

Health Research Symposium 2017

"Building Partnerships to Advance Healthcare Research and Practice"

**Clinical, Education and Research Centre (CERC),
University Hospital Limerick**

Friday 17th November 2017

On behalf of the Organising Committee, it gives me great pleasure to welcome you to the ***2017 Health Research Symposium at University Hospital Limerick.***

The event will take place at our new Clinical, Education and Research Centre (CERC) located on the hospital campus on Friday 17th November 2017.

A primary focus for this year's symposium is on ***"Building Partnerships to Advance Healthcare Research and Practice"*** and we plan to showcase the breadth and depth of cutting-edge medical research that continues across the clinical and academic landscape at UL hospitals, the University of Limerick and their associated partners. The programme will demonstrate the remarkable growth in research capability and scientific outputs.

The Scientific Committee has taken great care this year in preparing a high-quality and diverse programme that will feature innovations in health science and translational health research. We have had a wonderful enthusiastic response from the research community with over 170 scientific abstracts including 18 oral presentations. Awards for the overall best oral and poster presentations have maintained the competitive edge to this year's symposium.

We are delighted to host an exciting line up of distinguished national and international speakers - **Professor Richard McManus, (Oxford, UK); Dr Leonard O' Sullivan (UL, IRE); Professor Harry Hemingway (London, UK) and Professor Martin O' Donnell (NUIG, IRE)** - along with a welcoming address from **Professor Colette Cowan, CEO UL Hospitals Group and Professor Des Leddin, Head of Graduate Medical School, University of Limerick.**

We are very grateful to our very generous sponsors whose continued support has made this meeting possible. We hope that you enjoy the occasion and look forward to meeting you on the day!



**Professor Austin Stack,
Chair Organising Committee**

Prof Harry Hemingway

NIHR Senior Investigator, Professor of Clinical Epidemiology, Director of The Farr Institute, London, Director of the UCL Institute of Health Informatics, Director, Healthcare Informatics, Genomics/omics, Data Science (HiGODS, Cross-cutting Theme), NIHR Biomedical Research Centre, University College London Hospital



Harry is a clinical academic having trained in medicine and public health in Cambridge and London. He is Director of the Farr Institute of Health Informatics Research in London, part of a

wider national Research Institute innovating improvements in health and healthcare using rapidly emerging data opportunities from electronic health records, imaging, omics and wearables. He is principal investigator of the CALIBER programme which is exploiting linked rich, lifelong patient records in primary care and hospital care to better understand health and disease from cradle to grave. Harry leads the UK Biobank Cardiac Outcomes working group and was a Member of the NICE Guidelines committee on chest pain whose recommendations transformed the investigation of suspected stable angina. He has contributed to the governance and sharing of national registries for research which has directly informed clinical policy.

Dr Leonard O'Sullivan,

Senior Lecturer in Human Factors in Design, School of Design & Health Research Institute, University of Limerick



Dr Leonard O'Sullivan is a senior lecturer in design and human factors in the School of Design at the University of Limerick and design innovation lead in the Health Research Institute. He obtained his Ph.D. from the University of Limerick on work-related upper limb musculoskeletal disorders. He is Fellow and past chairman of the Irish Ergonomics Society and Chartered Ergonomist with the Institute of Ergonomics and Human Factors (UK).

In the University he leads the Design Factors Research group and lectures Product Design on design methodologies. His research interests are user-centred design and participatory design innovation methodologies for health. At the University, he currently directs two EU research projects, one on exoskeleton design for older adults to aid with mobility, and another to develop a soft robotics lower limb exoskeleton for post stroke and incomplete spinal cord injury patients. He is the Irish expert representative on an ISO committee on wearable robotics. His nationally funded research projects specifically target development of novel medical devices, which have high clinical impact and rapid commercialisation potential. He has applied this formula to several clinical specialisms to date including urology, gastroenterology, respiratory medicine, nephrology, occupational and physio-therapy and palliative care.

Prof Richard McManus

Professor of Primary Care Research, Nuffield Department of Primary Care Health Services, University of Oxford



Richard McManus is Professor of Primary Care Research at the University of Oxford and a part time GP in Oxford. His research interests lie mainly in the prevention of cardiovascular disease with particular emphasis on blood pressure measurement and the management of hypertension in primary care where his work has influenced National and International Clinical

Guidelines. He holds an NIHR Professorship and is Chief Investigator on NIHR Programme Grants around Self-Monitoring in Hypertension and Pregnancy as well as leading the Self-Management theme of the Oxford NIHR Collaboration for Leadership in Applied Health Research and Care. He supervises PhD students undertaking projects around self-monitoring in hypertension and pregnancy and teaches clinical students at Green Templeton College where he is a Fellow. He chairs the Blood Pressure Monitoring Working Party of the British Hypertension Society and is a Chair of the NIHR Doctoral Fellowship Panel. He is Guardian of the RCGP Cardiovascular Curriculum and provides expert advice to NICE (member of 2011 & 2019 Hypertension Guideline Development Groups), and the European Society of Cardiology/European Society of Hypertension (member of 2018 Guideline Development Group)

Prof Martin O'Donnell

Professor of Translational Medicine at NUI Galway and Associate Director of the HRB Clinical Research Facility Galway



Prof O'Donnell is Professor of Translational Medicine at NUI Galway and Associate Director of the HRB Clinical Research Facility Galway. After graduating from University College Cork, he trained in Geriatric and Stroke medicine in Ireland, McMaster University (Canada) and Stanford University (US). He holds a PhD from the Department of Clinical Epidemiology and

Biostatistics, McMaster University. He is Director of an MSc in Clinical Research at NUIG, being run in collaboration with McMaster University. Prof. O'Donnell's research focus includes epidemiology of stroke, clinical trials in vascular medicine, composite outcomes and clinical prediction rules. He is a Principal Investigator on a number of large research grants, including the INTERSTROKE study which is a large international case-control study of risk factors for stroke, conducted in 32 countries. He has published over 100 peer-review papers, including clinical studies, in high-impact journals, including NEJM, JAMA and Lancet. Prof. O'Donnell also has experience in leading multi-centred international research studies – the INTERSTROKE recruited over 26,000 participants from 32 countries in Asia, Europe, North America, Africa and South America.

Friday, 17th November 2017

08:00 - 08:45	Registration, Poster & Stand Set-up, Tea/ Coffee Venue CERC Foyer
08:45 - 08:50	Opening Address - Prof Austin Stack, GEMS UL and UHL Venue CERC Auditorium
08:50 - 09:00	Welcome Address - Prof Colette Cowan, CEO ULHG and Prof Des Leddin, Head of School, GEMS, UL Venue CERC Auditorium Chair: Professor Austin Stack
09:00 - 09:45	Keynote: "<u>Emerging research opportunities in large scale electronic health records</u>" Prof Harry Hemingway FFPH, FRCP, NIHR Senior Investigator, Professor of Clinical Epidemiology, Director of The Farr Institute, London Venue CERC Auditorium
09:50 - 10:50	<u>Session 1 Health Services & Population Health Research</u> Chairs: Dr Rose Galvin and Dr Damien Ryan Venue CERC Auditorium
	<ol style="list-style-type: none">1. Assessing the facilitators and barriers of interdisciplinary team working in primary care using normalisation process theory: An integrative review <i>Pauline O'Reilly</i>2. Association of Serum uric acid with Death in the Irish Health System <i>Leonard Browne</i>3. Communication between Primary and Secondary Care Physicians: An Evaluation of Referral and Discharge Letters <i>Elsa Dinsdale</i>4. Groundwater as a source and pathway for antibiotic-resistant infection in the Republic of Ireland <i>Jean O'Dwyer</i>5. Maternal antenatal body mass index BMI and degree of glucose intolerance in pregnancies affected by gestational diabetes mellitus <i>Alexandra Cremona</i>6. Sleep and Physical Activity: A Nationwide Survey among people with Inflammatory Arthritis <i>Sean McKenna</i>
10:50 - 11:10	COFFEE BREAK Venue CERC FOYER Chair: Mr Brian Lenehan
11:10 - 11:55	Keynote: "<u>Participatory design of novel medical devices addressing high clinical impact opportunities</u>" Dr Leonard O'Sullivan Ph.D., M.Tech, B.Tech, Senior Lecturer in Human Factors in Design, School of Design & Health Research Institute, University of Limerick Venue CERC Auditorium
12:00 - 13:00	NETWORKING LUNCH & POSTER VIEWING Venue CERC FOYER

Session 2 Lifestyle, Technology and Health

13:00 - 14:00 Chairs: Dr John-Paul Doran and Prof Fiona Murphy
Venue CERC Auditorium

1. **A pre-trial call for a clinical research partnership to advance the treatment of newly diagnosed women with osteopenia**
Phil Jakeman
2. **Pain and Injury in Elite Adolescent Irish Dancers: A Cross-Sectional Study**
Roisin Cahalan
3. **Activity Matters: A Web-based resource to enable people with Multiple Sclerosis to become more active**
Blathin Casey
4. **A comparison follow-up study on the geometric, hemodynamic and biomechanical changes in a patient-specific arteriovenous fistula**
Nicolas Aristokleous
5. **Dependency of meniscus mechanical properties on glycosaminoglycan content and its regional variation**
Caroline Murphy
6. **The Effect of a Mediterranean and Low Fat Diet on Intrahepatic Lipids, Liver Stiffness Measure and Insulin Resistance in Non Alcoholic Fatty Liver Disease**
Audrey Tierney

Chair: Dr Damien Ryan

Keynote "Patient self-monitoring and patient self-management in hypertension"

14:05 - 14:55 **Prof Richard McManus**, Prof of Primary Care Research, Nuffield Dept of Primary Care Health Services, University of Oxford
Venue CERC Auditorium

14:55 - 15:10 **COFFEE BREAK** Venue CERC FOYER

Session 3 Clinical Research

15:10 - 16:10 Chairs: Dr Denis O'Keeffe and Prof Liam Glynn
Venue CERC Auditorium

1. **Platelet VWF provides novel insights into the biology underlying quantitative Von Willebrand Disease**
Niall Dalton
2. **The effectiveness and safety of platelet rich plasma intra-articular injections in the treatment of knee osteoarthritis: systematic review and meta-analysis of randomized controlled trials**
Alaa Mustafa
3. **The findings of transoesophageal echocardiogram before scheduled cardioversion in properly anticoagulated patients with persistent non-valvular atrial fibrillation**
Aiste Zebraskaite
4. **Prevalence and correlates of vascular access use among haemodialysis patients in the Irish health system**
Gasim Ahmed
5. **Dancing for Parkinson's: a randomized trial of Irish set dancing compared to usual care**
Joanne Shanahan
6. **Identifying a Gene Classifier between normal and Breast Cancer from information available within Publically Available Gene Expression repositories**
Mary McCumiskey

Chair: Dr Wael Hussein

Keynote: "The Evolving Landscape of Clinical Research in Ireland"

16:15 - 17:00 **Prof Martin O'Donnell**, Prof of Translational Medicine and Associate Director NUI Galway and HRB Clinical Research Facility, Galway
Venue CERC Auditorium

17:00 - 17:30 **Prize Presentations** Venue CERC Auditorium



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Dr. Donnchadh O'Sullivan (UHL), Dr. Eoin O'Sullivan (Royal Infirmary of Edinburgh), Dr. John O'shea (UHL), Dr. Margaret O'Connor (UHL), Prof. Declan Lyons (UHL), Dr. John McManus (UHL)

CLINICAL RESEARCH

1 Year Audit of CTPA requests in a tertiary referral centre in Ireland

Poster - Abstract ID: 194

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Background: Acute pulmonary embolism is a dangerous complication of venous thromboembolism, with a high short-term mortality risk. Clinical prediction rules such as the Wells Score can assess the probability of pulmonary embolism and categorise patients into low, moderate and high risk. Patients who are in the low risk category and where the diagnosis of pulmonary embolism is being considered should be further assessed using the Pulmonary Embolism Rule-out Criteria to determine if d-dimers are necessary. Patients in the moderate risk category should have a d-dimer and if the result is elevated undergo CTPA. Patients within the high risk category do not require D-dimers prior to CTPA.

Aims: The purpose of this audit is to assess the rate of positive CTPA in a tertiary referral centre over a one year period and review the request process.

Methods: A retrospective review of all CTPA results on NIMIS over a one year period was conducted. iLab was reviewed and D-dimer results were recorded for each patient who underwent CTPA.

Results: 1127 CTPA scans were ordered in a one year period. Of these scans, 172 (15.26%) reported a positive finding. D-dimers were recorded in 1030 (91.39%) patients.

Conclusions: When requesting a CTPA from NIMIS, there is a compulsory section where d-dimers must be recorded for the request to be accepted. High risk category patients do not require d-dimers prior to imaging, however to meet this obligation they are performed. It was found that D-dimers were ordered for the majority of patients, leading to numerous elevated readings which subsequently required imaging. The implementation of a D-dimer ordering strategy in the hospital, which includes recording the patients risk category, will promote correct use of this blood test. It will also ensure appropriate patients who are at predetermined risk of pulmonary embolism undergo CTPA.

A literature review on the cutaneous presentation of eating disorders in children and adolescents

Poster - Abstract ID: 111

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Introduction: A 13-year old female patient presented with severe chilblains, acrocyanosis and lanugo hair aiding the diagnosis of anorexia nervosa (AN). The incidence of eating disorders among child and adolescent populations has increased¹. AN is most prevalent, in contrast to adult groups^{1,2}. AN carries the highest mortality³ affecting every major organ system. Medical complications prevalent in paediatric and adolescent onset include pubertal and growth delay, developmental delay, osteoporosis, death⁴. These patients more often display comorbid psychiatric diagnoses⁵. This literature review examines the cutaneous presentation of eating disorders, to assist in earlier diagnosis.

Methods: Electronic databases were searched including Medline, PubMed, Cochrane, Embase.

Results: Children and adolescents show dermatologic findings similar to older patients, with no one isolated predictive sign. These cutaneous lesions fall into categories originally proposed by Gupta *et al.*⁹: 1) *Malnutrition* 2) *Self-induced vomiting* 3) *Drug consumption* 4) *Concomitant psychiatric illness*. Drug-induced lesions are less likely in these populations⁶. Children and adolescents are more likely to display artefact from autoaggressive tendencies (30% of patients compared with 13% in adult populations)^{7,8}. One study found that patient dissatisfaction with their skin can lead to a distorted body image, leading to a finding that patients with acne are more likely to develop an eating disorder⁷. The most common features are xerosis, extensive lanugo hair and artefact⁶. Our 13-year old patient found it difficult to walk because of pain due to severe chilblains and acrocyanosis, which alone with lanugo hair are from the first category of signs caused by malnutrition and helped to confirm the diagnosis of AN. She had no drug induced cutaneous signs.

Conclusions: There are many cutaneous signs that can help identify an occult eating disorder⁴. Raising awareness of these cutaneous presentations will lead to earlier detection of eating disorders and possibly better outcomes for these patients.

A qualitative descriptive study exploring Lymphoma survivors' experience at the end of treatment and beyond and their views on a survivorship care plan

Poster - Abstract ID: 161

Ms. Fidelma Hackett (University Hospital Limerick)

Purpose: Lymphomas are cancers of the immune system mainly categorised as either Non-Hodgkin lymphoma (NHL) or Hodgkin lymphoma (HL). Increasing incidence and survival rates has resulted in many people with lymphoma living with and beyond cancer and survivorship issues in this population are becoming increasingly relevant. The aim of this study was to explore the experience of lymphoma survivors at the end of treatment and during follow up and their views on a survivorship care plan.

Recruitment: Eligibility criteria for inclusion in the study included having a diagnosis of lymphoma which required intensive treatment, having completed treatment between 3 to 60 months prior to the interview, aged over 18 years, able to give consent and having fluent spoken English not requiring an interpreter.

Method: A descriptive qualitative approach was adopted using semi-structured individual interviews (n=14) with quota sampling and thematic analysis.

Results: Five main themes emerged as the most salient to lymphoma survivors at this time: the nature of the transition, extended recovery time, returning to work, changed relationships and scheduled follow-up. The majority of lymphoma survivors were in favour of a survivorship care plan and treatment summary, either in written or electronic form, delivered by the nurse specialist at an end of treatment visit.

Conclusions: The findings suggest that the transition period from active treatment to survivorship can be challenging for lymphoma survivors and that they have ongoing needs post treatment completion. This knowledge can serve as a basis for more comprehensive survivorship care provision. This should include more thorough preparation for the end of active treatment, periodic ongoing assessment and monitoring for the physical and psycho-social impact of treatment, education and monitoring for late effects and second cancers, education with regards to identifying the signs of cancer recurrence and promotion of healthy lifestyle practices.

A Quality Improvement Project to Facilitate Annual Cardiovascular Disease Risk Assessment in Rheumatoid Arthritis Patients: A Mid-Western Experience

Poster - Abstract ID: 152

Dr. Maria Usman Khan (UHL Rheumatology), Dr. Usman Azhar Khan (UHL cardiology), Dr. Fahd Adeeb (University of L), Dr. Alwin Sebastian (University Hospital Limerick), Dr. Eoghan Meagher (UHL), Ms. Mary Brady (University Hospital Limerick), Dr. Joe Devlin (University Hospital Limerick), Dr. John Paul Doran (UHL Rheumatology), Dr. Sandy Fraser (University Hospital Limerick)

Three-fold re-audit aims:

- 1.To determine the prevalence of the tCVD-RF (diabetes, hypertension, hyperlipidemia, long term corticosteroid use and smoking) in RA patients
- 2.to assess the management of CVD risk in RA patients in comparison to the EULAR recommendations
- 3.to identify RA disease activity control

Method: This multicenter study involved 2-teaching hospitals in Mid-West region of Ireland. 100 RA patients were recruited between May-June 2016 and January-February 2017 in each audit and reaudit phases respectively. Demographic data, disease duration and activity, RF/ACPA status, concomitant ESR and CRP, DAS28, tCVD-RFs, past history of ischemic heart disease (IHD), related co-morbidities (TIA, CVA, PVD, aortic aneurysm) and drug history (current RA, anti-hypertensive and lipid lowering medications) was noted. Data on blood pressure (BP), lipid profile and blood glucose were sought in the preceding 4-years, and if treatment were commenced as per the guidelines. The 10-year risk of fatal CVD was calculated using the Systematic COronary Risk Evaluation (SCORE) chart: total cholesterol/HDL ratio was used as measure of lipid profile and risk was multiplied by 1.5 if patient had 2 of these 3 criteria: disease duration of >10 years, positive RF/ACPA, presence of severe extra-articular manifestations

Results: There was improvement in the efficiency of recording tCVD-RFs i.e. BMI, smoking, hypertension by 66%, 7% and 4% respectively and better management of hypertension by 9%. 8% patients received smoking cessation advice versus none before. Blood glucose and lipid profiles were well monitored but reduced by 8% and 7% respectively. RA disease activity was adequately controlled and approximately 60% patients were in remission in both audits. Due to the lack of required data, only 43 patients had their 10-year CVD risk SCORE model calculated. There was 12% reduction in the moderate risk group to develop fatal CVD within 10-years. CVD risk management although improved, still remains suboptimal and requires ongoing surveillance.

