontaneous resolution occurs over 1–3 weeks with complete recovery. Recurrence may occur but is uncommon, and usually occurs early. Paediatricians should be aware of this condition as important differentials include erythema multiforme, urticaria, Kawasaki disease, and neonatal lupus. Non-accidental injury should be considered in any condition associated with bruising.

THE FOUR FACED LIAR: FACIAL DERMATOLOGICAL PRESENTATIONS IN CHILDREN AS HARBINGERS OF SYSTEMIC DISEASE

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Background

Facial dermatoses are usually considered problematic due to cosmetic concerns. However, several systemic diseases can initially manifest as facial dermatoses. A case series is presented of four children whose early diagnosis facilitated urgent assessment and management of underlying conditions.

Case One

A 12 year old girl was referred with chronic lip swelling. Gingival biopsies showed granulomatous cheilitis. Chest x ray, QuantiFERON, and ACE were normal. Despite an absence of symptoms, Crohn's disease was diagnosed in the stomach, duodenum, and colon following endoscopy. Both conditions are controlled on a combination of 6-mercaptopurine and azathioprine.

Case Two

A two week old girl was diagnosed with a capillary malformation on the right upper forehead at two weeks of age in another department. At two months, she was referred as the vascular area was enlarging rapidly. A clinical diagnosis of segmental haemangioma was made, in a site at high risk for PHACES syndrome. Therapy with oral propranolol was initiated with excellent effect.

Case Three

A six year old boy was referred with a purple eruption on both eyelids. Muscle biopsy and electromyography were diagnostic of juvenile dermatomyositis. Therapy with high dose oral prednisolone, methotrexate, and infliximab was required for disease control.

Case Four

An 11-year old girl was referred with a two month history of an erythematous stripe on the forehead. A clinical diagnosis of en coup de sabre scleroderma was made. Therapy with pulsed intravenous methylprednisolone and oral methotrexate was commenced. The erythematous area of the forehead was imperceptible following the last methylprednisolone dose. Follow up at three years has demonstrated no disease recurrence.

Discussion

Facial presentations in paediatric dermatology are common, such as atopic dermatitis or psoriasis. However, paediatricians should be aware of less common facial dermatoses representing serious underlying systemic diseases, with potentially severe morbidity and even mortality if not treated urgently.

NOVEL STAT5B MUTATION CAUSING ATOPIC DERMATITIS, FOOD ALLERGIES, DRUG ALLERGY, HYMENOPTRA ALLERGY, AND COMPLEX AUTOIMMUNITY

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Background:
Signal Transducers and Activators of Transcription (STAT) proteins play key roles in growth factor-mediated intracellular signal transduction. Mutations in STAT1, STAT3 and STAT5 have been described in a variety of haematopoietic malignancies, autoimmune disease, and immunodeficiency. STAT5B mutations have not been associated with food, hymenoptera, or drug allergies.

Report:
An eight month old girl was referred with an urticarial eruption, present from four months of age, worse during cold exposure, and clearing only during intercurrent illnesses. Histology showed a leukocytoclastic vasculitis. She had developed severe atopic dermatitis at three months.
She had a history of reactions to almond, avocado, penicillin, and a wasp sting. All episodes responded to antihistamines.

She had multiple features of autoimmunity, including alopecia totalis, aphthous ulcers, attacks of abdominal distension and diarrhea, and peripheral neuropathy. Following episodes of bleeding gums and epistaxis, von Willebrand disease was diagnosed.

She developed a morbilliform rash following MMR vaccination but has not otherwise demonstrated increased susceptibility to infection.

There is a strong family history of autoimmunity with coeliac disease, autoimmune thyroiditis, hyperparathyroidism, hypoparathyroidism, vitiligo, arthritis, lupus, inflammatory bowel disease, Behçet’s disease, and recurrent early pregnancy loss in first and second degree relatives.

Investigations revealed eosinophilia, and intermittently reduced alternative and classical complement pathways. Inflammatory markers and amyloid A were normal. Immunodeficiency and autoimmune workup was negative. A novel heterozygous GOF mutation was detected in STAT5B p.N642H.

Her parents do not carry the STAT5B mutation.

Ruxolitinib, a JAK1/2 inhibitor was initiated with excellent effect.

Discussion:
This is the first report of isolated somatic STAT5b GOF mutation in childhood causing the constellation of atopic dermatitis, food allergies, hymenoptera allergy, eosinophila, and complex autoimmunity. The complete phenotype of this condition has not yet been determined.

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AN AUDIT OF REFERRAL PATHWAY TO TERTIARY ALLERGY CLINIC FOR SUSPECTED EGG ALLERGY IN CHILDREN UNDER 18 MONTHS

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Aim: Across the developed world, incidence of food allergy has increased over the last two decades (1) with approximately 4% of children worldwide affected. The prevalence of egg allergy in infants in Ireland is estimated at 2.94% (2). Risk factors for food allergy include family history and history of eczema (3). The mainstay of management of egg allergy in Ireland is gradual and early introduction of egg into diet to improve tolerance, via the Irish Food Allergy Network (IFAN) "Egg Ladder" (4). This audit aims to examine the efficiency of referral pathway for children with suspected egg allergy to a tertiary allergy clinic, examining time intervals from suspected reaction, referral receipt and appointment date.

Methods: A retrospective audit of children under 18months referred with suspected egg allergy over a 2year period.

Results: A total of 113 children who were referred suspected egg allergy were identified, charts available for review for 104(92%). Males accounted for 55.8%(n=58). History of eczema was present in 76%(n=79) of children-categorised as mild 45%(n=47), moderate 24%(n=25), severe 6.7%(n=7). Mean age at referral-8.6 months (range 5.9-15.6). Mean age at suspected reaction-7.8 months (range 5.5-14.4). The mean referral pathway intervals were as follows: reaction to referral 1.1 months (range 0-8.8), referral to receipt 0.4 months (range 0-9.6), referral receipt to date of clinic 1.2 months (range 0.2-4.2). Skin prick testing was carried out at outpatient clinic visit and 100% of children (without clinical history of anaphylaxis) were commenced on the IFAN Egg Ladder. Written information was given to all parents.

Discussion & Conclusion: This audit demonstrated a mean interval of 1.2months from receipt of referral to clinic review. This meets the target set out by the service of review within 6weeks for this cohort of children. This allows for early diagnosis and management of egg allergy, which in turn is likely to decease parental anxiety related to food allergy and improve quality of life.

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CASE SERIES: ISCHAEMIC STROKE POST-VARICELLA INFECTION. A VACCINE PREVENTABLE DISEASE

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Aims: Ischaemic stroke is an established complication of primary varicella infection. We discuss three cases of post-varicella ischaemic stroke. In all cases primary varicella infection was reported in the year preceding presentation.

Methods: We undertook a chart review of three recent cases of stroke which were associated with primary varicella infection. All 3 cases presented to the same emergency department. Literature review was performed looking for relevant published data on stroke in children, post-varicella stroke and varicella vaccine.

Results:

Case 1: A 4 year old boy presented acutely following right-sided hemiparesis. Neuroimaging showed an area of ischaemia centred at the left putamen. CSF was positive for varicella zoster PCR. Treatment was commenced on methylprednisolone, aspirin and acyclovir. A hospital stay of over three weeks was required and upon discharge he had a residual mild motor deficit.

Case 2: A 2 year old boy presented with ataxia and left-sided hemiparesis. MRI brain revealed abnormal diffusion and T2 flair in-keeping with acute MCA infarct. He was treated with methylprednisolone and aspirin. Symptoms improved and he was back to baseline on discharge, six days after presentation.

Case 3: An 18 month old boy presented with right monoplegia and intermittent ataxia. CT brain revealed low density lesion in the basal ganglia. Treatment included acyclovir, steroids and aspirin. Motor symptoms improved during the first 2-3 days of his admission. However he developed a hemi-chorea which persisted at time of discharge.

Conclusion*:* Varicella associated stroke accounts for one third of childhood ischaemic strokes. Neurological manifestations can occur one week to 12 months after primary varicella infection. With the availability of a safe, effective vaccine for primary varicella the argument for universal vaccination becomes stronger when cases with severe complications are considered.

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A CASE SERIES OF MISSED PAEDIATRIC AIRWAY FOREIGN BODIES

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Objective

In recent months we have experienced a case series of missed airway foreign bodies resulting in significant adverse events for patients, including ICU admission. This would suggest a lack of clinical knowledge across medical teams. We therefore performed a retrospective review of 4 such cases in our tertiary referral centre to identify factors that contributed to the foreign body being missed and to identify potential clinical learning points to prevent further cases.

Methods

We carried out a retrospective review of 4 consecutive cases of foreign bodies in the airway, including presentation, previous evaluations and imaging. We also reviewed intraoperative imaging from their microlaryngoscopy and rigid bronchoscopy.

Results

Each case had more than 3 presentations to different medical centres with a possible history of airway foreign body. Two patients required ICU admission, and all four required surgical interventions. They each will require long term follow up with respiratory. We also present intraoperative imaging from each case.