A study assessing the characteristics of paediatric patients with Type 1 Diabetes Mellitus and Co-morbid Coeliac Disease at University Hospital Limerick

Poster - Abstract ID: 160

Dr. AnnMarie Hayes (University Hospital Limerick), Prof. Clodagh O'Gorman (University Hospital Limerick), Dr. Aine Lynch (University Hospital Limerick)

Background

The association of Type 1 Diabetes Mellitus (T1DM) and Coeliac Disease (CD) is well recognised. CD is about 6-fold higher in T1DM.¹ Having a CD diagnosis for >15 years is associated with a 2.8 fold increased risk of death in individuals with T1DM.³

UHL has a large cohort of children with T1DM and is the only Irish paediatric T1DM centre with a Paediatric Gastroenterology service.

Methods

Institutional ethics approval was obtained. A list of all patients with T1DM and comorbid CD was compiled using the T1DM database. A search of all referrals made to the paediatric gastroenterology regarding patients with T1DM was also carried out, as well as a retrospective chart review of those identified. A telephone interview was conducted with consenting parents of confirmed T1DM and comorbid CD.

Results

A total of 21 patients (11%) were identified as having/possibly having comorbid CD. Mean time to CD diagnosis from T1DM diagnosis was 3 years.

Of these 8/21 (38%) were being treated for CD, 6 confirmed by endoscopy, 2 by symptomatology only. A further 5(23%) were awaiting gastroenterology review or endoscopy.

Overall Confirmed / Suspected CD 7(53%) had gastrointestinal symptoms. Of those with no diagnosis of CD 6(75%) were symptomatic.

All 21 patients had IgA transglutaminase (TTG) checked. All 13(100%) of confirmed CD/treated as CD/awaiting review/endoscopy had positive TTG. Of remaining 8, 4(50%) had positive TTG despite no convincing clinical evidence of CD.

5/8 patients (71%) found CD more restrictive and had a greater impact on quality of life than T1DM.

Conclusions

A diagnosis of T1DM in a child is recognized as a significant condition, however the impact of comorbid CD is less well characterized. Recommendations for serologic screening in patients with T1DM vary considerably.³

These results indicate the significant medical and quality of life challenges for this group of patients.

Abatacept (Orencia), a Promising Treatment for Early-and Late-stage Morphea Subtypes: A Follow-up Study from the Midwest of Ireland

Poster - Abstract ID: 155

Dr. Maria Usman Khan (UHL Rheumatology), Dr. Fahd Adeeb (University of L), Dr. Joe Devlin (University Hospital Limerick), Dr. Sandy Fraser (University Hospital Limerick)

Introduction: Morphea is a rare autoimmune inflammatory fibrosing skin disease leading to significant cosmetic, functional, and psychological sequelae. The treatment is individualized despite various suggested treatment algorithms. Abatacept (Orencia) is a recombinant fusion protein that competitively binds to CD80 or CD86 receptors, hence selectively inhibits T-cell activation

Aim: With reference to the work of Stausbøl-Grøn et al. and our previous pilot work, we conducted a follow-up study to assess the efficacy of abatacept in patients with morphea subtypes, where Th-17 subtypes of effector CD4 +T cell has been proposed in the pathogenesis

Methods: 6-Caucasian patients with established morphea subtypes according to the Mayo Clinic Classification and with no contraindication to abatacept were included in this prospective open-label study. Descriptive statistics were reported as median, SD and IQR for non-parametric calculations or number and percentages as appropriate.

Results: This was an open-label, prospective study highlighting the excellent response and good safety profile of abatacept in all patients. Methotrexate in combination with systemic steroid was the only therapy used prior to abatacept in 3 patients at median dose of 17.5 mg/week (median duration of 3 months). 4 of the 6 patients received subcutaneous form of abatacept at dose 125mg/week with the exception of 2 of the 6 patients with severe disease who also received abatacept infusions at standard dose of 10mg/kg body weight as the induction therapy prior to the subcutaneous form. All patients on abatacept received concomitant treatment with methotrexate and low dose glucocorticoid that was discontinued in 3 patients after a mean duration of 12.9 months at median dose of 15mg/week (median duration of 10 month) due to side-effects and this cohort showed excellent response using abatacept as monotherapy. No adverse event was reported with abatacept treatment at a median duration of 29 months.

Acute Encephalopathic Crisis in a Pre-School Child- Late Presentation of Methylmalonic Academia (MMA)

Poster - Abstract ID: 96

Dr. Therese Martin (UHL), Dr. Sheik Fareed (UHL), Dr. Anne-Marie Murphy (UHL)

Background

MMA is an inborn error of metabolism, which is characterized by accumulation of methylmalonic acid due to deficiency of methylmalonyl-coA mutase. It is a rare AR disease which occurs as a result of mutation(s) in the MUT, MMAA, MMAB, MMADHC, and MCEE genes.

Incidence in Europe is recorded as approx 1:50,000 livebirths.

Classically, patients with complete enzyme deficiency present in the neonatal/infantile period, most commonly the first few weeks of life, with severe metabolic acidosis, acute encephalopathy, hyperammonaemia, neturope-nia and/or thrombocytopenia.

Aim

We aim to highlight the importance of being mindful as to late presentations MMA.

Methods

We report on the clinical features and biochemical findings during the first acute presentation of a four year old female, who presented to our Paediatric Emergency Department (PED) in an acute encephalopathic crisis and in whom we later confirmed a diagnosis of MMA.

A literature search of current research on the condition was undertaken.

Results

We present the case of a 4 year old female, who presented to the PED in acute encephalopathic crisis, following a 3 day history of poor oral intake and 1 day history of vomiting. Prior to this presentation, she was described as an otherwise healthy female with no previous admissions. Her metabolic investigations were consistent with a diagnosis of MMA. On reflection her parents reported a long standing history of self selecting protein avoidance.

Her acute encephalopathic crisis resulted in residual damage to the basal ganglia, with subsequent mobility issues. Clinically she has residual ataxia, difficulties with co-ordination but with preserved age appropriate cognitive development.

Conclusion

Our case highlights the fact that MMA, while most common in early infantile life, can present at any stage of life and emphasises the importance of early consideration of metabolic disease in your differential diagnosis in patients presenting in encephalopathic crises.

Advection in the Lymphatics

Poster - Abstract ID: 120

Ms. Sinéad Connolly (University of Limerick), Dr. Kieran McGourty (University of Limerick), Dr. David Newport (University of Limerick)

The physical and mechanical parameters of the fluid mechanics of the lymphatic system are poorly understood at present. While extensive research has been carried out on the blood circulatory system, much less has been completed on the lymphatic system in comparison. The area is slowly gaining more prevalence as it is now understood that lymph nodes are one of the first sites of circulating tumour cell metastasis, and with 14.1 million cases of cancer diagnosed worldwide in 2012, there is a need for better understanding of the disease. Consequently it is anticipated that further extensive research in this area shall uncover the mechanisms of this seeding process. This study performs a review of current knowledge surrounding advection in the lymphatic system and explores different techniques that have been used to analyse the fluid mechanics of the lymphatic vessels to date.

In the current research group, it has previously been found that the flow profile of cancerous cells in a microfluidic set-up replicating lymphatic vessels differ depending on the cell itself. Less deformable MCF-7 cells were found to travel with a uniform distribution across the channel width while more deformable MDA-MB-231 cells were found to travel only at the centre of the channel where the velocity gradients are lower.

Future work will involve PIV and PTV experiments to visualise these flows with different cells present in the flow. This will allow the effects of these cells on the flow profile of the vessel to be determined as well as the effects of the flow on the cell behaviour. Additionally the cells will be investigated to elucidate any expression or activation induced by the fluidic environment.

An Audit of Surgical Antimicrobial Prophylaxis

Poster - Abstract ID: 172

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Introduction

Surgical Antibiotic prophylaxis is the use of antimicrobial agents to prevent infection. It is one dose given within 60 minutes of skin incision, discontinued no later than 24 hours after surgery. The agent used is dependent on the procedure and multidrug resistant (MDR) status of the patient. Antibiotic prophylaxis is indicated in all clean-contaminated surgical procedures. These are defined as non-traumatic breaches of respiratory, alimentary or genitourinary tracts.

Hospital antimicrobial guidelines vary by regional patterns in sensitivity and resistance. This audit was based on guidelines (2015 edition) for the Mid-West region.

Aims

To determine whether current antimicrobial guidelines on surgical prophylaxis at a tertiary hospital are adhered to.

Methods

Data was collected on 158 patients operated on over a five day period. Surgical patients were located using the theatre log book. The following information was retrospectively gathered: consultant, type of surgery, whether prophylaxis was administered, antibiotic choice, administration time, duration of prophylaxis, surgery start time, surgery duration, whether blood loss >1.5L and MDR status.

Inclusion criteria:

- patients not currently on antibiotics
- all surgical patients operated on (14/11/16 to 18/11/16 inclusive)

Exclusion criteria:

- currently on antibiotics
- offsite procedures
- patients with MDR status

Results

Of a total 158 patients who underwent surgery, 93 (58%) had antibiotics; 60 (65%) of these were given as prophylaxis, the remainder as part of a treatment course. The majority of patients who received prophylaxis underwent general/gastrointestinal surgery. In 70% of all cases the appropriate antibiotic was given. Compliance with antibiotic dosage was 100%. Antibiotic administration time was recorded in 76% of cases.

Conclusion

Antibiotic prophylaxis guidelines are adhered to in the majority of clean contaminated surgeries. Implementation of new kardex with an allocated section for surgical prophylaxis would clearly define the difference between prophylaxis and a treatment course. Re-audit would be appropriate following this intervention.

An ultrarare cause of feeding difficulties in an infant; Tyrosinemia Type 1

Poster - Abstract ID: 45

Dr. Donnchadh O'Sullivan (UHL), Dr. Roy Gavin Stone (UHL), Dr. Therese Martin (UHL), Dr. Joanne Hughes (UHL), Dr. Barry Linnane (UHL), Dr. Anne-Marie Murphy (UHL)

Tyrosinemia type 1 is an autosomal recessive metabolic disorder caused by a deficiency of fumarylacetoacetate hydrolase (FAH). This is a terminal enzyme involved in the metabolism of tyrosine. Its prevalence has been reported as 1: 100.000 [1]. Patients with tyrosinemia die secondary to hepatic insufficiency during early childhood. Literature reveals a markedly increased risk of hepatocellular carcinoma among the survivors [1].

Here we report an eight month-old female infant who was referred to a Paediatrician for an outpatient assessment because of feeding difficulties and was noted to have hepatomegaly on examination. On MRI, the liver appeared diffusely enlarged and contained multiple non-enhancing nodules of varying size. Alpha fetoprotein level of 101.042 ng/ml raised concerns for hepatoblastoma or hepatocellular carcinoma. However an US guided liver biopsy was not consistent with these diagnoses. Her urine organic acid analysis was done as part of a metabolic screen and showed succinylacetone, the presence of which is pathognomonic of Tyrosinemia type1. Mutation analysis proved her to be a compound heterozygous for two mutations in the FAH gene.

She was commenced on a low protein diet and started on Nitrofurantoin (NTBC). At 14 months of age, MRI abdomen showed a more stable appearance suggestive of regenerative nodules rather than hepatoblastoma, metastases or hepatocellular carcinoma.

Our patient had very high AFP level and the existence of multiple nodular lesions in the liver in conjunction with this was very suggestive of hepatoblastoma. However other diagnoses considered included tyrosinemia, embryonic carcinoma, malignant teratoma and disseminating malignancy.

[1] Croffie JM, Gupta SK, Chong SKF, Fitzgerald JF. Tyrosinemia Type 1 Should Be Suspected in Infants With Severe Coagulopathy Even in the Absence of other signs of Liver failure. Pediatrics 1999; 103 (3): 675-678.

An unusual cause of a first afebrile seizure in a toddler; propionic acidemia

Poster - Abstract ID: 122

Dr. Sean Kelleher (University Hospital Limerick), Dr. AnnMarie Hayes (University Hospital Limerick), Dr. Elizabeth O'Mahony (University of Limerick), Dr. Barry Linnane (Graduate Entry Medical School, University of Limerick. National Childrens Hospital, Crumlin, Dublin 12.), Dr. Ellen Crushel (The National Centre for Inherited Metabolic Disorders, The Children's University Hospital Temple Street), Dr. Anne-Marie Murphy (UHL)

We describe the case of a 14-month-old toddler who presented with a first afebrile seizure to the emergency department. He was otherwise well at presentation and had reached the appropriate developmental milestones. Neurological examination was normal. He exhibited a symmetrical growth pattern with a head circumference that was above the 98th percentile, and with weight and height between the 91-98th percentile. Routine investigations including, venous blood gas, glucose and ammonia were normal. Metabolic screening however revealed raised urinary 3-hydroxypropionate; plasma amino acid analysis showed markedly elevated glycine as well as valine, isoleucine, proline and alanine. Furthermore, his acylcarnitine profile showed a significantly elevated propionylcarnitine (C3), all consistent with a diagnosis of propionic acidemia (PA). He was treated with a combination of low protein diet, L-carnitine and metronidazole; and is developmentally normal at the time of report.

PA is a rare autosomal recessive organic aciduria. Mutations in propionyl-CoA carboxylase (PCC) genes A or B result in a deficiency of this enzyme. Classically PA presents in the neonatal period with lethargy, progressive encephalopathy and metabolic acidosis. Late-onset variants are also described, the majority of which present during periods of infection or catabolic stress resulting in metabolic crises.¹ Expanded newborn screening programmes have also identified PA patients with a milder phenotypic expression, some of whom may lack the classic biochemical abnormalities. It is very rare to diagnose PA outside of these scenarios.

Retrospective cohort analysis shows that many patients with late onset organic acidurias have associated signs and symptoms prior to diagnosis including seizures, movement disorders and failure to thrive. The heterogeneous presentation of metabolic disease poses a diagnostic challenge. Late onset PA is particularly susceptible to delayed or missed diagnosis. This case therefore highlights the importance of metabolic screening in the investigation of unprovoked seizures.

Anomalous left anterior descending artery arising from the pulmonary trunk: a rare cause of angina

Poster - Abstract ID: 173

Dr. Abdalla Ibrahim (University of Limerick), Dr. Peter Kelly (Health Service Executive)

Coronary artery anomalies (CAA) are a rare but an important entity in the field of cardiovascular medicine. It is important to recognise CAA as they lead to myocardial ischemia and sudden cardiac death. Pulmonary artery (PA) origin of the left anterior descending (LAD) artery is an extremely rare anomaly with an estimated frequency of 0.0008%. We report a rare case of a 60-year-old man with a medical history of hypertension and dyslipidemia presented to our rapid access chest pain clinic with a two-month history of chest pain on exertion. An exercise stress test was arranged, which showed electrical evidence of inducible ischemia. Subsequently, a coronary angiogram revealed an anomalous left anterior descending artery arising from the main pulmonary artery that received grade 3 collaterals from a large right coronary artery arising from the aorta. The circumflex arises from the right coronary sinus and provided collaterals to the anomalous left anterior descending artery as well. A subsequent computed tomography coronary angiogram confirmed the anomalous origin of the LAD from the main PA and demonstrated the origin of the circumflex from the right coronary sinus with a retroaortic course. The patient was managed medically with the recommended pharmacological measures for stable angina and responded well with complete resolution of his symptoms and he is currently under regular follow-up in the cardiology outpatient department. The mainstay of treatment of this anomaly is considered to be surgical reimplantation of the anomalous coronary artery onto the aorta. Left internal mammary artery ligation to the proximal part of the anomalous artery is also considered an acceptable alternative but should be reserved for cases where transfer onto the aorta is not feasible. Medical management has been reported as an option in the absence of disabling symptoms and the presence of extensive collaterals to the anomalous vessel.

Antimicrobial Stewardship: An assessment of pharmacist's ward-based clinical interventions at University Hospital Limerick

Poster - Abstract ID: 218

Ms. Siobhan Barrett (Dept. of Pharmacy, University Hospital Limerick), Ms. Libby Sweeney (Dept. of Pharmacy, University Hospital Limerick), Ms. Anne Harnett (Dept. of Pharmacy, University Hospital Limerick)

Introduction: In an era of increasing antibiotic resistance, antimicrobial stewardship has become an essential element of a hospital pharmacist's ward-based activity. Interventions related to antimicrobial prescribing are made by pharmacists in our hospital on a daily basis. We sought to assess the intervention acceptance rates amongst prescribers and examine the results against any available national or international findings. Other features of the interventions were also assessed.

Method: The study took place over a 5 day period in November 2016 (Monday to Friday). Adult non-critical care patients were included. Details on ward-based antimicrobial related interventions made by clinical pharmacists and antimicrobial pharmacists were recorded. Intervention outcome was documented within 24 hours. Data were collated and analysed at the end of the five day period.

Results: A total of 100 antimicrobial related interventions were recorded during the study period.

Interventions made to medical teams accounted for 63% of all interventions versus 37% made to surgical teams.

The four most common intervention types were (i) dosage or frequency (20%)

(ii) duration of therapy (19%) (iii) choice of therapy (18%) and IV to PO switch (15%). The majority of interventions were made to interns (52%). Interventions made in person accounted for 50% of all pharmacist interventions. The intervention acceptance rate amongst prescribers was 78%.

The non-acceptance rate was 13% and the remaining 9% of interventions were lost to follow-up. No similar national or international audits on antimicrobial related intervention monitoring were identified. The acceptance rate of 78%, however, was comparable to European studies which audited the outcomes of hospital pharmacist's interventions in various other clinical settings.

Conclusions: Pharmacists have a role to play in optimising patient's antimicrobial therapy.

Acceptance rates in our study indicate that pharmacist's recommendations positively impact on patient care and on antimicrobial stewardship within the hospital.

Are exacerbations of Behçet's disease (BD) related to the menstrual cycle?: The relationship of menstruation and flare in a Northern European BD cohort.

Poster - Abstract ID: 135

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Introduction

Behçet's disease (BD) is most commonly diagnosed during the reproductive years. Over the years, studies have shown that progesterone and oestrogen tend to exhibit anti-inflammatory activity.¹ The precipitous decline of progestogen at the onset of menstruation and after delivery with evidence of flare during this period among BD patients in a Korean study has led to the belief that exacerbation may be likely related to the abrupt progesterone withdrawal.² The epidemiological characteristics reflect a possible association of BD and female sex hormones.

Objective

We aim to determine the relationship of Behçet's disease flare-ups and menstrual cycle.

Methods

A total of 16 female patients fulfilling the International Study Group for Behçet's Disease (ISGBD) criteria were recruited from a regional rheumatology centre. Telephone interviews were performed to evaluate relationship between the occurrence of BD flare-ups and the menstrual cycle.

Results

The mean age was 39.06 years and the mean age of menarche was 13 years. 4(25%) women were menopausal. 7(43.75%) of the patients experienced exacerbation of BD related to menstruation. The types of flare-ups of BD with menstruation were oral aphthosis (85.71%), arthralgia (57.14%), genital ulcerations (42.86%), lethargy (42.86%), skin manifestations (14.29%) and headache (14.29%). 7(43.75%) were currently on contraception, 6 of which contained progesterone. Out of the 9 who did not experienced exacerbation of BD during menstruation, 4 were on progesterone containing contraceptives. 9(56.25%) had previous pregnancies; 2 patients had an episode of miscarriage and 1 had a stillbirth.