Conclusions

A missed foreign body is a potential medicolegal case for any medial specialist. Careful clinical evaluation is required in cases where there is a possibility of an inhaled foreign body. Patients with a history of pyrexia, wheeze and recurrent temperatures need to be examined for an inhaled foreign body and referred appropriately to ENT. Local education should take place within each department to ensure children with possible airway foreign bodies are evaluated appropriately.

Poster No: 231
Sub-Specialty

CLINICAL CASE REPORT: POSSIBLE CYCLICAL CUSHING'S SYNDROME?

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Aims: To describe an ongoing complex clinical case report.

Methods: 13 year old female referred by GP with symptoms of excessive weight gain despite regular exercise, intermittent headaches, irregular periods and an elevated prolactin (729mlU/L (ref 102-496mlU/L)). Calorie intake (review by dietitian) was appropriate for her age and sex.

On examination her weight plotted >99.6th centile while height plotted between 9th-25th centile. She was hypertensive (BP 151/68) with a rounded pale face with mild acne. She was fully pubertal but not virilised. Striae were present at lower abdomen, back & axillae. Central adiposity was present but also at limbs with early interscapular fat pad.

Results: Investigations revealed a loss of diurnal cortisol variation and failure to suppress her cortisol level following an overnight dexamethasone suppression test. Prolactin remained elevated. MRI pituitary revealed a 6mm hypodense lesion in the left pituitary gland, possible adenoma. Ophthalmology review confirmed normal visual fields but pale optic discs. Overnight BP monitoring revealed systolic bp readings of 120-130.

However, urinary free cortisol was normal on two occasions raising a doubt about the diagnosis of Cushing's. A series of home salivary cortisols (done at midnight) were arranged and were all appropriately low and a further overnight dexamethasone suppression test was performed and, on this occasion,, there was appropriate suppression of cortisol.

Conclusion: This is an ongoing case of a 13 year old female with significant weight gain, striae and fatigue. There was initial biochemical evidence of Cushing's syndrome along with a pituitary abnormality on MRI which may represent an adenoma. However, repeat testing has shown normalisation of these initial results but despite this she remains symptomatic with ongoing weight gain and worsening fatigue.

This raises the possibility of cyclical Cushing's syndrome, a very rare phenomenon in children which can be difficult to diagnose and treat.

BRAIN IRON ACCUMULATION PRESENTING WITH DEVELOPMENTAL DELAY, EPILEPSY AND STEREOTYPIES: REVISITING A DIAGNOSIS

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Background: Unexplained developmental delay represents a broad group of increasingly identifiable monogenetic disorders, affecting different molecular pathways. With advances in genomic diagnostics, it is important that older children with unexplained diagnoses are reconsidered for further genetic investigation. Here, we describe two children, whom following lengthy periods, were diagnosed with beta-propeller protein-associated neurodegeneration (BPAN), a sub-type of neurodegeneration with brain iron accumulation (NBIA). In both, MRI brain in infancy showed minor corpus-callosum thinning, but no iron accumulation. Metabolic/chromosomal array testing were negative.

Case 1: Female (age 8y), referred on a background of motor and severe language delay with paroxysms of vomiting and post-ictal sleep (ultimately epileptic). Examination showed short stature and stereotypies (plucking at clothes, grimacing, flapping hands). Repeat MRI (age 7y) reported no new change. Gene panel identified a de novo variant in WDR45 (gene for BPAN), prompting a review of the repeat MRI identifying iron deposition in the globus pallidi (GP) and substantia nigra (SN), consistent with BPAN.

Case 2: A female discovered to have motor and language delay at aged 1 year, and rocking stereotypies. She developed epilepsy after infancy, intellectual disability, spasticity, dystonia and scoliosis. Examination (age 15y) also showed short stature, coarse facies and microcephaly. Due to progressive symptoms, MRI was repeated (age 12y) showing evidence of GP and SN iron deposition. Expert opinion and testing led to identification of a de novo variant in WDR45, shortly after its discovery.

Discussion: NBIA comprises a group of progressive inherited disorders, of which BPAN is a newer subtype. WDR45 regulates autophagy, a process of recycling unnecessary cellular materials. As in both cases, MRI features often only become evident years after onset. Review of unexplained diagnoses is important to guide anticipatory care and counselling, engage with support groups, and search for precision-based therapies, though currently not available for BPAN.