Conclusion

This study demonstrates that the female sex hormones play a major role in the disease activity of BD. Detailed studies in a larger cohort should be performed to further confirm the relationship.

Are there adverse treatment effects on repolarization on the cardiac electrocardiograph (ECG) with standard treatment in patients with exacerbation of COPD?

Poster - Abstract ID: 192

Dr. Rajesh Kumar (University Hospital Limerick), Prof. Tom Kiernan (University Hospital Limerick), Dr. Paul Shiels (midland regional hospital tullamore)

Introduction

COPD exacerbation is a common reason for Hospital Admission and treatment in Ireland. In general treatment involves administration of Oxygen, nebulized bronchodilators including nebulized b-agonist therapy, corticosteroids and antibiotics. This treatment regime has the potential to prolong the QT interval based on (lowering) in serum potassium and intrinsic effects of in particular macrolide antibiotics. In order to assess this further we undertook a study examining the QT interval (and QT dispersion) on ECG in cohort of hospitalized patients with COPD exacerbation.

Method

Consecutive COPD patients hospitalized in our institutions with exacerbation were included in the study. All patients were treated with nebulized b-agonist therapy and corticosteroids. Antibiotic prescription was recorded as was ecg at admission and 72 hours later. The corrected QT interval was calculated using the Bazett formula where $cQT = QT / \sqrt{RR}$ interval for each patient on admission and again after 72 hours. Normal corrected QT interval for was 380-440msec for males and females 380-460msec with SD of 10.

Result

90 consecutive patients were studied. There were 54 males and 36 females and the mean age was 68(50-87). In total 7/90 (6% of study population 3 males 4 female) had a prolonged QT interval of which 4 had prolonged QT before admission in these patients the QT interval was unchanged after 72 hours of treatment. 3(3.3% patient developed QT prolongation during the 72-hour treatment phase.

Conclusion

Our small study demonstrated that a little over 3% of patients had possible medication induced QTc prolongation during treatment for exacerbation of COPD. Given the potential for arrhythmia especially in this group of patients with co morbidity including hypertension, coronary heart disease it seems reasonable to monitor for this development and in particular to aggressively treat hypokalaemia and be alert to medication effect especially macrolide antibiotics and ssri which are widely prescribed.

Assessment of hemi-diaphragmatic plication efficacy utilising pulmonary function tests; a review of literature.

Poster - Abstract ID: 110

Dr. Ciara Killalea (University Hospital Limerick)

Background

Diaphragm paralysis can be severely disabling yet plication is infrequently preformed. Plication can be preformed through several surgical approaches. The purpose of this review is to examine patient outcomes post procedure. It is hypothesised that this surgery has a significant positive impact on symptom relief and quality of life. This study examines effect through pulmonary function test results preceding and post procedure.

Methods

Search strategy: Comprehensive searches using keywords in a literature-searching databases

Databases integrated : PubMed, Ovid MEDLINE, EMBASE, Cochrane Library, DARE

Keywords : Diaphragm plication, thoracic surgery, hemi-diaphragm paralysis, uni-lateral diaphragm paralysis, pulmonary function tests

Inclusion criteria : All data-based studies that appeared in peer-reviews journals in the English language (from inception until the 25th of July 2016). Uni-lateral/hemi-paralysis of the diaphragm. Adult population over 18 years of age.

Exclusion criteria : Theses, dissertations or presentation abstracts that were not published in a peer- review journal were excluded. Malignant causes of hemi paralysis. Paediatric cases of paralysis of the diaphragm. Bilateral paralysis of the diaphragm.

Results

11 studies met the inclusion criteria and were examined through collation of follow-up time period, forced expiratory volume at one second values pre and post operatively, forced vital capacity values pre and post operatively, and analysis of these values. All articles reported improvement in pulmonary function tests following plication. Benefit was documented by mean improvement in FVC (range 3 – 27.3%), and FEV1 (range 7.4 – 43.6%). Studies were examined where possible to establish if there were correlations in outcome and surgical approach used. No difference was established.

Conclusion

Diaphragmatic plication for unilateral diaphragm paralysis decreases lung compression. The procedure improves functional status and long term quality of life. All studies regardless of surgical approach reveal improved pulmonary function tests. The procedure carries low morbidity and mortality in the studied population.

Attitudes and Opinions of Irish Nephrologists towards Pre-dialysis care planning in the Irish Health System: A National Survey

Poster - Abstract ID: 195

Ms. Sarah Redmond (Graduate Entry Medical School, University of Limerick.), Dr. Paul V. O'Hara (University Hospital Limerick, Dooradoyle), Dr. Leonard Browne (University Hospital Limerick, Dooradoyle; Graduate Entry Medical School, University of Limerick), Dr. Wael Hussein (University Hospital Limerick, Dooradoyle; Graduate Entry Medical School, University of Limerick), Prof. Austin Stack (University Hospital Limerick, Dooradoyle; Graduate Entry Medical School, University of Limerick; Health Research Institute, University of Limerick.)

Introduction: It is unclear to what extent Irish nephrologists interpret and follow established clinical guidelines in chronic kidney disease (CKD). We explored the opinions of Irish nephrologists on pre-dialysis care delivery practices in the Irish health system.

Methods: A national survey on the management of CKD was conducted in 2013. All practicing nephrologists registered by the Irish and United Kingdom (UK) medical councils on the island of Ireland were invited to participate. Responses to the survey were analysed using descriptive statistics and comparisons made with KDIGO and UK renal association guidelines. The study was approved by the Ethics Committee in the University Hospital Limerick.

Results: The survey response rate was 83% (N=49/59). Respondents reported good adherence to international best practice in a) education and planning of dialysis (93.8% occurring > GFR 15ml/min), b) vascular access referral (79.5% referrals at GFR > 15ml/min), c) peritoneal catheter placement (75.5% placed at GFR > 15ml/min), and d) infection prevention (85.7% screened for Hep B, and 75.5% provided Hep B in clinic). Respondents differed in the timing of dialysis initiation (10.2 %, 55.1%, and 24.5% initiated patients at GFR values of < 8, 8-10, 10-12 ml/min, respectively, $P < 0.001$); and in timing of peritoneal catheter placement (18.4%, 55.1%, and 18.4% referred patients at GFR values of < 10, 10-15, and 15-20 ml/min, respectively, $P < 0.001$). Only 40.4% of those centres surveyed had a complete multidisciplinary vascular access team.

Conclusion: This survey suggests that Irish nephrologists in general follow international best practice in many areas of pre-dialysis care. However, variability exists in referral patterns and timing of dialysis initiation. This may in part be due to variation in adoption of different CKD guidelines as well as centre differences in resource allocation. National treatment algorithms underpinned by single set of guidelines should be encouraged.

Changes in Peristomal Skin Condition and User Experience of a Novel Ostomy Seal: a six-week safety and efficacy study

Poster - Abstract ID: 123

Ms. Rhona Hunt (University of Limerick)

Background: Peristomal skin complications are a common problem for ileostomates. A research group has developed a novel ostomy seal, O'Seal, to address these skin complications. This seal seeks to reduce chemical dermatitis by using a non-absorbent layer in a spout shaped profile, to assist effluent drainage more completely into the ostomy bag, thereby preventing the effluent contacting the skin.

Methods: Twenty ileostomates were recruited for this study. Each participant was required to use the O'Seal along with their normal ostomy bag for a period of six weeks. Change in skin condition over the six week period was assessed using the Ostomy Skin Tool (OST). Participant's perception of the O'Seal's comfort, security, handling and discretion was also recorded.

Results: Twelve (60%) of the 20 participants completed the study. For those who completed, mean score on the OST decreased from 6.2 (SD 1.90) at baseline to 3.4 (SD 1.73) at 6 weeks, a mean reduction of 2.8 (95% confidence interval -1.6 to -3.9, $p < 0.001$). The mean reduction in skin complications is 45%. All participants who completed the study rated comfort, handling, security and discretion highly (median of 10 on a scale from 1 to 10).

Discussion: The improvement in skin condition for the majority of participants suggests that the O'Seal may be of benefit in reducing levels of chemical dermatitis. The device was generally well received by participants as indicated by their ratings of comfort, security, handling and discretion. Additionally, the spout feature served as a handling tab which may have resulted in accurate positioning of the device during securement.

Conclusion: The novel ostomy seal is designed to reduce the absorbance of a barrier seal and help effluent pass into the user's bag more efficiently. Data from this small study indicates it may serve to reduce levels of chemical dermatitis and potentially levels of skin complications in ileostomates.

Characterisation of prostate tissue by mechanical testing methods – a descriptive review

Poster - Abstract ID: 212

Mr. Niall Kelly (University Hospital Limerick), Mr. Hugh Flood (University Hospital Limerick), Dr. Pat Kiely (Graduate Entry Medical School, University of Limerick.), Dr. David Hoey (University of Limerick), Mr. Subhasis Giri (University Hospital Limerick), Prof. Michael Walsh (University of Limerick)

Prostate cancer and benign prostatic hyperplasia (BPH) are 2 conditions that affect the prostate gland with significant consequences for the health of men. Prostate cancer is the most common cause of male cancer, and 60% of all men over the age of 60 will develop BPH. Historically, the prostate has been assessed clinically utilising the digital rectal examination (DRE) to determine firmness and irregularity of the gland, typical of prostate cancer. Reproducibility of DRE however is at best fair, with significant inter-examiner variability reported. Recent work has attempted to generate objective methods of assessing prostate stiffness. We present a review of the literature regarding the testing of the prostate mechanical properties.

9 papers were identified that performed either tensile or compression testing of prostate tissue. All papers tested on ex-vivo prostate; no in-vivo testing has been reported to date. Most papers used radical prostatectomy tissue while 2 used post-mortem specimens and 1 used trans-urethrally resected tissue. 4 papers tested exclusively at the posterior aspect of the prostate, while the remainder included tissue from within the gland. Each paper used different testing techniques and protocols, leading to a wide range of reported values of stiffness for prostate tissue and diseases, making direct comparison difficult. However, all papers that compared cancerous and non-cancerous tissue identified that prostate cancer was significantly stiffer than normal tissue. 1 paper identified a weak correlation between urinary tract symptoms and the stiffness of prostate tissue.

The objective assessment of prostate tissue stiffness has confirmed the significantly increased stiffness of prostate cancer; however, variations in testing methods and protocols limits the generalisability of this data. In particular, there is a lack of data regarding in vivo testing of the prostate. Further work is required in this area to generate data that can be used in the clinical setting.

Chronic Benzodiazepine use in the Elderly Understanding, Attitudes, and the Desire to Change

Poster - Abstract ID: 146

Mr. Colin Rafferty (University of Limerick), Dr. Connor McGee (University of Limerick), Dr. John Veitch (University of Limerick)

Benzodiazepines are used by approximately 1 in 11 people over the age of 65. These results show that 85% of these patients are unaware that they are taking a BDZ, although when prompted 91% patients recognize the name of the medication. 64% of these patients are unaware that BDZs carry risk of side effects. When asking patients about specific side effects 59% are aware BDZs are addictive, 18% are aware that BDZs carry a risk of falls, and 47% are aware that BDZs may lead to tolerance. Prior to these questions 31 patients said they would consider stopping their BDZ use compared to 51 after the questionnaire was completed. In conclusion doctors must ensure patients are aware of risks associated with BDZs and assess their desire to stop BDZ use.

Clinical and haematological outcomes of "all comers" treated with azacitidine: a real world, retrospective, two centre experience

Poster - Abstract ID: 216

Dr. Chris Armstrong (UHL Haematology)

Introduction Azacitidine is a DNA hypomethylating agent with proven clinical efficacy in terms of improved response rates, overall survival and good tolerability compared to conventional supportive treatment in high-risk myelodysplastic syndromes (MDS) and acute myeloid leukaemia (AML) (Fenaux et.al 2009). It has become the standard of care in patients with poorer performance status, who are not eligible for more intensive treatment. We present the experience of two tertiary haematological centres, using azacitidine in patients with MDS, chronic myelomonocytic leukaemia (CMML) and AML between January 2015 & December 2016.

Results Fifty-six patients (median age 71; male: 58%) received treatment. Patients were grouped into three diagnostic categories, as per the WHO classification, 2016: AML, high-risk MDS and CMML.

A third of patients received previous treatment, including hydroxyurea (8.9%), daunorubicin/cytarabine (21.4%), clofarabine (3.5%), FLAG-Ida (1.7%) and allogeneic stem cell transplant (SCT) (5.4%). Cytogenetic analysis showed 41% of patients had an unfavourable karyotype.

A favourable response, determined by improved peripheral counts by cycle 4, or by re-evaluation bone marrow examination, was seen in 60.8% of patients. Median progression-free survival (PFS) in patients who completed one or more cycles was 14 months, with PFS and overall-survival (OS) by subgroup outlined in table 1. In our cohort, worsening cytopenia was seen in 51.7% during treatment (measured by CTCAE-NIH criteria. Three patients stopped treatment due to intolerance (asthenia (1) nausea/vomiting (1), personal choice (1)). Deaths unrelated to progression were seen in 14.2% of patients.

Patients who had previous treatment had longer survival (OS: 24 mo. vs 12 mo., PFS: 21 mo. vs. 10.5 mo.). The presence of a cytogenetic abnormality is associated with a shorter PFS (10.5 mo. vs 14.5 mo.) but not OS (14 mo. vs. 14.5 mo.). 20% (11/56) of patients who failed azacitidine had subsequent treatment.

Clinical Efficacy and Economic Evaluation of Internet Cognitive Behavioural Therapy for Major Depressive Disorder: A Systematic Review and Meta-Analysis

Poster - Abstract ID: 97

Ms. Elayne Ahern (University of Limerick), Dr. Stephen Kinsella (University of Limerick), Dr. Maria Semkovska (University of Limerick)

Background: A leading cause of disability worldwide, depression is the most prevalent mental disorder with growing societal costs. The demand for mental health services continues to outweigh service provision. Internet Cognitive Behavioural Therapy (iCBT) may be an affordable option to promote the accessibility of effective treatment. The aim of this systematic review and meta-analysis was to evaluate the strength of clinical and economic evidence for the use of iCBT in depression.

Methods: Online databases were searched for controlled trials published from 2006 - December 2016. Meta-analysis with random effects modelling was conducted to assess the efficacy of iCBT to improve depressive symptoms relative to comparator treatments or face-to-face CBT. Economic evaluations conducted alongside controlled trials were systematically reviewed to determine the cost-effectiveness and cost-utility of iCBT.

Results: The search strategy yielded 3,324 studies from which 29 met the criteria for inclusion in the efficacy meta-analysis. Five economic evaluations were identified for systematic review. iCBT was superior to comparator treatments at improving depressive symptoms ($g = 0.44$, $p < .00001$, 95% CI[0.31, 0.57]) with equivalent efficacy to that of face-to-face CBT ($g = 0.06$, 95% CI[-0.67, 0.79]). Depression severity, number of sessions, or support did not influence iCBT efficacy. Relative to comparator treatments, iCBT tended to show greater costs with greater benefits in the short term when evaluated from a healthcare provider perspective.

Conclusion: Although efficacious, further economic evidence is required to support the provision of iCBT as a cost-effective treatment for depression. Economic evaluations that incorporate a societal perspective may better account for direct and indirect treatment costs. Nevertheless, iCBT shows promise to help further alleviate suffering among those with depression by promoting the accessibility of effective and affordable treatment.

Comparison of Applying TTR Proportion of Tests and TTR Rosendaal to a Sample Population Attending a Warfarin Clinic

Poster - Abstract ID: 13

Dr. Thomas O'Halloran (UHL), Ms. Jane Conway (UHL), Mr. Oliver Power (UHL), Dr. Denis O'Keeffe (UHL), Prof. Mike Watts (UHL)

Background: Warfarin therapy is first line therapy for long term anticoagulation but patients with labile INRs should be considered for DOAC (NICE, MMP Ireland). TTR, time in the therapeutic range, is used as a method to identify patients with poor INR control.

NICE refers to two methods to calculate TTR, Rosendaal and proportion of tests in range. While the Rosendaal method has been used extensively in research settings, it requires computer methods to calculate. The proportion of tests in range may be more practical clinically as it can be implemented by a lookup table or simple arithmetic and may be more easily understood by the patient.

Aims: To investigate the difference in patient selection, when TTR-Rosendaal and TTR proportion of tests in range, TTR-PT, are used on a population of patients attending the warfarin clinic.

Methods: A retrospective study of all INR tests performed by the clinic from June 2015 to July 2016 was conducted. 872 patients on long term anticoagulation were selected. TTRs were calculated, using a bespoke computer program, for all patients using the Rosendaal method and proportion of tests.

Thresholds of TTR-Ros of 70% (MMP) and TTR-PT of 65% (NICE) were chosen to select patients for review. There is a mean difference, in our data, of 5.4 (stdev 8.8) between TTR-Rosendaal and TTR-PT which was similar to that reported by Caldeira, 2015. SPSS was used to cross tabulate patients in each category.

Results: 85% of the population are treated the same using either method (27% reviewed and 58% considered well controlled). 15% of the total population are treated differently.

Conclusions: The majority of patients are treated similarly when using TTR targets of 70%, Rosendaal, and 65% proportion of tests. TTR proportion of tests may be a more practical method to calculate TTR for patient selection for DOAC therapy.

Confirmation of *Clostridium difficile* Toxin Expression in *tcdB* Gene Positive Stool Samples using an Enzyme Immunoassay and Antimicrobial Susceptibility Testing of *Clostridium difficile* Isolates in an Irish Hospital

Poster - Abstract ID: 52

Mr. Phelim Ryan (Graduate Entry Medical School, University of Limerick.)

Clostridium difficile infection (CDI) is the leading cause of infectious nosocomial diarrhoea. The organisms virulence is related to its toxin production. The laboratory must differentiate between non-toxigenic and toxigenic strains of *C. difficile*. *C. difficile* AST is essential for the monitoring of emerging resistance. *C. difficile* AST provides invaluable epidemiological data relating to ribotype prevalence. A total of 26 *tcdB* positive stools were tested for the presence of detectable toxin using an EIA. Patients were divided into EIA toxin positive and EIA toxin negative groups. The WCC, CRP value and LOS was recorded for each patient. The BSC score was also used to describe stools submitted in both groups. AST was performed on 27 isolates in accordance with bioMérieux Etest[®] guidelines. Ribotype data was available for 25 of these isolates. CLSI breakpoints were followed for the antibiotics used in the study (metronidazole, clindamycin and moxifloxacin). Study findings, showed that the WCC (U=11.5), Ct value (U=36) and BSC score (U=44) were statistically higher in the EIA toxin positive group. The CRP (U=48.5) and LOS (34.5) was not statistically higher in the EIA toxin positive group. AST results showed that all isolates tested were susceptible to metronidazole. Clindamycin resistance appeared to be associated with ribotype prevalence. In conclusion, the introduction of a second-step EIA test for *tcdB* positive stools was useful for identifying those with CDI. The reliability of metronidazole as the drug of choice for CDI was reaffirmed. The study provided further insight into the relationship between broad-spectrum antibiotic susceptibility and ribotype prevalence.

Conversion of renal abstracts to papers: Published or perished?

Poster - Abstract ID: 43

Mrs. Sarah Theze (UL GEMS), Dr. Donnchadh O'Sullivan (UHL), Dr. Eoin O'Sullivan (Royal Infirmary of Edinburgh)

Introduction: Research has long been a fundamental cornerstone of nephrology. Yet it has been noted that the proportion of scientific renal publications as compared to other medical specialities is in decline since the 1970's. We hypothesised that difficulty publishing or building on early research findings may be a factor, which could be demonstrated by poor abstract conversion rates

Methods: A representative sample of abstracts were selected using an online randomisation engine. Permutations of the abstracts title, first and last author were then searched for on google scholar and PubMed.

Results: We found that conversion rates were ERA posters 66% published (132/200), ASN posters 48% (122/251), ASN orals 70% (305/432), ASA 50% (101/200), SAM 18% (9/50), ANZSN 60% (60/100). Differences are more than would be expected due to chance, Chi squared analysis of a 5x2 table generated a statistic of 43.7421, a p-value is < 0.00001 . The result is significant at $p < .05$. We found no significant difference by research topic.

Conclusion: We describe abstract conversion rates for the first time, and demonstrate that significant regional variation exists. These differences may reflect difference in the size of specific conferences. Nephrology seems no less likely to convert to full publication than cardiology, a similar internal medical speciality with a strong culture of research and publication.

Cough and Confusion in a School- Age child; Mycoplasma Pneumonia Encephalitis

Poster - Abstract ID: 162

Dr. Muhammad Asghar (University Hospital Limerick), Dr. Chin Yaow Then (Paediatric Dept., UHL), Dr. Marguerite Lawler (Paediatric Dept., UHL), Dr. Elizabeths O'mahony (Paediatric Dept., UHL), Dr. Anne-Marie Murphy (UHL)

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 but presence of continuous 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.

Could Fabry's Disease be the Cause of a Cyclical Vomiting Phenotype in Children?

Poster - Abstract ID: 196

Dr. Mahmoud Hassan (Paediatric Department, University Hospital Limerick (UHL), Ireland), Dr. Sheik Fareed (UHL), Dr. Therese Martin (UHL), Dr. Bronwyn Power (University Hospital Limerick), Dr. Anne-Marie Murphy (UHL)

Background

Fabry is a rare X-linked disorder caused by deficient activity of the lysosomal enzyme alpha-galactosidase A. Progressive accumulation of the substrate globotriaosylceramide in cells throughout the body leads to organ failure and premature death.¹ The gastrointestinal symptoms can often be one of the presenting signs in childhood, but can be misdiagnosed by Paediatricians and Gastroenterologists for years due to their nonspecific nature. As the chief treatment for Fabry is enzyme-replacement therapy that has been shown to stabilize and possibly reverse disease course, recognition of these symptoms and early diagnosis in an attempt to prevent progression with treatment, is critical.

Cyclical vomiting syndrome is a chronic disorder of unknown etiology characterised by recurrent stereotypical episodes of vomiting separated by symptom free periods.

Aims

Our aim was to investigate the possibility of Fabry being the cause of a cyclical vomiting phenotype in a cohort of patients presenting to a General Paediatric Practice

In addition we wish to raise awareness of Fabry gastrointestinal manifestations, the initial symptoms of this rare disorder.

Methods

Our study was a prospective study carried out over the 6 month period (January 1st – July 1st 2017).

Informed consent was obtained from parents for blood sampling to measure the activity of the alpha galactosidase enzyme and for full GAL A gene analysis on children with cyclical vomiting presenting during our study period.

Results

Only one patient with cyclical vomiting syndrome presented for review during our study period. Tests were negative in this 12 year old male.

Conclusion The gastrointestinal symptoms of Fabry are the earliest feature but are often overlooked. While our study had negative findings due to the short study period and small sample size, we suggest that this rare disorder be considered as a differential for cyclical vomiting and other atypical gastrointestinal presentations in children, which remain unexplained.

Counting the costs, does improving knowledge of laboratory costs influence diagnostic pathology ordering practices at University Hospital Limerick

Poster - Abstract ID: 44

Dr. Donnchadh O'Sullivan (UHL), Mr. Conor O'Dwyer (University of Limerick), Dr. Sinead O'Donnell (UHL), Mr. Kevin O'Connell (UHL), Prof. Nuala O'Connell (UHL), Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.)

Introduction: It is well recognised that 70% of critical medical decisions depend on laboratory data and much emphasise to date on the streamlining of diagnostic ordering has been on diagnostic suites of testing for various conditions with little consideration of the cost involved in terms of consumables, equipment and technical expertise. It is currently unknown whether physicians are aware of the cost for the different laboratory tests that they request or whether they partake in an active attempt to reduce the number of blood tests ordered

Aims: To both evaluate the current knowledge of laboratory costs amongst the intern cohort at UHL and to ascertain if an educational intervention can impact on ordering laboratory tests with a resultant cost benefit.

Methods: The number of blood tests ordered over a three month period pre-intervention was ascertained by a Cognos search on the laboratory information management system (LIMs) to get an baseline number of tests ordered per week. The associated cost of each test was then applied to calculate the average cost of specific lab tests per week before and after an educational intervention.

Results: Intern knowledge was very poor regarding the cost of each test prior to the educational intervention.

Conclusion: This study suggests that the intern cohort is a potential group that would benefit from an educational campaign to lower laboratory tests and costs at UHL.

Dancing for Parkinson's: a randomized trial of Irish set dancing compared to usual care

Oral - Abstract ID: 222

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Objective: This pilot trial examined the feasibility of a randomised controlled study design and explored the benefits of the set dancing intervention compared to usual care.

Design: Randomised controlled design, with participants randomised to Irish set dance classes or a usual care control group.

Setting: Community based

Participants: Individuals with idiopathic PD

Interventions: The dance group attended a 1.5 hour dancing class each week for 10 weeks and undertook a home dance programme for 20 minutes three times per week. The usual care control group continued with their usual care and daily activities.

Main outcome measures: The primary outcome was feasibility; determined by recruitment rates, success of randomization and allocation procedures, attrition, adherence, safety, willingness of participants to be randomised, resource availability and cost. Secondary outcomes were motor function (UPDRS-3), quality of life (PDQ-39), functional endurance (six minute walk test) and balance (mini-BESTest).

Results: Ninety participants were randomized (n=45 per group). There were no adverse effects or resource constraints. Although adherence to the dancing programme was 93.5%, there was more than 40% attrition in each group. Post-intervention, the dance group had greater non-significant gains in quality of life compared to the control group. There was a meaningful deterioration in endurance in the control group. There were no meaningful changes in other outcomes. The exit questionnaire showed participants enjoyed the classes and would like to continue participation.

Conclusion: For people with mild to moderately severe PD, set dancing is feasible and enjoyable and may improve quality of life.

Determination of the Lung Clearance Index (LCI) in an Irish Paediatric CF Clinic

Poster - Abstract ID: 144

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Objectives: The aim of this study was to assess the performance of Exhalyzer D in paediatric CF patients.

Methods: The LCI measurements were performed using the Exhalyzer D controlled with Spiroware 3.1 Software. The equipment was setup as per manufacturer's instructions and testing followed the European Respiratory Society (ERS) and American Thoracic Society (ATS) 2013 consensus statement. A minimum of two washouts were required for the procedure to be considered complete.

Results: A total of 91 subjects were recruited, which were 23 controls and 68 patients with CF. A number of control and CF subjects who completed at least two successful washouts was 18 (78%) and 54 (79%) respectively. There was a significant difference in the LCI between the CF and control cohorts. The upper limit of normal (ULN) was defined by the LCI mean of control cohort + $1.96 \times \text{SD}$ and was 7.83. The LCI values of 11 CF subjects were recorded and classified as normal (below ULN), while the other 80% of the CF cohort had abnormal LCI values.

Conclusion: This is the first study in Ireland to use a new device, the Exhalyzer D, to measure ventilation inhomogeneity of the lungs of children with CF. We tested children aged 4–18 years old and demonstrated that the LCI values are significantly different between a CF and a control cohort of "healthy" non-CF children. The majority of subjects for each cohort, control and CF, successfully completed the washout procedure. The older subjects seemed to perform the procedure with more ease once they could view the on-screen display of the washout. Though the study was not designed to pick up variation within the feasibility of subgroups, it was noted that the children with CF under 6 years of age struggled to perform the washout in a technically correct manner.

Discriminative Ability and Predictive Validity of the Timed Up and Go test, TUG, in Identifying Falls Risk in People with Multiple Sclerosis

Poster - Abstract ID: 51

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Introduction: Gait and balance are commonly affected in MS which can result in the occurrence of falls. Many different clinical measures have been used to assess balance and falls risk in MS but no one specific measure has been recommended to reliably identify falls risk. The objective of this analysis is to determine the discriminative ability and predictive validity of the TUG in identifying falls risk in people with MS (PwMS).

Methods: Consecutive patients with MS attending the Neurology service in a tertiary hospital were recruited. Data collected included the Expanded Disability Status Scale score (EDSS), time since diagnosis, type of MS and walking aid(s) used. Participants completed the TUG in conjunction with a falls screening questionnaire as part of the baseline assessment and then completed prospective falls diaries for a three-month period.

Results: Mean age (N= 100) was 52.6(10.7) and 66% were female. Mean EDSS was 5.3(1.1) and mean time since diagnosis was 14.3(9) years. 72.3% of the sample had progressive MS with 73% using a mobility aid. There were 791 falls reported over the three-month period from a total of 56 participants. There was no significant difference between fallers and non-fallers in the TUG ($p=0.09$) or between frequent fallers and non-fallers ($p=0.52$). The diagnostic accuracy of the TUG was poor with an AUC value of 0.6 ($p=0.09$). With a cut point of 9 seconds the TUG has 82% sensitivity and 34% specificity in identifying fallers among PwMS.

Concluding Discussion: The TUG alone should not be used to identify falls risk in PwMS. It may be useful as part of a falls prediction tool in conjunction with cognitive scores and other clinical variables. Further regression analysis will be used to develop a more sensitive falls risk algorithm and thus prompt more focused and timely interventions.

DSM-5 delirium severity in comparison with subsyndromal delirium

Poster - Abstract ID: 84

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INTRODUCTION: Subsyndromal delirium complicates diagnosis of delirium and dementia but there is little research comparing their symptom profiles.

METHODS: Cross-sectional study of 400 elderly admissions to a general hospital or nursing home diagnosed as delirium, subsyndromal delirium, dementia, or no-delirium/no-dementia. Symptom profiles were assessed using the DRS-R98.

RESULTS: 20% were delirium, 19.3% subsyndromal delirium, 29.8% dementia-only, and 31% no-delirium/no-dementia. 81% of subsyndromal and 76% of delirium groups had comorbid dementia. DRS-R98 scores showed ascending severity from no-delirium/nodementia <dementia-only <subsyndromal delirium <delirium. DRS-R98 scores for items evaluating the three core symptom domains (cognitive, higher order thinking, and circadian) distinguished subsyndromal delirium from delirium, and both from nondelirious groups. DRS-R98 profiles were essentially the same in delirium and subsyndromal delirium subgroups with or without dementia, though total scale scores were generally higher when in comorbid subgroups.

CONCLUSIONS: Subsyndromal delirium shared characteristic core domain symptoms with delirium, which distinguished each from nondelirium groups, though severity was intermediate in the subsyndromal group. Delirium core symptoms overshadowed the dementia phenotype when comorbid. Milder disturbances of delirium core domain symptoms are highly suggestive of subsyndromal delirium.

Elongation factor 2: A novel target for Colon Cancer Progression?

Poster - Abstract ID: 76

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The link between protein synthesis and cancer progression is becoming a central point in cancer research. Translation is one of the most important, energy demanding and highly regulated processes in cells. Therefore, dysregulation of protein synthesis is associated with multiple diseases, including cancer. RACK1 (Receptor for Activated C Kinase 1) is a scaffold protein able to recruit a series of kinases and phosphatases and play a role in the regulation and location of protein synthesis in cells.

Using Click-iT chemistry combined with Mass Spectrometry analysis, we set out to identify newly synthesised proteins that interact with RACK1. Interestingly, the most highly scored interacting proteins were those involved in protein synthesis. Of those, we identified elongation factor 2 (eEF2).

eEF2 is one of the main regulators of the elongation step of protein synthesis, but it also has other important roles in cells, such as influencing cytoskeleton remodelling. eEF2 has been found to be upregulated in many different types of cancer.

Stress conditions, such as serum starvation and RACK1 knockdown, increase the phosphorylation of eEF2, inactivating it and consequently slowing down the rate of protein synthesis, in our colon cancer cell model. Conversely, growth factors, such as IGF-1, stimulate protein synthesis through activation of pathways that can suppress the activity of elongation factor 2 kinase (eEF2k) the best characterised kinase that phosphorylates and inactivates eEF2.

We analysed gene expression of eEF2 and eEF2k in our cohort of matched normal and cancer colonic tissue from patients. We found both genes were dysregulated in cancer compared to normal, and interestingly eEF2 is significantly downregulated in mucinous colon cancers compared to non-mucinous ones.

Understanding the role of eEF2 and the importance of its binding with RACK1 could help us in the identification of novel therapeutic approaches for colorectal cancer.

Exploring the benefits of oral protein supplementation in gastrointestinal surgery patients: a systematic review

Poster - Abstract ID: 80

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AIM:

To evaluate published trials examining oral post-operative protein supplementation in patients having undergone gastrointestinal surgery and assessment of reported results.

METHODS:

Database searches (MEDLINE, BIOSIS, EMBASE, Cochrane Trials, Cinahl, and CAB), searches of reference lists of relevant papers, and expert referral were used to identify prospective randomized controlled clinical trials. The following terms were used to locate articles: "oral" or "enteral" and "postoperative care" or "post-surgical" and "proteins" or "milk proteins" or "dietary proteins" or "dietary supplements" or "nutritional supplements". In databases that allowed added limitations, results were limited to clinical trials that studied humans, and publications between 1990 and 2014. Quality of collated studies was evaluated using a qualitative assessment tool and the collective results interpreted.

RESULTS:

Searches identified 629 papers of which, following review, 7 were deemed eligible for qualitative evaluation. Protein supplementation does not appear to affect mortality but does reduce weight loss, and improve nutritional status. Reduction in grip strength deterioration was observed in a majority of studies, and approximately half of the studies described reduced complication rates. No changes in duration of hospital stay or plasma protein levels were reported. There is evidence to suggest that protein supplementation should be routinely provided post-operatively to this population. However, despite comprehensive searches, clinical trials that varied only the amount of protein provided via oral nutritional supplements (discrete from other nutritional components) were not found. At present, there is some evidence to support routinely prescribed oral nutritional supplements that contain protein for gastrointestinal surgery patients in the immediate post-operative stage.

CONCLUSION:

The optimal level of protein supplementation required to maximise recovery in gastrointestinal surgery patients is effectively unknown, and may warrant further study.

Family Connections versus optimised treatment-as-usual for family members of individuals with borderline personality disorder: non-randomised controlled study

Poster - Abstract ID: 181

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Background: Borderline Personality Disorder (BPD) is challenging for family members who are often required to fulfil multiple roles such as those of advocate, caregiver, coach and guardian. To date, two uncontrolled studies by the treatment developers suggest that Family Connections (FC) is an effective programme devised to support, educate and teach skills to family members of individuals with BPD. However, such studies have been limited by lack of comparison to other treatment approaches. This study aimed to compare the effectiveness of FC with an Optimised Treatment as Usual (OTAU) programme for family members of individuals with BPD.

Methods: This study was a non-randomised controlled study, with assessment of outcomes at baseline (pre-intervention) and end of programme (post-intervention) for both FC and OTAU groups. Eighty family members participated in the FC (n=51) and the OTAU (n=29) programmes. Outcome measures included burden, grief, depression and mastery. Linear mixed-effects models were used to estimate the treatment effect (FC versus OTAU) utilising all available data from baseline and end of programme.

Results:

The FC group showed changes indicating significant improvement with respect to all four outcome measures ($p < 0.001$). The OTAU group showed changes in the same direction as the intervention group but none of the changes were statistically significant. The intervention effect was statistically significant for total burden (including both subscales; $p = .02$ for subjective burden and $p = .048$ for objective burden) and grief ($p = 0.013$).

Conclusions: The findings of the current study indicate that FC results in statistically significant improvements on key measures while OTAU does not yield comparable changes. Lack of significant change on all measures for OTAU suggests that a three session psycho-education programme is of limited benefit. Further research is warranted on programme components and long-term supports for family members.

Guideline Adherence in Anaemia Management in Haemodialysis: Comparison of University Hospital Limerick with findings from the UK Renal Registry

Poster - Abstract ID: 179

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Background: Anaemia is a common complication in haemodialysis (HD) patients and both under-treatment and over-correction are associated with adverse clinical outcomes. We ascertained the quality of anaemia care at UHL from 2015 to 2016 and benchmarked our results against national standards reported from units in the UK Renal Registry (UKRR).

Methods: We determined the proportion of patients with haemoglobin (Hb) and serum ferritin levels within target range as recommended by the UK Renal Association guidelines (2010) and evaluated the extent of anaemia correction beyond Hb 12 g/dl while on erythropoietin (ESA). Baseline patient characteristics, primary cause of kidney disease, comorbid conditions and measures of anaemia, Hb, serum ferritin and ESA dose were obtained from the Kidney Disease Clinical Patient Management System (KDCPMS). Median values and interquartile range (IQR) for Hb, serum ferritin and ESA dose were computed for December 2015 and 2016 respectively.

Results: One hundred and fifty nine prevalent patients were included (73 in 2015, and 86 in 2016). The median age was 63.5 years (IQR 54.3-72.8), 59% were male. Median Hb, ferritin and ESA doses for 2015 and 2016 compared favourably with data from UKRR. A Hb target of 10-12 g/dl was achieved in 70 % and 64 % of patients in 2015 and 2016 respectively compared with 56% in the UK. Percentage of patients with Hb > 12 g/dl and treated with ESA was 4 % (n=3) and 8 % (n=7) in 2015 and 2016 respectively, and these standards were numerically superior to those in England (18%), Wales (10%) and Northern Ireland (20%).

Conclusion: Guideline adherence in anaemia management at UHL compares favourably to standards achieved in UK and NI with fewer patients exceeding threshold Hb values > 12 g/dl on ESA treatment. Whether the same holds true for all Irish HD centres needs to be explored.