9 YEARS OLD GIRL WITH 2-HYDROXYGLUTARIC ACIDURIA, PRESENTING WITH EPILEPSY, MILD LEARNING DIFFICULTY AND SPEECH DELAY, A CASE REPORT

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A 9 years old girl from Syrian refugee background presented to our paediatric department with recurrent generalised tonic clonic seizures triggered by febrile illness. Her parents and grandparents were first degree cousins with strong family history of epilepsy and early neonatal deaths. She had normal birth history, mild speech delay and learning difficulty. She started to have seizures since the age of 2 years, almost 5 episodes each year lasting for 10-30 minutes. She had normal neurological exam. Her MRI brain showed extensive subcortical white matter abnormality. EEG revealed multiregional epileptiform features that occurred independently in particular over posterior temporal regions bilaterally. Echo, Microarray and SCN1A genetics were normal. Her urine organic acid showed elevated 2-Hydroxyglutaric acid consistent with diagnosis of 2-Hydroxyglutaric aciduria, a rare metabolic disorder.

2-Hydroxyglutaric aciduria presents with progressive brain damage[1]. It can be divided in to three major types, called D-2-Hydroxyglutaric aciduria, L-2-Hydroxyglutaric aciduria, and combined D, L-2-Hydroxyglutaric aciduria[2].

D-2-HGA type I, L-2-HGA, and combined D, L-2-HGA all have an autosomal recessive pattern while D-2-HGA type II is considered as an autosomal dominant.

The different types of 2-Hydroxyglutaric aciduria result from mutations in several genes. D-2-HGA type I is caused by mutations in the D2HGDHgene. Type II is caused by mutations in the IDH2 gene. L-2-HGA results from mutations in the L2HGDH gene.

The main features of D-2-HGA are delayed development, seizures, hypotonia and white matter abnormalities. The two subtypes are distinguished by their genetic cause and pattern of inheritance. Type II tends to begin earlier and often causes more severe health problems than type I. Type II may also be associated with cardiomyopathy, a feature that is typically not found with type I.

L-2-HGA particularly affects the cerebellum, presents with ataxia. Other feature include delayed development, seizures, speech difficulties and macrocephaly. Combined D, L-2-HGA causes severe brain abnormalities that become apparent in early infancy with seizures, hypotonia, breathing and feeding problems. They usually survive only into infancy or early childhood[3].

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GRAPH THEORY MEASURES CHANGES WITH STRESSFUL LIFE EVENTS IN ADOLESCENTS

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Aims: Stressful life experiences are thought to affect normal brain development. This study aimed to investigate the effect of stress on brain connectivity in an adolescent population using a graph theory approach.

Methods: An adolescent subset (N=487, age= 14.45 ± 0.45) of the IMAGEN consortium (Schumann, Loth et al. 2010) was identified based on imaging quality control and completion of neuropsychological assessments, including the Pubertal Developmental Scale (PDS) and the Life-Experience Questionnaire (LEQ). Twenty-one negative life events from the LEQ were used to separate the sample into two groups (Low stress/High stress). T1-w MRI scans were used to extract grey matter connectivity matrices using a published method (Tijms, Series et al. 2012). From these, four hundred ROIs were identified using a template (Schaefer, Kong et al. 2017) and graph theory measures were calculated.

ANCOVAs were conducted on mean cluster coefficient, path length, global efficiency and small-worldness at seven sparsity levels (5%-35%), with age, gender, centre and PDS as control covariates. FDR-corrected two-sided t–tests on betweenness centrality, degree centrality and cluster coefficient were run per ROI. For the betweenness and degree centrality, only ROIs at 2 SD > mean, identified as network hubs, were inspected.

Results: ANCOVAs revealed no statistically significant differences between groups at any sparsity level. The High stress group showed decreased betweenness centrality in the somato-motor network at sparsity 5% (p_{corr}=0.0042), an increase in degree centrality (p_{corr}=0.048) in the visual network at sparsity 10%, and in the posterior cingulate of the dorsal-attentional network (p_{corr}= 0.042) at sparsity 30%. An increase of cluster coefficient was seen in the orbital frontal cortex at sparsity 35% (p_{corr}=0.04).

Conclusion: The regions presenting connectivity changes in the high stress group are part of sensory, visual, attentional and limbic networks, which are involved in emotional responses to stressful events.

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ASSESSMENT OF PARENTS KNOWLEDGE OF INFECTIVE ENDOCARDITIS AND THE NEED FOR ANTIBIOTIC PROPHYLAXIS IN A CARDIOLOGY OUTPATIENT SETTING.

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Aim:

National recommendations from the Health Service Executive have detailed which children with congenital cardiac diseases are most at risk of developing infective endocarditis following invasive dental procedures. Children with congenital cardiac disease have prolonged follow up in paediatric outpatient departments. Ongoing dental hygiene is an integral part of their sustained cardiac health. This qualitative questionnaire assessed parental knowledge of the national guidelines for prophylaxis against infective endocarditis.