Haemophagocytic lymphohistiocytosis (HLH) Masquerading as Sepsis in the Paediatric Emergency Department (PED); A Case Report

Poster - Abstract ID: 73

Dr. Therese Martin (UHL), Dr. Marguerite Lawler (UHL), Dr. Anne-Marie Murphy (UHL)

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Background

HLH is a disorder of the final common cytokine pathway, resulting in hypercytokinaemia and end-organ damage +/- death. It is a likely under-recognised and often fatal disease, which is most common in infancy. It has a varied presentation, often presenting with signs similar to sepsis. It should be suspected in patients presenting with unexplained onset of systemic inflammatory response syndrome (SIRS). Laboratory findings include cytopenias, hypofibrinogenaemia, hypertriglyceridaemia, and raised ferritin levels. An elevated ferritin level > 10,000 µg/L is almost pathognomonic of HLH (90% sensitivity, 96% specificity). Histopathologic findings include prominent lymphocytic accumulation.

Research to date has enabled a treatment protocol which aims to suppress the associated exaggerated immune response. Stem cell treatment is indicated in certain cases improving 3 year survival to 50%.

Aim

We aim to highlight this rare disorder and the importance of a timely diagnosis as research shows that untreated HLH has a 1-2 month survival time.

Methods

We describe clinical findings, results of haematological, biochemical, radiological and histological investigations and outcome to date of a neonate who presented to our PED with presumed sepsis in whom we ultimately diagnosed HLH.

We performed a literature review of current research on this rare disorder.

Results

We report the case of a 3 week-old male infant, born to non-consanguineous parents. He had previously presented at one week of age with bilious vomiting due to volvulus. He presented to the ED with signs and symptoms similar to sepsis. Despite multiple investigations and optimal treatment, no source of infection was found. Further testing revealed an increased ferritin level (peak 90,000), hypertriglyceridemia and thrombocytopenia. A diagnosis of HLH was confirmed.

He was commenced on the HLH 2004 protocol, with marked improvement.

Conclusion

Our case highlights the need for an index of suspicion for treatable rare disorders in atypical neonatal emergencies.

Herlyn-Werner-Wunderlich Syndrome a.k.a. obstructed hemivagina and ipsilateral renal agenesis (OHVIRA) Syndrome, a rare differential for abdominal pain

Poster - Abstract ID: 46

Dr. Donnchadh O'Sullivan (UHL), Dr. Sara Adeelzafar (UHL), Mr. David Waldron (UHL), Dr. Imcha Naro (UHL)

Background:

Herlyn-Werner-Wunderlich syndrome or obstructed hemivagina and ipsilateral renal anomaly (OHVIRA), is a rare Mullerian duct anomaly that consists of uterus didelphys, unilateral obstructed hemivagina and ipsilateral renal agenesis.

Patients with this syndrome usually present after menarche with pelvic pain and/or a mass. The initial clinical diagnosis is often incorrect due to the rare incidence of this anomaly and misleading presenting signs and symptoms. Strong suspicion and knowledge of this anomaly are essential for a precise diagnosis.

Case:

A 15-year-old female presented with a 2 week history of worsening pelvic pain. On examination she had a tender RIF, guarding, Rosving's sign + and Goldflam's sign + giving the initial impression of appendicitis or UTI. Pelvic ultrasound showed a uterus didelphys with unilateral haematocolpus and she diagnosed as a case of OHVIRA syndrome. She had a EUA for drainage of the haematocolpus, a septal division and follow-up with a menstrual diary and MRI.

Summary and Conclusion:

OHVIRA syndrome should be considered as a differential diagnoses in young females with renal anomalies who present with pelvic pain shortly after menarche in association with a pelvic/vaginal mass and normal menstrual periods. Other presentations include abnormal vaginal discharge, infertility, vomiting, fever, acute urinary retention and as in this case acute abdominal pain.

Home to rest or recover? A descriptive cohort study to quantify self-reported and objective levels of physical activity in people post discharge from an Acute Stroke Unit.

Poster - Abstract ID: 166

Ms. Edel Hennessy (University Hospital Limerick), Dr. Frances Horgan (Royal College of Surgeons in Ireland), Prof. Rose Galvin (University of Limerick), Dr. Peter Boers (University Hospital Limerick)

Objectives

The purpose of this study was to quantify self-reported and objective levels of physical activity (PA) in people with acute stroke during the first week post discharge home. A secondary objective of the study was to explore whether self-efficacy, balance, age, function, depression or anxiety were associated with levels of PA following acute stroke.

Design

A descriptive cohort study design.

Participants

Twenty-one patients (median age 65 years, median Barthel Index score: 100) who were being discharged directly home with a confirmed diagnosis of ischaemic stroke.

Setting

All participants were recruited from the Acute Stroke Unit (ASU) of University Hospital Limerick.

Methods

Participants wore an accelerometer for the first seven days post discharge home from the ASU. The data from this was compared to self-reported physical activity levels as measured by the International Physical Activity Questionnaire using the Spearman rank correlation coefficient. Secondary measures of age, cognition, balance, self-efficacy, function, anxiety and depression were examined using a mixed linear regression model to determine whether they influenced levels of physical activity post stroke.

Results

The median number of steps per day measured by the accelerometer was 4023 steps (interquartile range 2724 steps/day). There was a weak, inverse correlation between self-reported and objective PA, $r = -.25$, $n=20$, $p=0.30$ with higher levels of self-reported PA compared to objective measurement. There was a significant drop in self-reported levels of PA pre and post stroke ($z=-1.96$, $p=0.05$). There was no univariable association between self-efficacy, balance, age, function, depression or anxiety and levels of PA ($p>0.05$).

Conclusion

Following discharge home from an ASU, individuals with stroke do not meet the recommended levels of PA and there is a poor correlation between self-reported and objective levels of PA. This study did not establish a relationship between any of the secondary measures and physical activity.

Hypoglycaemia in high risk newborn infants: an audit of the current screening practice

Poster - Abstract ID: 220

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Background: Neonatal hypoglycaemia is associated with abnormal neurological outcomes with the duration of hypoglycaemia having a direct impact on outcome¹. Current guidelines for screening of high risk babies on postnatal wards in a Irish university maternity hospital are adapted from the national childbirth trust 1997² and UNICEF 2008³ guidelines. New guidelines were published by the Canadian Paediatric society (CPS) in 2016⁴.

Aims: To evaluate whether current screening practices of hypoglycaemia among high risk infants conforms with current local guidelines and how these compare with international standards.

Method: Retrospective chart review of infants born in July 2017 identified as high risk for hypoglycaemia under current guidelines and compared to CPS guidelines. Information gathered included baseline infant characteristics, timing of blood sugar measurements (BM) and management of hypoglycaemia.

Results: 39 infants born in July 2017 were identified as at high risk of hypoglycaemia under current guidelines. 4 charts were not available for review. 34 infants had BM screening and 1 infant did not. The mean time to first BM was 4 hours (Range 1-10). 38% (n=13) infants developed hypoglycaemia, of these 15% (n=2) required NICU admission. There was no significant difference in timing of BM measurements between normoglycaemic and hypoglycaemic infants ($p = 0.35$). An additional 9 infants were identified as high risk for hypoglycaemia when CPS guidelines were applied. These infants did not have BM screening and 1 infant subsequently became symptomatic with hypoglycaemia.

Discussion: Adherence with current local guidelines is satisfactory however these guidelines warrant evidence based modification. 19% of high risk infants were not routinely screened. There was large variation in timing of BM in those infants who were screened. Detection of hypoglycaemia in high risk infants could be optimised if recent international standards were adopted.

Recommendation: Implementation of CPS guidelines and a re-audit to evaluate the outcome.

Identifying a Gene Classifier between normal and Breast Cancer from information available within Publically Available Gene Expression repositories.

Oral - Abstract ID: 237

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Introduction: There are large volumes of data available within public gene expression repositories (PGER), however it is not possible to search these repositories using relevant clinical terms such as hormonal profile or stage of breast cancer. Previous research at the University of Limerick has permitted clinically relevant searches of these datasets based upon specific clinical parameters

Aim: The aim of this study is to exploit the potential of the data available from publicly available gene expression repositories to develop a potential gene expression classifier to differentiate between normal tissue and breast cancer.

Methods: Gene Expression Omnibus (GEO) and ArrayExpress which were searched using the phrase, "breast". The datasets were subsequently reviewed and only those which obtained a 5* in Minimum Information About a Microarray Experiment (MIAME) compliance score within ArrayExpress were imported into Chipster for further analysis.

Results: This search yielded 29 datasets which obtained a 5* MIAME compliance score within ArrayExpress, 6 of these datasets GSE 42568, GSE 42568, GSE 50428, GSE 50567, GSE 57297 and GSE 59246 compared the microarray expression between normal and breast cancer tissue.

GSE 24556, GSE 50428, GSE 50567, GSE57297 and GSE 59246 were used to identify the gene classifier between normal breast tissue and breast cancer, which includes the genes C2orf40, FABP4, KRT 5 and MMP1. GSE 42568 was used to externally validate this classifier, which has an average sensitivity and specificity of 97% and 85% respectfully of identifying the dysregulation between normal breast tissue and breast cancer.

Conclusions: This demonstrates that it is possible to use the microarray expression data available within public gene expression repositories in relation to breast cancer to generate a gene classifier containing only 4 genes that can help distinguish between normal and breast cancer.

Identifying and targeting proteins involved in the progression of breast cancer using in vitro models.

Poster - Abstract ID: 126

Ms. Amira Mahdi (Graduate Entry Medical School, University of Limerick.), Ms. Beatrice Malacrida (Graduate Entry Medical School, University of Limerick.), Prof. Aoife Lowery (4i Centre for Interventions in Infection, Inflammation and Immunity, Graduate Entry Medical School, University of Limerick, Ireland), Dr. Pat Kiely (Graduate Entry Medical School, University of Limerick.)

In Ireland, almost three thousand women are diagnosed with invasive breast cancer every year¹. This makes it the most common form of malignant tumour found in Irish females and accounts for 17% of all female cancer deaths. As a result, a large effort is being made to improve detection and survival rates for women affected by this disease. In order to achieve this, there is an urgent need to identify novel biomarkers and molecular targets so that we can more accurately and quickly diagnose cancer and understand cancer progression.

Our study aims to investigate exactly how the progression of breast cancer is influenced by specific micro-environmental cues and ascertain the 'main players' involved in the growth and migration of tumour cells. We used Click-iT chemistry and Mass Spec analysis to identify proteins that are synthesised by the cancer cells as they are stimulated to migrate towards an epidermal growth factor (EGF) chemoattractant, in both 2D and 3D in vitro models of cancer metastasis. We have identified a list of 97 proteins spanning a myriad of different functions such as metabolism, intracellular calcium sensing, anti-oxidation and proteins that regulate the cell structure. We hypothesise that these newly synthesised proteins play a vital role in cancer cell migration and metastasis. We are currently investigating the role of several of these proteins in regulating the cells' response to the tumour microenvironment and from this, will develop novel therapeutic targets for the treatment of breast cancer.

Directing pharmacological interventions towards these newly synthesised proteins has the potential to pinpoint invasive cancer cells and provide a highly specific and effective anti-cancer therapy.

References

1. National Cancer Registry Ireland. Cancer Trends No 29. Breast cancer. (2016).

Image quality of computed tomography pulmonary angiography, a complete audit cycle.

Poster - Abstract ID: 101

Dr. Aoibhinn Coffey (HSE West)

Image quality of computed tomography pulmonary angiography, a complete audit cycle.

Evaluation of contrast enhancement of CTPAs to assess optimum quality for diagnosis of pulmonary emboli.

Abstract: The purpose of this audit was to investigate the contrast enhancement of CTPAs, ensuring adequacy for diagnosis, acknowledge any shortfall in practice if present to improve service quality where necessary.

Method: A retrospective audit was performed on 50 consecutive CTPAs using the radiology PACS system. Departmental protocols were reviewed. Relevant data regarding patient details, scan acquisition and radiologists' reports was collected and examined. A shortfall in practice was noted pertaining to the location of the region of interest (ROI). Retraining and protocol review was organised. The audit cycle was completed by re-auditing following this alteration.

Results: 26% of scans were reported as suboptimal compared to a recommended standard of no more than 11%. Following the implementation of change in practice and adherence to the protocol the number of suboptimal scans reported was reduced to 14% and overall quality was improved.

Conclusion : When performed according to the protocol the number of suboptimal scans were reduced therefore eliminating the need for repeat scans thus decreasing contrast and radiation dose to the patient whilst improving quality of the service provided. Completing the full audit cycle allowed comparison to be made, maintenance was monitored and the impact on service quality was evident. Recommendations for further audits are made from literature review, for quality purposes. Importance of funding for higher education for staff members and continued professional development in this area was also highlighted during this clinical audit to ensure optimum imaging techniques.

Indications for Lowering LDL Cholesterol in Rheumatoid Arthritis: An Unrecognized Problem

Poster - Abstract ID: 157

Dr. Maria Usman Khan (UHL Rheumatology), Dr. Usman Azhar Khan (UHL cardiology), Dr. Alwin Sebastian (University Hospital Limerick), Dr. Fahd Adeeb (University of L), Dr. Eoghan Meagher (UHL), Ms. Siobhan Morrissey (UHL Rheumatology), Dr. John Paul Doran (University Hospital Limerick), Dr. Joe Devlin (University Hospital Limerick), Dr. Sandy Fraser (University Hospital Limerick)

Two-fold Aim: To determine the efficiency of screening for hyperlipidemia in our RA cohort and to evaluate the initiation and optimization of lipid lowering therapy among the indicated RA patients after devising departmental guidelines and continuous education based on the initial results of first audit in June 2016.

Methods: This multicenter re-audit involved 2 teaching hospitals (Croom hospital & University Hospital Limerick). 100 consecutive patients with definite RA were recruited in January-February 2017. A proforma was completed for each patient based on medical notes and electronic record. In those patients where data on age, gender, smoking, blood pressure and lipid profile were complete, the 10-year risk of fatal CVD was calculated by using the SCORE chart. The patients were stratified into 4 risk categories, and together with measurement of target LDL-cholesterol (LDL-c) levels, recommendations for lipid lowering measures were adapted: Ideal LDL-c for low (SCORE <1%) and moderate risk patients (SCORE ≥1- <5%) should be <3.0 mmol/L, <2.6mmol/L for high risk (SCORE ≥5- <10%) & <1.8mmol/L for very high risk patients (SCORE ≥10%). Statins were the recommended treatment.

Results: Among the 100 patients, full lipid profile was performed in 80% patients within the last 4-years as compared to 87% patients in first audit. In both studies 43% patients had adequate data to calculate the 10-year risk of fatal CVD. Figure-1 illustrates 10-year CVD risk based on SCORE model stratifying patients in 4 risk categories on the basis of target LDL-c and also compares patients in these categories in both audits. We found that overall there was 5% improvement in lipidaemic control indicating optimized statin dose and 14% patients achieved their target LDL-c while on treatment. Overall 41% patients (18/43) had an indication for de novo statin therapy in both audits as they were not on treatment despite fulfilling the above-mentioned criteria.

Investigating the outcome of educational initiatives and prospective prescription review on fluoroquinolone prescribing rates at University Hospital Limerick

Poster - Abstract ID: 214

Ms. Siobhan Barrett (Dept. of Pharmacy, University Hospital Limerick), Dr. Lorraine Power (Dept. of Microbiology, University Hospital Limerick), Ms. Anne Harnett (Dept. of Pharmacy, University Hospital Limerick)

Introduction: Rates of fluoroquinolone use in our hospital have been consistently higher than those of other Irish hospitals with a similar case-mix. Antibiotic consumption data to June 2016 showed a 1% increase in fluoroquinolone use compared to 2015 figures. Audit results (2015) deemed 48% of fluoroquinolone prescriptions inappropriate. Local fluoroquinolone resistance rates to the end of 2015 were high. Safety concerns surrounding this class of antibiotics have been raised at international level. The aim of our initiative was to reduce fluoroquinolone prescribing rates in our hospital to conform to those of our national counterparts.

Methods: The initiative took place from October to December 2016. Education has traditionally centred on Non-Consultant Hospital Doctors (NCHDs). For maximum effect it was decided to engage with entire teams including consultants.

- An antimicrobial pharmacist provided educational sessions on fluoroquinolones to prescribers and clinical pharmacists throughout October.
- Consumption data, resistance rates and safety concerns were areas of focus.
- Adherence to the hospital's Antimicrobial Guidelines was encouraged
- A desired reduction in inappropriate fluoroquinolone prescribing was emphasised.
- All fluoroquinolone prescriptions were reviewed by clinical or antimicrobial pharmacists and necessary interventions made.
- Prescribing feedback was given to prescribers and pharmacists.

Results: In total, 11 educational sessions were provided and 203 fluoroquinolone prescriptions were reviewed by pharmacists. Non-compliance to hospital guidelines was evident in 30% (n=62) of prescriptions. Pharmacist interventions resulted in the discontinuation of 65% (n=40) of inappropriately prescribed fluoroquinolones. An 8% reduction in fluoroquinolone use for the entire of 2016 versus 2015 was achieved. Fluoroquinolone consumption was reduced to below that of the hospital category median for similar hospital types for the first time since 2010.

Conclusion: Following three months of education and intervention, fluoroquinolone prescribing rates decreased to conform to national figures. Engagement of senior level prescribers with the educational programme was pivotal to the successful outcome.

Investigating the role of extracellular matrix coding genes in breast cancer metastasis.

Poster - Abstract ID: 128

Ms. Joanne Nolan (Graduate Entry Medical School, University of Limerick.), Dr. Maeve Kiely (Graduate Entry Medical School, University of Limerick.), Prof. Aoife Lowery (4i Centre for Interventions in Infection, Inflammation and Immunity, Graduate Entry Medical School, University of Limerick, Ireland), Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Dr. Pat Kiely (Graduate Entry Medical School, University of Limerick.)

In Ireland, 1 in 10 women will develop breast cancer and there are approximately 2600 new cases annually and 660 deaths annually. One of the main forms of breast cancer in Ireland is invasive ductal carcinoma. It accounts for almost 80% of cancers diagnosed initially and occurs when cancerous cells break out from the ducts, invading surrounding tissue increasing the potential to spread to lymph nodes and surrounding areas. Understanding how and why cancer cells migrate is of significant biological and clinical interest. Accumulating evidence suggests spread of breast cancer is influenced by the composition of the extracellular matrix (ECM). The ECM refers to the area around the tumour containing various proteins and cells; it influences the tumour structure and behaviour.

We are examining a panel of 40 genes that code for several categories of proteins that regulate the composition of the ECM. These include fibrous proteins, glycoproteins, transmembrane proteins, growth factors and proteases. We selected this panel as they are known to be active at the leading edge of the cell or are secreted into the ECM. We used STRING an online tool to cluster our signature set which allowed us to connect the proteins encoded by our gene set by co-expression and protein homology.

Using qRT-PCR, we are examining the expression of these genes in different cell lines, which represent various models of breast cancers. Once a pattern is established from these cell models, we will validate our approach on matched cancer and normal tissue taken from breast cancer patients diagnosed with various types of breast cancer.

This work will provide insight into how proteins at the leading edge of the cell interact with the extracellular matrix, and will provide novel opportunities to influence diagnostic and treatment therapies for patients with metastatic cancers.

Marked Underdiagnosis and Undertreatment of Hypertension in Rheumatoid Arthritis: A large Gap to Close

Poster - Abstract ID: 156

Dr. Maria Usman Khan (UHL Rheumatology), Dr. Fahd Adeeb (University of L), Dr. Alwin Sebastian (University Hospital Limerick), Dr. Joe Devlin (University Hospital Limerick), Dr. Sandy Fraser (University Hospital Limerick)

Aim: To determine the prevalence of HTN and to evaluate BP management in comparison to the EULAR recommendations in our Midwest RA cohort after devising departmental guidelines and continuous education based on the results of first audit cycle.

Methods: 100 RA patients were recruited in this multicenter quality improvement project involving 2 teaching hospitals (Croom hospital & UHL) between January-February 2017. A proforma was completed for each patient based on medical notes & electronic data including BP record within the last 4 years and recent antihypertensive medications. HTN was defined as BP of $\geq 140/90$ mmHg. Based on the EULAR guidelines, ACE inhibitors (ACE-I) & angiotensin II (AT-II) blockers are preferred agents when indicated due to favorable effect on inflammatory markers and the endothelial function in RA. Based upon the results of our first audit cycle, we encouraged the use of ACE-I and AT-II blockers in our RA cohort as the preferred antihypertensive agents when indicated at both departmental and community level.

Results: 1) There was an overall improvement in BP monitoring by 4%, and 70% of the patients had up-to-date BP recordings. 2) There was 5% increment in hypertensive patient cohort (element of white coat HTN not excluded) and at least 45% of patients were sub-optimally managed with mono or combination antihypertensive therapy in both cycles. Encouragingly ACE-I and AT-II blockers remained the mainstay of treatment and constituted 50% of total drugs in the second audit compared to 54% in the first audit. 3) There was 6% reduction in the numbers of normotensive patients; 36% patients were adequately controlled with antihypertensive therapy in both audits. Interestingly the overall use of both ACE-I and AT-II blockers as primary antihypertensive was increased by 7% as compared to the first audit.

Mechanical and histological properties of the benign hyperplastic prostate: relationship to the severity of lower urinary tract symptoms and age.

Poster - Abstract ID: 213

Mr. Niall Kelly (University Hospital Limerick), Dr. John Mulvihill (University of Limerick), Mr. Subhasis Giri (University Hospital Limerick), Dr. David Hoey (University of Limerick), Mr. Hugh Flood (University Hospital Limerick), Prof. Michael Walsh (University of Limerick)

Benign Prostatic Hyperplasia (BPH) commonly affects the aging man, resulting in prostate enlargement and in some cases bladder outlet obstruction (BOO). This can cause significant distress for patients in the form of lower urinary tract symptoms (LUTS). The prostate demonstrates variations in its mechanical properties, as reported in work involving prostate cancer. We assessed if the mechanical properties of BPH prostate tissue could be related to patient symptoms.

Symptomatic patients scheduled for transurethral resection of prostate (TURP) with International Prostate Symptom Scores (IPSS) were included. Prostate samples were subjected to uniaxial tensile testing; Cauchy stress, engineering strain and elastic modulus (EM) were calculated at toe region (EM_{Toe}), linear region (EM_{Linear}), and fracture point ($EM_{Fracture}$) of the stress-strain curves generated. Percentage of epithelial tissue (%ET) was calculated from haematoxylin-and-eosin stained samples. Results obtained were compared with respect to the symptom scores.

In total, 37 samples from 22 patients were analysed. There was a negative correlation with increasing patient age and their IPSS ($r=-0.589$, $p<0.01$) and IPSS-V ($r=-0.659$, $p<0.01$). There were also negative correlations between age and EM_{Linear} ($r=-0.432$, $p<0.05$) and $EM_{Fracture}$ of the curves ($r=-0.49$, $p<0.05$). There was no change when controlled for various medications. Younger patients ($<70y$) had higher IPSS and IPSS-V ($p=0.037$ and $p=0.017$ respectively), and higher EM_{Toe} ($p=0.021$). There was no significant relationship between %ET and the EM_{Toe} .

Our results show that there is a possible relationship between mechanical properties for prostate tissue and the symptoms caused and that younger patients tended to have worse symptoms and stiffer prostates. This could have implications for the management of BOO in the younger patient and may be a parameter that could affect treatment decisions in the future.

Medical tourism in the metabolic world!

Poster - Abstract ID: 163

Dr. Aoife Corcoran (University Hospital Limerick), Dr. Gillian O'Donnell (University Hospital Limerick), Dr. Peter O'Reilly (University Hospital Limerick), Ms. Neidin Bussmann (UL GEMS), Dr. Anne-Marie Murphy (UHL)

Background Enzyme replacement therapy (ERT) with Elosulfase Alpha is the only therapy that can potentially slow the progression of Morquio syndrome. It is a new medication, awaiting approval from the HSE and NHS with significant financial costs to be incurred by the healthcare system providing it.

Aims Our aim is to report a sibship pair with an ultrarare genetic disorder for which treatment may soon be made available here with a view to raising awareness of the condition to facilitate prompt diagnosis and in addition, highlighting the cost implications to our economy. We examine the culture of "medical tourism" for treatment of rare disorders.

Methods We describe the presenting features, examination findings, results of haematological, biochemical, radiological and genetic investigations in addition to the natural history and outcome to date of two brothers in whom we diagnosed the rare inborn error of metabolism Mucopolysaccharidosis type 4a (Morquio syndrome).

Results Two brothers, (14 and 9 years) were referred by their General Practitioner to a Consultant Paediatrician for etiological medical investigation and subsequent management of their complex phenotype of coarse features, faltering growth, short stature, skeletal dysplasia, developmental regression and sensorineural deafness. Born to healthy consanguineous Pakistani parents, an older sibling undiagnosed but with a similar phenotype died aged 17 years. The children, their mother and 2 siblings had recently moved here from Pakistan to live with their father. The parents report 23 other children in their village with a similar condition.

Conclusion ERT with Elosulfase alpha is the only treatment available for Morquio syndrome 2. The annual acquisition cost per patient is €486,440

Many developing countries have a critical lack genetics and metabolic services needed to manage these rare disorders while many developed countries, including our own have inadequate funding structures for this purpose thus forcing families to seek help elsewhere.

Medication usage and falls in multiple sclerosis

Poster - Abstract ID: 64

Ms. Laura Comber (University of Limerick), Ms. Gillian Quinn (University of Limerick and St. Vincent's University Hospital), Prof. Chris McGuigan (St. Vincent's University Hospital, Dublin), Prof. Rose Galvin (University of Limerick), Prof. Susan Coote (University of Limerick)

Background: There is a need to identify modifiable risk factors for falls in people with Multiple Sclerosis (MS) to enable the design of successful falls prevention interventions. Polypharmacy and certain types of medications are well-established risk factors for falls in older adults. To date, little is known about medication usage and fall status in people with MS (pwMS).

Objective: To explore medication use and prospectively monitored falls in pwMS

Methods: Consecutive patients attending the MS clinic in a tertiary hospital were recruited. MS characteristics and current medications were documented at baseline and verified by treating physicians. Participants completed three months of prospective falls diaries. Medications were classified based on the Anatomical Therapeutic Chemical (ATC) classification system.

Results: Data was collected from 101 participants. The mean age was 52.55 (SD=10.73) and 67% of participants were female (n=67). Mean EDSS was 5.25 (SD=1.15) with a mean time since diagnosis of 14.29 (SD=8.99) years. Seventy-four (72.2%) were classed as having a progressive form of MS. Participants took a total of 364 medications and fifty-six participants recorded 791 falls. No association was noted between number of medications and falls. The use of genitourinary and sex hormones (OR=5.154, 95% CI 1.427 to 18.609, $p=0.012$) and centrally acting muscle relaxant (OR=5.181, 95% CI 1.546 to 17.364, $p=0.008$) medications were associated with an increased odds of being a faller.

Conclusions: For this notably progressive cohort, no association was found between number of medications and falls status. Participants taking medications categorised as genitourinary and sex hormones or centrally acting muscle relaxant medications had increased odds of being a faller. It is likely that both the medication action and the symptom being treated are responsible for these findings.

Mitochondrial Disease due to an SDHD Gene Mutation; Case Report and Literature Review

Poster - Abstract ID: 100

Dr. Bronwyn Power (University Hospital Limerick), Dr. Therese Martin (UHL), Dr. Elizabeth O'Mahony (University Hospital Limerick), Dr. Anne-Marie Murphy (UHL)

Background: The succinate dehydrogenase (SDH) complex, also known as mitochondrial complex II (MT-C2), is a key metabolic enzyme, the only enzyme involved in both the citric acid cycle and the electron transport chain. Autosomal recessive mutations in the genes coding for the SDH subunits are associated with a number of clinical conditions, typically hereditary cancer predisposition syndromes and isolated mitochondrial complex II deficiency (MT-C2D). Neoplastic syndromes associated with SDH mutations include hereditary paraganglioma-pheochromocytoma syndrome, non-syndromic paraganglioma or pheochromocytoma and Cowden syndrome. As with all mitochondrial diseases, isolated MT-C2D results in inability to generate sufficient ATP, particularly affecting organ systems with high energy demand, including skeletal and cardiac muscle, the central nervous system, kidneys and liver. Clinical features of isolated MT-C2D include psychomotor regression, poor growth, delayed speech, spastic quadriplegia, dystonia, leukoencephalopathy and cardiomyopathy.

Aims and Methods: We present an infant with confirmed mitochondrial disease, due to an SDHD gene mutation. A review of the current available literature was undertaken.

Results: We report a female infant, now 17 months old, the product of a consanguineous relationship, who was diagnosed antenatally with dilated cardiomyopathy. A sibling died in infancy, with post-mortem studies revealing a cardiomyopathy that had developed as a consequence of a mitochondrial disorder due to a SDHD gene mutation. Following delivery, a postnatal echocardiograph confirmed the presence of dilated cardiomyopathy. She was commenced on beta-blockers, ACE-inhibitors, digoxin, and aspirin. The neonate was homozygous for the identical familial SDHD gene mutation as her sibling. At eight months old, she presented in status epilepticus requiring intubation. She has had a complicated infantile course with severe refractory epilepsy requiring multiple antiepileptic medications. Brain imaging at one year old revealed periventricular nodular heterotopia. In addition, she has global developmental delay.

Conclusion: Our case highlights the clinical syndrome resulting from a SDHD mutation.

Novel potentially pathogenic stop codon mutation in the nuclear factor NF- κ B p65 subunit (RELA): Discovery of a new player driving inflammation in monogenic Behçet-like disease in the Midwest of Ireland

Poster - Abstract ID: 81

Dr. Fahd Adeeb (University of Limerick), Prof. Austin G. Stack (University of Limerick), Dr. Sandy Fraser (University Hospital Limerick)

Introduction

Behçet's Disease (BD) has a multifactorial etiology and susceptibility is influenced by a complex interplay between genetic and environmental components. Familial aggregation in BD has been described among different ethnic populations and there have been reported cases of monogenic conditions with similarity to BD. Better insights of orphan monogenic defects in inflammatory syndromes carries high clinical impact on the affected patients and "at risk" family members and will hopefully reshape the landscape in managing this subset of BD patients through early recognition, identification of characteristics pattern, risk prediction, choice of treatment and discovery of different novel therapies.

Aims/Background

The primary goal of this study was to identify novel genetic mutation(s) in a BD family using whole exome sequencing (WES).

Method

WES were performed on a complex Caucasian Irish pedigree composed of eight family members that include 2 half sisters with BD, both presented with similar phenotypic picture of orogenital ulcerations and skin pustulosis without evidence of uveitis. One of the two proband also had a sister who was subsequently diagnosed with neuromyelitis optica (NMO) while the remaining family members remained healthy and were asymptomatic.

Results

A novel potentially pathogenic stop codon mutation in the nuclear factor NF- κ B p65 subunit (RELA) was present in all 3 affected subjects as well as their father. The WES data suggests p65 haploinsufficiency and a dominant mode of inheritance with incomplete penetrance (Figure 1). Activation of the transcriptional regulator NF- κ B is a critical step in inflammation and is widely implicated in inflammatory syndromes including in BD. The mutation at the stop codon may potentially have caused uncontrolled inflammation resulting phenotypic characteristics similar to BD.

Conclusions

This study provides novel evidence for the pathogenic stop codon mutation in the nuclear factor NF- κ B p65 subunit (RELA) as a potential driver of inflammation in monogenic Behçet-like disease.

Patient use behaviour of an Oscillating Positive Expiratory Pressure (OPEP) device: Paediatric Cystic Fibrosis Cohort

Poster - Abstract ID: 145

Mr. Kevin J. O'Sullivan (University of Limerick), Dr. Leonard O'Sullivan (University of Limerick), Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Prof. Deirdre McGrath (University of Limerick), Mrs. Louise Collins (Paediatric Department, University Hospital Limerick (UHL), Ireland), Dr. Barry Linnane (Graduate Entry Medical School, University of Limerick. National Childrens Hospital, Crumlin, Dublin 12.)

Background: Oscillating Positive Expiratory Pressure devices are intended to remove excess secretions and reduce gas trapping in patients with hypersecretory diseases such as Cystic Fibrosis (CF), bronchiectasis and chronic bronchitis. This positive pressure is generated by exhaling through a restricted orifice, while oscillations in the pressure act on the mucus to thin and shear it along the walls of the airways. In the literature, and indeed manufacturers documentation, the therapeutic target range for OPEP is 10-20 cmH₂O pressure, at a flow rate of 10-20 L/min. The current study sought to evaluate the user behaviour during OPEP therapy by paediatric CF patients.

Method: 21 patients, with a mean age of 9.42 years, were recruited as part of regular check-ups in the CF unit in UHL. Each subject used the Aerobika OPEP Device (Trudell Medical) regularly, with all subjects receiving identical instruction on how to use the device correctly by specialist physiotherapists. The use behaviour was evaluated by placing a flow and pressure sensor in line between the subject's mouth and Aerobika device. The sensors were connected to LabView via a data acquisition card, with data exported to MS Excel for analysis. Each subject was instructed to use their device as normal for ten exhalations, with each exhalation recorded separately. Seven healthy, female control subjects were also tested.

Results: 0% of the subjects tested were within the specified therapeutic range. Exhalation length ranged from 0.8 seconds to over 6.5 seconds. There was no correlation between FEV₁ and generated pressure/flow.

Discussion: The findings of the study demonstrate the discrepancies in technique between patients, even with standardised instructions. These findings open an important debate about the efficacy of OPEP therapy, and will frame the approach to paediatric OPEP instruction and monitoring going forward.

Acknowledgement: This work was funded under an EI Commercialisation Grant.

Physical function performance and recovery of patients undergoing abdominal surgery in relation to post-operative complications – A prospective real world study.

Poster - Abstract ID: 241

Ms. Mary Flahive (UHL Physiotherapy)

Objective: To evaluate the physical function performance differences between those who develop complications and those who do not and determine their impact on recovery.

Background: Complications are associated with significant costs in terms of morbidity, finance, psychological and impact on recovery. Many risk factors have been identified relating to surgical complications, however no single measure has been identified to predict complications in an abdominal surgery population, particularly in relation to physical function.

Methods: Forty-nine participants were recruited via the pre-operative assessment unit. Data was collected relating to demographics, physical function, lung function, surgical parameters and recovery.

Results: Complications rate was 41.9% (n=18) pre-discharge, 30.2% (n=13) at 30 day's post- surgery and 21% (n = 9) at 60 day's post-surgery. Obesity (P=0.005*), longer operating time (P=0.05*), >2 co-morbidities (P = 0.033*), low activity levels (P=0.020*), low VO₂Peak (P=0.017*) and lower 6-minute walk distance (P=0.019*) were statistically different between complications and non-complications groups. Length of stay was significantly increased in the complications groups (8.5) versus the non-complications group (2) (P<0.001*). Both the complications and non-complications groups activity levels reduced significantly regardless of the presence of complications and did not return to baseline levels by 60-days post-surgery (P<0.001*). The complications groups also significantly increased their sedentary time from a median of 5 to 7.5 hours daily (P=0.007*). Self-reported physical recovery was almost 100% in the non-complications group at 60 days whilst the complications groups reported a median of feeling approximately 75% recovered.

Conclusion: This study highlighted significant differences between groups which are potentially modifiable. Regardless of complications, this cohort did not return to or near baseline activity levels and the complications group increased their sedentary activity significantly. If looked at in the larger context of physical activity in the prevention and management of various diseases, could be physically and financially detrimental in the future

Placental Chorionic Artery Thrombosis: An identifiable marker on the chorionic plate of fetal systemic thromboembolism.

Poster - Abstract ID: 36

Dr. Síofra Flannery-McDermott (University of Limerick), Dr. Peter Kelehan (University of Limerick)

Placental chorionic fetal artery thrombosis has, traditionally and most commonly, been identified by histological recognition of avascular villi, with apical vascular occlusion of associated stem villi within the parenchymal disk.

We suggest, and will illustrate, that thrombosis of a fetal artery can also be identified on the chorionic plate as a pale, firm, nodular dilation of a thin cord like vessel. As this is commonly seen at a bifurcation of the vessel, we hypothesise that instead of representing a primary intravascular thrombosis at this site, it is an impacted thromboembolus. A shower of fibrin emboli can only reach this site of impaction by traversing the umbilical cord arteries from the fetal aorta. When a large thrombus occludes at the level of the ileal bifurcation, and/or in the right or left hypogastric artery at the umbilical ring, the result is a proximal umbilical artery thrombosis. If Hyrtl's anastomosis is not present and functioning, this can result in acute fetal vascular malperfusion. If the baby survives the acute event, which can be recognized clinically as dramatic changes in Doppler studies, extensive multifocal avascular villi will be seen on histology.

In many cases where the characteristic lesion of chorionic artery thromboembolus is seen on the chorionic plate, there is also evidence of thrombosis of the chorionic veins, sometimes both acute and chronic and sometimes also propagating into the umbilical vein, identified grossly and microscopically as Fetal Thrombotic Vasculopathy/Fetal Vascular Malperfusion. Chorionic vein thrombosis is a potent cause of thromboembolism of the fetal systemic circulation and, with renal vein/inferior vena cava thrombosis, intra cardiac thrombosis, thrombosis of the ductus arteriosus and intrahepatic/ductus venosus thrombosis, it can be associated with cerebral infarction and peripheral limb ischaemia - all associated with a fetal hypercoagulable state.

Platelet VWF provides novel insights into the biology underlying quantitative Von Willebrand Disease

Oral - Abstract ID: 39

Mr. Niall Dalton (National Centre for Hereditary Coagulation Disorders, St James's Hospital, Dublin, Ireland. Haemostasis Research Group, Trinity College Dublin, Ireland.)

Introduction

Platelet von Willebrand Factor accounts for 10-20% of total vWF:Ag present in normal platelet-rich plasma. Previous studies of plt-VWF in von Willebrand Disease involved only small numbers of patients. Given the high level of VWF-stored within platelet α -granules, previous *in-vitro* and *in-vivo* studies reported that plt-vWF plays a critical role in haemostasis. Given the significant bleeding phenotype observed in patients with Low-vWF, we hypothesized that plt-vWF levels may also be reduced in this cohort. In the largest study of plt-vWF levels performed to date, we systematically examined both plt-vWF antigen and activity levels in patients enrolled in Low-Von Willebrand in Ireland Cohort study compared to healthy-controls.