Method:

A questionnaire assessing parental knowledge of cardiac history and the need for infective endocarditis prophylaxis for dental procedures was devised. Parents of children attending the cardiology paediatric outpatient department at Our Lady of Sick Children Hospital Crumlin over a seven day period in 2019 were invited to complete the questionnaire.

Results

50 questionnaires were completed. Of these, 72% (n=36) knew the exact cardiac diagnosis for their child. 42% (n= 21) of parents reported a dental visit in the previous 6 months and 22% (n=11) had never attended for dental review. None of the children of the respondents had a previous history of infective endocarditis and only 28% (n=14) knew specific details about the condition. Despite this, 42% (n=21) of respondents were aware of the potential need for antibiotic prophylaxis prior to dental procedures. Of the parents surveyed, 30% (n=15) of children would require antibiotic prophylaxis however, alarmingly, almost half (46.6%; n=7) were unaware of this requirement.

Conclusion

Children with congenital cardiac conditions are at an increased risk of developing infective endocarditis. This qualitative survey highlights the need for better dissemination of information to parents of these children. Information pertaining to the maintenance of general cardiac health should be re-iterated at each point of contact with the cardiology team in order to empower parents and to generate patient centred care.

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STREAMLINING RESPIRATORY MANAGEMENT FOR INFANTS WITH PIERRE ROBIN SEQUENCE

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Pierre Robin sequence is characterized by the triad of retrognathia, glossoptosis and airway obstruction, with or without a cleft palate. We introduced a PRS pathway in 2014 to improve timely multidisciplinary input. We wished to review whether the implementation of this pathway improved the respiratory management for these patients.

Methods:

Retrospective review of the medical charts and sleep reports was used to gather the information on infants attending our institution with PRS. Data on age, gender, ethnicity, initial respiratory assessment, need for airway adjuncts, follow up cardiopulmonary PSG or oximetry and post palate repair PSG findings were collected.

Results:

We looked at the infants in 2 groups: 2010-2013 and 2014-2017. A total of 52 patients met the inclusion criteria during this time period.

Of the 23 patients identified in 2010-2013, 74% were referred to respiratory team for assessment. Follow up CR-PSG at 4 months of age was performed on 6/13 infants who had NPAs (46%). 46% showed improvement in their sleep study allowing removal of their NPA.

Of the 29 infants identified in 2014-2017 cohort, 100% infants were seen by the respiratory team. The follow up sleep studies were performed at a mean age of 5.3 months prior to cleft repair. Twelve infants underwent CR-PSG (63%). 58% showed improvement in their sleep study allowing removal of their airway adjunct.

Conclusion:

The introduction of the multidisciplinary pathway for infants with PRS improved referral rates to the respiratory team from 74% to 100%. There was improvement in the number of infants who underwent cardiorespiratory PSG testing (46% to 63%) which is a more sensitive test for sleep disordered breathing than oximetry. Overall the respiratory outcome for these infants is excellent and early responsive respiratory management allows these infants avoid the detrimental effects of undetected sleep disordered breathing.

REVIEW OF PAEDIATRIC METABOLIC INVESTIGATIONS

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The aim of this audit was to determine if paediatric metabolic investigations were ordered as per current best practice evidence at Tallaght University Hospital (TUH), Dublin, Republic of Ireland.

We used recommendations from seven publications to guide this audit. We reviewed metabolic investigations sent on paediatric patients at TUH from 1 January 2018 to 31 December 2018. We identified the clinical indication for investigating patients by reviewing dictated clinic letters available on the hospital intranet, and confirmed investigation results by reviewing scanned copies available on the hospital intranet. We compared the indications for metabolic investigations with published expert guidelines.

Metabolic investigations were performed on 254 patients from 1 January 2019 to 31 December 2018. Six patients had inconclusive results and were referred to the Metabolic Team at Temple Street CUH for further assessment. There have been no metabolic diagnoses made to date as per TUH dictated letters.
Of the 254 patients, 104 had a diagnosis of Autism Spectrum Disorder (ASD). Of those with ASD, 33 had a confirmed or suspected intellectual disability. 158 patients (62.2%) met best practice recommendations for metabolic investigations. Of the 96 patients who did not fulfil recommendations, 71 (74%) were for children with ASD.

We identified two areas that could improve patient care by optimising diagnostic yield and improving resource utilisation at the hospital. First, we recommend clinicians send targeted investigations and avoid blanket investigations for children with disordered development, including ASD. Second, we recommend clinicians include relevant clinical details on request forms to improve diagnostic yield. Finally, we question the value of metabolic investigations for intellectual disability in the absence of other clinical risk factors or comorbidities and suggest this requires further study.

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