Methods

Plt-VWF-antigen and collagen-binding activity levels were determined for 54-patients with Low-vWF levels, compared to 22 normal controls. VWF-antigen and VWF-collagen binding assays were performed using standard ELISA. Bleeding phenotype was evaluated using a physician-directed bleeding assessment tool from which the ISTH BAT score was derived.

Results

Plt-VWF:Ag and plt-VWF:CB levels were both significantly reduced in LoVIC patients compared to healthy controls (mean plt-VWF:Ag 0.16 IU/10⁹/L versus 0.21 IU/10⁹/L, $p < 0.05$; mean plt-VWF:CB 0.18 IU/10⁹/L versus 0.34 IU/10⁹/L, $p < 0.0001$). This supports the hypothesis that reduced-vWF synthesis plays a key role in the pathogenesis underlying Low-vWF levels in this cohort. Although previous studies suggested that platelet vWF levels may influence bleeding risk in patients with type 1 VWD (such that bleeding is attenuated in 'platelet-normal' patients), we observed no significant increase in bleeding for Low-vWF patients with reduced compared to normal plt-VWF:Ag.

Conclusions

Our findings demonstrated patients with Low-plasma vWF-levels, plt-VWF levels are also significantly reduced. This finding suggests reduced vWF-synthesis contributes to the pathophysiology of Low-vWF with a defect common to both endothelial cell and megakaryocytic vWF-synthetic compartments. However, quantitative and/or qualitative defects in plt-VWF did not alter the ISTH-BAT scores in LoVIC patients.

Poor sleep is related to lower general health, increased stress and increased confusion in elite Gaelic athletes

Poster - Abstract ID: 239

Ms. Michelle Biggins (University of Limerick), Dr. Roisin Cahalan (University of Limerick), Dr. Tom Comyns (University of Limerick), Dr. Helen Purtill (University of Limerick), Dr. Kieran O'Sullivan (Aspetar Orthopaedic and Sports Medicine Hospital)

Persistent poor sleep is associated with a range of adverse health outcomes. Sleep is considered the main method of recovery in athletes, however studies report that a significant number of athletes are getting insufficient sleep. The purpose of this study was to assess the sleep profiles of elite Gaelic athletes and to compare wellbeing, in those with poor sleep and those with good sleep. Methodology: 69 elite Gaelic athletes completed questionnaires, including the Pittsburgh Sleep Quality Index (PSQI), Subjective Health Complaints Inventory (SHC), Nordic Musculoskeletal Questionnaire (NMQ), stress subscale of the Depression Anxiety Stress Scale (DASS), the tension-anxiety, anger-hostility and confusion-bewilderment subscales of the Profile of Mood States (POMS) as well as the catastrophising subscale of the Coping Strategies Questionnaire (CSQ). Participants were categorised into poor sleepers (PSQI \geq 5) and good sleepers (PSQI $<$ 5) and outcome measures of health and wellbeing were analysed between the two groups. Results: 47.8% of athletes were poor sleepers. Poor sleepers had significantly lower general health (SHC) (p=0.029), increased stress (DASS) (p=0.035) and increased confusion (POMS-subscale) (p=0.005). There was no significant difference between groups for number of painful body parts (NMQ) (p=0.052), catastrophising (CSQ) (p=0.287), overall mood (POMS) (p=0.059), or POMS subscales of anger (p=0.346) or tension (p=0.593). Conclusion: Nearly 50% of elite Gaelic athletes report insufficient sleep. There is a significant relationship between poor sleep and lower general health, increased stress and increased confusion, and these factors may interact with each other. Monitoring of, and interventions to enhance sleep may be required to improve athletes' wellbeing.

Keywords: Sleep, athletes, wellbeing, mood

Pregnancy Risks and Women's Future Cardiovascular Health: A Missed Primary Care Opportunity to Improve Women's Health?

Poster - Abstract ID: 174

Ms. Shivani Bhat (Sunnybrook Health Sciences Centre | University of Limerick), Dr. Karen Fleming (Sunnybrook Health Sciences Centre), Dr. Debbie Elman (Sunnybrook Health Sciences Centre)

Women with hypertensive disorders of pregnancy (HDP) are 2 to 10 times more likely to develop cardiovascular disease (CVD) leading to severe health consequences. Due to transitions between community and inpatient care, primary care providers are often unaware of their patients' pregnancy history; thus, HDP can be overlooked as a potential risk factor during cardiovascular risk management. This study aims to determine the current state of primary care practice on identifying and managing postpartum women with HDP and other pregnancy complications (gestational diabetes mellitus (GDM), preterm birth, stillbirth and IUGR) for future CVD risk.

A prospective cross sectional survey was sent to 2102 adult female patients of the Sunnybrook Academic Family Health Team collecting information on socio-demographics, cardiovascular risk factors, pregnancy complications and postpartum follow-up. With 223 responses, 28% women experienced a pregnancy complication associated with increased CVD risk. GDM (23%) preterm birth (40%), HDP (35%) were the three main complications experienced. Of those with a complication and consented to chart review (95%), 44% had their complication documented in their charts. GDM (71%) was more likely to be captured than HDP (50% captured) or preterm birth (50% captured) (X^2 : 21.56, $P=0.0058$). Patients whose complication was not captured in the charts were more likely to have incomplete follow-up postpartum (X^2 : 27.495, $P<.001$).

These findings illustrate a missed opportunity for primary care providers to identify, screen and manage patients with pregnancy complications for cardiovascular risk. The low likelihood of recording HDP and preterm birth in patient charts suggests that primary care providers (1) may not have received their patient's pregnancy information or (2) may not know that such complications can be potential risk factors for future CVD. Thus, these results identify current gaps in knowledge and information flow that will help inform potential improvement programs to better primary postpartum cardiovascular care.

Prevalence and correlates of vascular access use among haemodialysis patients in the Irish health system

Oral - Abstract ID: 219

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Background: Central venous catheters (CVC) are associated with substantial morbidity and mortality among patients undergoing haemodialysis (HD), yet they are frequently used as the primary vascular access for many patients on HD. The goal of this study was to determine the prevalence and variation in CVC use across centres in the Irish health system.

Methods: Data from the National Kidney Disease Clinical Patient Management System (KDCPMS) was used to determine CVC use and patterns across centres. Data on demographic characteristics, primary cause of end-stage kidney disease (ESKD), comorbid conditions, laboratory values and centre affiliation were extracted for adult HD patients (n=1,196) who received dialysis in December 2016. Correlates of CVC use were explored using multivariable logistic regression.

Results: Overall prevalence of CVC use was 54% and varied significantly across clinical sites from 43% to 73%, $P < 0.001$. In multivariate analysis, the likelihood of CVC use was lower with increasing dialysis vintage, OR 0.40 (0.26-0.60) for 4 years vs 1 year vintage, rising serum albumin, OR 0.73 (0.59-0.90) per 5 gm/L, and with cystic disease as a cause of ESKD, OR 0.38 (95% CI 0.21-0.6). In contrast, catheter use was greater for women than men, OR 1.77 (1.34-2.34) and for 2 out of 10 regional dialysis centres, OR 1.98 (1.02-3.84) and OR 2.86 (1.67-4.90) respectively compared to referent).

Conclusions: Catheters are the predominant type of vascular access in patients undergoing HD in the Irish health system. Substantial centre variation exists which is not explained by patient-level characteristics.

Prevalence of Hyperuricaemia within the Irish Health System and relationships with Chronic Kidney Disease

Poster - Abstract ID: 183

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Background: Hyperuricaemia is an emerging risk factor for metabolic disorders and major cardiovascular events. A better understanding of the burden of hyperuricaemia may identify high-risk groups. The aim of this study was to describe the prevalence of hyperuricaemia, and period trends within the Irish Health System

Methods: We identified 136,325 adult patients, ≥ 18 years, with valid measurements of serum uric acid (SUA) and creatinine from laboratory systems within the Irish health system. Hyperuricaemia was defined as SUA in excess of 416 $\mu\text{mol/L}$ in men and 339 $\mu\text{mol/L}$ in women. Glomerular filtration rates ($\text{ml/min per } 1.73\text{m}^2$) were determined using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation and patients were classified by CKD stage. Multivariate Logistic regression was used to explore the relationship between calendar year and prevalence of hyperuricemia

Results: From 2006 to 2014, the prevalence of hyperuricaemia increased from 20.3 % (19.5, 21.0) to 26.5% (25.8, 27.2%) in men and from 17.9% (17.2, 18.6) to 20.4% (19.8, 21.0) in women, $p < 0.001$. Age-specific prevalence increased significantly over time for all age groups in men and women, $P < 0.001$. Prevalence increased significantly with advancing stage of CKD from 15.1% (14.5, 15.6) in Stage 1 to 43.0% (34.8, 51.1) in Stage 5, $p < 0.001$. However, unlike in stages CKD 1-3, a trend of falling prevalence was observed in Stage 4 and 5, $P < 0.001$. In multivariable models, the adjusted odds of hyperuricaemia increased with each successive year from OR 1.07 (1.01-1.14) in 2008, to OR 1.24 (1.17-1.32) in 2014, $p < 0.01$ (vs referent 2006, OR=1.00).

Conclusions: The prevalence of hyperuricaemia is substantial in the Irish health system and has increased in frequency over the past decade. Although, the burden was highest among patients with advanced CKD, an encouraging decline in prevalence was evident in recent years, which may reflect increasing utilisation of urate lowering therapies.

RACK1 Regulates PKA Activity to Drive Tumourigenesis in Colon Cancer

Poster - Abstract ID: 88

Ms. Sheri Hayes (University of Limerick), Dr. Catriona Dowling (Graduate Entry Medical School, University of Limerick.), Prof. Calvin Coffey (4i Centre for Interventions in Infection, Inflammation and Immunity, Graduate Entry Medical School, University of Limerick, Ireland), Dr. Pat Kiely (Graduate Entry Medical School, University of Limerick.)

RACK1 (Receptor for Activated C Kinases) is a scaffolding protein with 7 WD repeats that interacts with the Insulin-like Growth Factor I receptor (IGF-IR), integrins, and other signalling proteins. RACK1 functions as a scaffolding protein and regulator of many key biological processes and it is highly expressed in most tissue. We recently reported that RACK1 is essential for IGF-I-mediated regulation of PP2A activity and AGAP2 activity at focal adhesions. Downstream of IGF-1R signaling in cancer cells, the scaffolding properties of RACK1 are altered providing distinct migratory advantages to the cell and suggesting that RACK1 is an important regulator of IGF-I signalling in cancer progression. It is important to further characterise the role of RACK1 in cancer and to delineate the molecular mechanisms by which it regulates key signalling pathways. We have identified Protein Kinase A (PKA) as RACK1 interacting protein. PKA is a complex, multicomponent enzyme which is a fundamental protein that functions in cell survival, proliferation, and cytoskeletal remodelling among others. Our hypothesis is that RACK1 regulates the PKA axis in cancer cells leading to Akt and MAP Kinase activation downstream of IGF-1R signalling. We have demonstrated that RACK1 is required to mediate PKA activity in colon cancer cells. Although we show that PKA expression is not altered in colon cancer tissue, we believe that PKA activity is altered significantly in the disease state. Using PKA inhibitors, we have shown that PKA regulates IGF-I-mediated MAP Kinase activation in colon cancer cell lines. In conclusion, this research project will help elucidate the role of PKA in colon cancer. Inhibiting or promoting specific protein interactions with RACK1 will provide very novel therapeutic opportunities and anti-cancer drug targets.

Radial Vs femoral access during primary PCI in a University Hospital in Ireland: a completed audit cycle

Poster - Abstract ID: 108

Dr. Abdalla Ibrahim (University of Limerick), Dr. Ruqaya Al Hajri (Health Service Executive), Dr. Peter Kearney (University College Cork)

Introduction: Studies have found that transradial approach (TRA) is more practical and secure method than transfemoral approach (TFA) regarding mortality and bleeding complications among patients who underwent primary percutaneous coronary intervention (PCI) for ST-segment elevation myocardial infarction (STEMI). The 2014 European society of cardiology guidelines on myocardial revascularisation states that TRA should be preferred over TFA if performed by an experienced operator. Audits that report institutions' experience in interventional practice are required to help in effectively implementing current guidelines.

Methods: We reported the prevalence of TRA versus TFA during primary PCI that were performed for all admitted patients with STEMI in a University Hospital in Ireland in 2015 and 2016. Data were collected using the hospital's local electronic system and the acute coronary syndrome (ACS) registry.

Results: In 2015 there were 271 patients evaluated, TRA was used in 89 (32.8%) patients, whereas TFA was used in 182 (67.2%) patients. The results of this cycle were presented at our departmental STEMI meeting and operators were encouraged to use TRA during primary PCI. In 2016, a re-audit revealed that there were 214 patients, 139(64.9%) patients had TRA and 75 (35.1%) patients underwent TFA.

Conclusion:The percentage of patients who underwent TRA during primary PCI in our institution has significantly increased from 32.8% in 2015 to 64.9% in 2016 as a result of this audit. The use of radial access during primary PCI should be encouraged as it has a lower incidence of major bleed and less mortality compared to femoral access.

Reaudit of the etiological medical assessment of infants diagnosed with permanent childhood hearing impairment through universal newborn hearing screening

Poster - Abstract ID: 37

Dr. Uzair Athar Khan (UMHL), Dr. Mahesh Katre (University Hospital Limerick), Dr. Philip Stewart (UHL), Dr. Roy Gavin Stone (UHL), Dr. Anne-Marie Murphy (UHL), Dr. Con Sreenan (UMHL), Dr. S Gallagher (UHL)

Background and Aims

Babies diagnosed with PCHI following UNHS are referred to Paediatricians for an etiological medical assessment. Paediatricians at UHL follow the guidelines published by the British Association of Audiological Physicians (BAAP). We audited this practice in our department in July 2016.

Three areas were highlighted as sub-optimal- Testing for CMV was completed in only 62 per cent of cases, Confirmation of a diagnosis of CMV would have occurred past the timeframe for treatment. No governance structure for patients born and screened outside our jurisdiction but recently relocated here was in place.

Our aim was to reaudit our practice in relation to etiological medical assessment in the 12 month period bearing in mind the deficits noted during our original audit.

4400 Babies were screened during our reaudit period.

Methods

Patients were identified from the Department of Audiology. Case files were reviewed. Information regarding investigations and results were collated and compared with BAAP recommendations.

Results

A total of 6 patients (4 male, 2 female) were diagnosed with PCHI between 06/07/2016 and 06/07/2017. Of these, 1 patient was diagnosed weeks before the end of our study period. The referral letter is enroute to the Paediatrician. 2 patients have received appointments from Paediatricians but have not yet been seen. 3 patients were born and screened outside our jurisdiction (France, London, Wexford). The London patient had been diagnosed with congenital CMV and was appropriately referred to our services and seen. The French patient was admitted to our Paediatric unit with feeding difficulties in the newborn period. The parents (Consanguineous Irish Travellers) reported the failed newborn hearing test in France and a family history of deafness. The Paediatrician arranged investigations immediately. As of 06/07/2017, the Wexford patient has failed to attend.

Conclusion

In our unit, BAAP recommendations are followed.

Reliability of Hip Rotation Range of Motion Measurements using Smartphone Based Goniometry - A Preliminary Report.

Poster - Abstract ID: 136

Mr. Tiarnán Ó Doinn (University of Limerick)

Aim: To determine the intertester and intratester reliability of hip rotation range of motion (ROM) measurements among experienced and novice clinicians using a smartphone 'Clinometer' application.

Methods: Seventeen young healthy males (mean \pm SD age: 19.92 \pm 1.7 years, height: 184.7 \pm 5.2 cm, mass 74.1 \pm 4.7 kg) were recruited to participate in this study. Passive internal and external hip rotation ROM measurements were obtained bilaterally, in a randomised, blinded fashion, by an experienced (>30yrs clinical experience) and novice (<1yr clinical experience) clinician. Measurements were then repeated three hours later. Testing was performed with participants in a seated position, with their feet elevated off the floor. A smartphone was placed 5cm proximal to the lateral malleolus to record resting rotation angle, using the 'Clinometer' application. The hip was then passively rotated until the clinician felt a firm end feel and prior to any compensatory pelvic movement. 'Clinometer' application readings were recorded again at this endpoint angle. The initial resting rotation angle was then subtracted from the endpoint angle to give a measure of hip rotation ROM. The average values of three measurements for internal and external hip rotation ROM were entered into analysis. Intraclass correlation coefficients (ICCs) with 95% confidence intervals were used to assess intertester and intratester reliability. Paired *t*-tests assessed for any systematic intertester bias. A P-value was considered significant at <0.05.

Results: Estimates of intratester reliability (ICC 2,1) ranged from 0.80-0.93 for the novice clinician and from 0.81-0.95 for the experienced clinician. Intertester reliability (ICC 2,1) ranged from 0.92-0.95. There were no significant intertester differences (P>0.05).

Conclusion: Both novice and experienced clinicians can obtain reliable measures of hip rotation ROM using smartphone based goniometry. Considering the low cost, ease of use and widespread availability, smartphones offer a potentially useful tool to assess hip rotation ROM among experienced and novice clinicians.

Risk factor stratification for venous thromboembolism in patients with below knee injuries treated with immobilisation and the future role of thromboprophylaxis.

Poster - Abstract ID: 188

Dr. Daniel Mulligan (University Hospital Limerick), Dr. Denis O'Keeffe (UHL), Prof. Mike Watts (UHL), Mr. Brian Lenihan (University Hospital Limerick)

Background: Below knee injuries are a common presentation in orthopaedic departments, but the incidence of venous thromboembolism (VTE) and need for thromboprophylaxis in these patients is controversial, with the incidence of VTE ranging from 4.3% to 40%. However, it remains unclear if risk assessment can identify a group which could benefit from thromboprophylaxis.

Aims: The primary aims of this study were to determine the incidence and types of risk factors associated with VTE in our patient cohort.

Methods: Patients with below knee injuries, including both fractures and soft tissue injuries, treated with any form of lower limb immobilisation were included in the study. Patients who satisfied the inclusion and exclusion criteria were administered a VTE risk factor questionnaire. The questionnaire assessed age, sex, BMI, performance status, presence of co-morbidities, history of VTE, oestrogen exposure, pregnancy, active cancer, thrombophilia, injury type, smoking, type of immobilisation, and family history. Patients were contacted and radiological imaging reviewed twelve weeks from the date of their initial injury to determine if VTE occurred.

Results: A total of 120 patients were surveyed, 70 males and 40 females. 5 patients developed clinically significant VTE, 3 developed isolated DVT and 2 developing DVT and PE. All but 1 of these patients had 3 or more risk factors. The overall incidence of VTE among this patient cohort was 4.1%, with 4 out of 5 (80%) of episodes of VTE occurring in patients with at least 3 risk factors.

Conclusions: The overall incidence of VTE in this population is 4.1%. This study confirms the propensity of patients with multiple risk factors, with below knee injury to develop VTE. This study suggests that it may be possible to identify a high risk group of patients at the time of injury who may benefit from chemical thromboprophylaxis.

Rotational Atherectomy in the Drug Eluting Stent Era: The West of Ireland Experience

Poster - Abstract ID: 143

Dr. JJ Coughlan (University Hospital Limerick), Prof. Thomas Kiernan (University Hospital Limerick)

Introduction

Rotational Atherectomy is a technique in interventional cardiology which facilitates percutaneous coronary intervention (PCI) in complex, heavily calcified lesions.

In this study, we sought to determine the patient characteristics, procedural outcomes and long term symptomatic outcomes for patients undergoing rotational atherectomy in our centres in the era of drug eluting stents and radial access.

Methods: Data was collected prospectively on consecutive cases undergoing rotational atherectomy in our centre. Patients were followed up in order to determine major adverse cardiac events at 30 days and NYHA and CCS class at 30 days and 1 year.

Results:

Mean age of cohort was 72.18 ± 8.12 years. 66% of our patients were male. 41% had had previous PCI and 31.25% had a prior failed PCI. 16% had a previous CABG.

40.9% of the patients presented with angina. 31.81% of patients had a recent MI within 4 weeks.

Procedure:

A mean of 2.21 ± 1.477 lesions over 70% diameter were present (Range: 1-7). Radial approach was used in 27% of cases.

Mean post-dilation max vessel width was increased from 2.62 ± 0.59 mm pre procedure to 3.4 ± 0.82 mm ($p < 0.0001$).

Drug Eluting stents were placed in 90.625% of cases, bare metal stents in 1.56% and no stent in 7.81% of cases. Overall complication rate was 25.24% with the majority of these being secondary to bleeding (9.2%) and dissection (9.09%).

Long Term our patients reported excellent symptomatic outcomes with a CCS score of 0.26 ± 0.77 at 3 months and 0.25 ± 0.657 at 1 year. NYHA Scores were $0.5 \pm .993$ at 3 months and 0.457 ± 0.816 at 1 year.

Conclusion:

Rotational atherectomy still has an important role in the drug eluting stent era to modify heavily calcified plaque. The risk of MACEs remains higher than conventional PCI, reflecting the complexity of the disease and increased procedural technical difficulty.

Scanning in the ED, would magnetic resonance imaging add strings to our bow for minor trauma in the acute setting?

Poster - Abstract ID: 113

Dr. Kasia Domanska (Emergency Department UHL), Dr. Ronan Callanan (Emergency Department UHL), Dr. Damien Ryan (Emergency Department UHL)

Introduction

MRI is considered the superior form of imaging for analysis of body tissues with a low calcium component such as cartilage, ligamentous tissue and synovium. Inflammation, ischemia and minor trauma alter the water content of tissues including bone with which MRI holds the greatest sensitivity for detection.

Aims and Objectives

The aim of this study was to ascertain the potential benefits of the use of MRI in an emergency department setting for minor trauma. A retrospective cross-sectional study was performed. Referrals to private institutions for imaging from University Hospital Limerick Emergency Department (UHL ED) were analysed to ascertain the classification of injury most commonly referred and detection rate of same.

Methodology

12 months of retrospective data was collected from 2016. Patients referred to private institutions for acute MRI were identified on UHL ED IT systems. Information collected included injury type as per initial clinical exam, referral source, payment for imaging and details of positive MRI results. Data was analysed with SPSS 2015 & Microsoft Excel 2016.

Results

33 patients were included. Of this sample size 14 were knee injuries. Of these 14 patients 72% revealed positive MRI findings which required a surgical review. 92% of the knee injury group were in the 18 – 55 age group. All patients, self funded and private insurance, received an MRI with 3 weeks of clinical diagnosis.

Conclusion

This study demonstrated the positive aspect of a rapid MRI confirmed diagnosis. Early diagnosis leads to an early surgical referral and commencement of rehabilitation or invasive intervention. Delayed diagnosis has the potential to translate to increased sick days, increased demand on allied health services such as rheumatology, general practice and analgesia reliance.

Sleep quality, not duration, is related to lower mood, lower readiness-to-train and greater fatigue in elite Gaelic football athletes

Poster - Abstract ID: 240

Ms. Michelle Biggins (University of Limerick), Dr. Roisin Cahalan (University of Limerick), Dr. Helen Purtill (University of Limerick), Dr. Sean McAuliffe (University of Limerick), Dr. Kieran O'Sullivan (Aspetar Orthopaedic and Sports Medicine Hospital)

Sufficient sleep is essential for physical and psychological wellbeing in athletes. Limited research is available on the interaction between sleep and subjective wellbeing, in athletes across a competitive season. The objective of this study was to investigate the relationship between sleep and subjective wellbeing across a competitive season in elite Gaelic football athletes. Methods: Elite Gaelic football athletes recorded weekly subjective wellbeing measures, for 28 weeks of a competitive season. Sleep quality, muscle soreness, mood, readiness-to-train and fatigue, were collated a 7 point likert scale and sleep duration on a 4-point ordinal scale. Data from 20 athletes who provided measurements for at least 7 weeks were included in the analysis. Pearson correlations were used to examine associations between mean sleep and wellbeing measures over the season. Linear mixed regression models were used to analyse relationships between sleep and other wellbeing measures using the weekly data, where a random intercept was used to take account of the within-subject correlations. Results: Correlation analysis found sleep quality in athletes was associated with mood ($p=0.018$), readiness-to-train ($p=0.007$) and fatigue ($p=0.001$). Sleep duration was not found to be significantly associated with sleep quality or with other wellbeing measures. Linear mixed model analysis of the weekly training data found sleep quality to be significantly associated with mood ($p<0.001$), readiness to train ($p<0.001$) and fatigue ($p<0.001$) after taking account of within subject correlations. Conclusion: Sleep quality is related to common subjective wellbeing measures in elite team sport athletes. Sleep interventions focused on improving sleep quality, not just sleep duration may improve subjective wellbeing in elite team sport athletes.

Spiritual care in neonatology: analysis of emergency baptisms in an Irish neonatal unit over 15 years.

Poster - Abstract ID: 231

Dr. Fionnuala Caulfield (University Maternity Hospital, Limerick), Dr. Omolola Ihidero (University Maternity Hospital, Limerick), Ms. Marie Carroll (University Maternity Hospital, Limerick), Ms. Marie Hunt (University Maternity Hospital, Limerick), Mr. Desmond Mcauliffe (HSE), Dr. Roy Philip (University Maternity Hospital, Limerick)

Background: Emergency baptism remains an important emotional and spiritual element for some parents of critically ill infants in the neonatal intensive care unit. There is no published Irish data available as to which babies are baptised, their outcomes or the details of the service provider.

Aims: 1. To evaluate the outcomes and characteristics of newborn infants baptised over a fifteen-year period in an Irish university maternity hospital. 2. To analyse the trends over fifteen years based on the 'baptism registry' maintained. 3. To study the personnel who offered the emergency baptism. 4. To propose recommendations for an evolving multi-faith Irish population

Methods: In this retrospective study, all infants baptised in an Irish university maternity hospital over a fifteen-year period from 1st August 2001 until 31st July 2016 were included. Patients were identified from the 'baptism register' for the years 2001 -2016.

Results: 368 patients were identified and further information was available for 353. Emergency baptisms gradually declined over the 15-year period. 120 (32.6%) of infants were born at term and 207 (56.2%) were preterm. 19.3% of infants had congenital anomalies. 297 infants (80.7%) were baptised by a priest, 66 (17.9%) by a staff nurse, 1 (0.3%) by a doctor, 1 (0.3%) by a family member. Day of life of baptism varied from day 1 to 88 with a mean of 4.6 days. 118 (32.1%) babies died after baptism. The majority of babies baptised were preterm and low birth weight, with a predominance of extremely low birth weight (ELBW) infants. **Conclusion:** Emergency baptism remains an important element in the spiritual care of the critically ill infant. Maternity hospitals and Neonatal intensive units should have access to emergency baptism service or other equivalent 'spiritual blessings' as appropriate to the faiths followed by the family, especially in an emerging multi-faith Irish population.

Standard 12-month Dialectical Behaviour Therapy for adults with Borderline Personality Disorder in a public community mental health setting

Poster - Abstract ID: 184

Mr. Daniel Flynn (Health Service Executive), Dr. Mary Kells (Health Service Executive), Dr. Mary Joyce (National Suicide Research Foundation), Dr. Paul Corcoran (National Suicide Research Foundation), Mr. Conall Gillespie (National Suicide Research Foundation), Ms. Catalina Suarez (National Suicide Research Foundation), Ms. Mareike Weihrauch (National Suicide Research Foundation), Dr. Padraig Cotter (National Suicide Research Foundation)

Background: Dialectical behaviour therapy (DBT) is an intervention with a growing body of evidence that demonstrates its efficacy in treating individuals diagnosed with borderline personality disorder (BPD). Evidence for the effectiveness of DBT in publicly funded community mental health settings is lacking however. No study to our knowledge has been published on the effectiveness of a 12 month standard DBT programme, without adaptations, for individuals with BPD in a publicly funded community mental health setting. The main objective of the current study was to determine if completion of a 12 month DBT programme is associated with improved outcomes in terms of borderline symptoms, anxiety, hopelessness, suicidal behaviour, depression and quality of life.

Methods: Fifty-four adult participants with BPD completed the standard DBT programme across four sites in community mental health settings in the Republic of Ireland. Data collection was completed by the DBT therapist working with each participant and took place at eight week intervals across the 12 month programme. To explore the effects of the intervention for participants, linear mixed-effects models were used to estimate change utilising data available from all time-points.

Results: At the end of the 12 month programme, significant reductions in levels of borderline symptoms, anxiety, hopelessness, suicidal ideation and depression were observed. Increases in overall quality of life were also noted. In particular, gains were made during the first six months of the programme.

Conclusions: The current study provides evidence for the effectiveness of standard DBT in publicly funded community mental health settings. As participants were assessed at the end of every module, it was possible to observe trends in symptom reduction during each stage of the intervention. Despite real-world limitations of applying DBT in community settings, the results of this study are comparable with more tightly controlled studies.

Study of Paediatric Negative Appendectomy Rates, Pathologies, Radiology and Biochemistry at a Tertiary Care Centre, Ireland.

Poster - Abstract ID: 69

Dr. Donnchadh O'Sullivan (UHL), Dr. Sami Abd Elwahab (UHL), Dr. Claire Sharkey (UHL), Dr. Emma Kavanagh (UHL), Dr. Leonard Browne (UHL), Dr. Dearbhla Byrne (UHL), Dr. Aisling McCann (UHL), Mr. Ash Lal (UHL), Ms. Anne Merrigan (UHL), Prof. Aoife Lowery (UHL), Ms. Shona Tormey (UHL)

Introduction: The diagnosis of acute appendicitis is challenging in the paediatric population. The literature is relatively deficient in describing paediatric negative appendectomy (NA) rates and pathology.

Aims: To review literature for paediatric NA, identify local NA rates with regard to age, gender, histological diagnosis, and radiology.

Method: A systemic review was conducted using appropriate MESH terms and PRISMA guidelines. Inclusion criteria included paediatric studies (<16 years) that described NA rates, within the last five years. A simultaneous retrospective audit was undertaken to examine the histological and radiological records of paediatric appendectomies at UHL from 2010 to 2016.

Results: Of 723 initial sourced articles, 19 were included. The overall international mean rate for NA was 7.8%; males higher than females (9.08% vs 7.58%). Younger age was associated with NA: 15.35% in <5 years old versus 3.03% in 5-10 years. Our local UHL NA rate was 31.3% out of total 1325 paediatric appendectomies. The histology of NA showed pathologies other than inflammation including: lymphoid hyperplasia, fecolith and/or oxyuriasis. Interestingly 22.7% (n=301) had ultrasound scans (US). US was inconclusive in 81% (n=243). Biochemistry markers were analysed for diagnostic capabilities. Conclusion: NA was relatively common in UHL compared to the international figures. Considering signs like pruritus ani and eosinophilia could aid clinical diagnosis. US had very low sensitivity in this cohort, and CT was not rarely utilised. Considering CT in these patients may reduce NA rate. Further research into the predictive capabilities of the biochemical markers, as outlined in this study sample and early Paediatric Consultant involvement in this cohort may decrease the negative appendectomy rates at UHL.

The Association Between Coronary Dominance And The Risk Of Major Adverse Events Among ST Elevation Myocardial Infarction Patients A Single Center Experience

Poster - Abstract ID: 20

Dr. Mardi Hamra (University Hospital Limerick), Dr. Abdullah Abdullah (University Hospital Limerick), Dr. Hatim Yagoub (University Hospital Limerick), Prof. Thomas Kiernan (University Hospital Limerick)

Aims

Little is known with regard to impact of coronary dominance in ST elevation myocardial infarction patients within the Irish population. This study explored the relationship between coronary dominance and major adverse cardiovascular events including mortality within this cohort.

Methods and Results

210 patients from the STEMI database in University Hospital Limerick were retrospectively reviewed and coronary dominance identified on coronary angiograms. Database comprised of STEMI patients from 1/04/2011 to 29/04/2013. Patients were stratified into right dominant vs. Left and co-dominant groups. The primary outcome was the development of any major adverse cardiovascular events (MACE) within the study period after the initial presentation. These included death, acute coronary syndrome, stroke or heart failure during the follow up period. 169 (80%) were right dominant, 26 (12.3%) left dominant and 15 (7%) co-dominant. The study group of left and co-dominant circulations combined was 41 patients (19.5%). The overall MACE rates were notably higher in the right dominant group compared to left and co dominant, (21.3% vs. 19.5% respectively), $p < 0.0001$. Left and co-dominant circulations were significantly associated with higher odds of death [OR=4.41 95% CI (1.1-17.8)] even after adjusting for different potential confounders,

Conclusion In this single center study on STEMI patients in an Irish population left and co-dominant coronary dominance was associated with higher mortality risk post STEMI compared to right dominant circulation.

The change in receptor status, site and interval to Recurrence in Breast Cancer Recurrences within University Hospital Limerick.

Poster - Abstract ID: 236

Dr. Mary McCumiskey (University of Limerick), Dr. Fiona McConnell (University Hospital Limerick), Dr. Sami Abdelwahab (University Hospital Limerick), Dr. James Kennedy (University Hospital Limerick), Prof. Aoife Lowery (4i Centre for Interventions in Infection, Inflammation and Immunity, Graduate Entry Medical School, University of Limerick, Ireland), Ms. Anne Merrigan (University Hospital Limerick), Mr. Ashish Lal (University Hospital Limerick), Ms. Shona Tormey (University Hospital Limerick)

Introduction:

Breast cancer is a heterogeneous disease with several factors influencing its recurrence. Recent reports suggest that further genetic aberrations to dormant tumour cells might promote the recurrence process.

Aim:

We aimed to evaluate and compare changes in receptor profiles, site and interval to recurrence.

Methods:

A retrospective audit of breast unit records in the UHL was done to identify patients diagnosed with breast cancer recurrence in the period from 2010 to 2015. Variables evaluated included: receptor status, site of recurrence, and interval between recurrence and primary. Analysis was done using SPSS Version 22.

Results:

Of 1238 breast cancer diagnoses with a primary diagnosis between 2010 and 2015, 6.9% have subsequently had a biopsy proven recurrence of their breast cancer. The average time interval to recurrence was 30.83 months (Range 6-81 months). 30% of these patients displayed a change in hormonal receptor between their primary and recurrence site. Of those who had a change in receptor status, 50% of them was due to a change in Progesterone Receptor switching from positive to negative. Of all of the recurrences, 27% were local recurrences with the liver being the most common systemic site biopsied.

Conclusion:

Some of breast cancer recurrences exhibit phenotypical receptor profile change which might suggest an underlying genetic switch. Despite significant advances, there is still lack of understanding of breast cancer recurrence. Inadequate primary treatment, un-identified genetic factors and oncogenic interval genetic changes are thought to be among the risk factors.

The effectiveness and safety of platelet rich plasma intra-articular injections in the treatment of knee osteoarthritis: systematic review and meta-analysis of randomized controlled trials

Oral - Abstract ID: 130

Ms. Alaa Mustafa (Graduate Entry Medical School, University of Limerick), Ms. Monica Casey (NUI Galway), Prof. Christian Mallen (Keele University), Prof. Andrew Murphy (NUI Galway), Prof. Liam Glynn (Graduate Entry Medical School, University of Limerick.)

Background: Knee osteoarthritis is one of the most common joint diseases, resulting in pain and significant limitation of physical activity. Platelet-rich plasma is defined as an autologous concentration of human platelets in a small volume of plasma and some studies have shown efficacy in knee arthritis.

Objectives: To assess the effectiveness of platelet-rich plasma intra-articular injections when administered to patients with knee osteoarthritis, in terms of pain reduction and increasing mobility.

Search methods: We searched the Cochrane Central Register of Controlled Trials (CENTRAL) (latest issue), PubMed (up to 16/07/2017) and EMBASE (up to 18/07/2017). Language restriction to studies reported in English.

Selection criteria: We included published randomised controlled studies that assessed the effectiveness and/or safety of intra-articular PRP injections in treating knee osteoarthritis, with a minimum follow up of six months. Primary outcome measures were WOMAC and VAS questionnaires.

Main results: Six studies with 645 patients were included in our review. We compared the effectiveness of platelet rich plasma intra-articular injection to analgesia, exercise, HA and steroids injections in patients with knee osteoarthritis. Total WOMAC scores at up to 6 weeks, 3 months and 12 months after intervention, respectively, demonstrated statistically significant differences in favour of PRP intervention (MD -9.25, {95% CI -16.88, -1.62}, I^2 68%, p = 0.08), (MD -14.83 {95% CI 18.56, -11.10}, I^2 = 15%, p = 0.31) and (MD -14.83 {95% CI 18.56, -11.10}, I^2 = 15%, p = 0.31). In addition, significant improvement in VAS scores in the PRP group were also demonstrated (MD -2.65 {95% CI {-3.43, -1.87}}, I^2 23 %, p = 0.26).

Conclusion: Platelet rich plasma injections appears to offer significantly better clinical outcomes, and raises no major safety concerns when used in the treatment of knee osteoarthritis for up to 12 months post treatment.

The findings of transoesophageal echocardiogram before scheduled cardioversion in properly anticoagulated patients with persistent non-valvular atrial fibrillation

Oral - Abstract ID: 191

Prof. Thomas Kiernan (University Hospital Limerick), Dr. Aiste Zebrauskaite (University Hospital Limerick), Prof. Jurate Barysiene (Vilnius University Santaros Clinics)

Introduction: Adequate oral anticoagulants (OACs) therapy is recommended before cardioversion if atrial fibrillation (AF) lasts ≥ 48 hours. Additional transoesophageal echocardiogram (TOE) is often performed before scheduled direct current cardioversion (DCC) even after proper anticoagulation.

Aims: To assess diagnostic value of TOE in properly anticoagulated patients with non-valvular AF; to establish possible additional indications for TOE; to evaluate the incidence of left atrial (LA) thrombi in appropriately anticoagulated patients in daily clinical practice.

Methods: Retrospective data analysis of patients with non-valvular AF, properly prepared with OACs before DCC. Thromboembolic (TE), bleeding risks were assessed using CHA₂DS₂-VASc and HAS-BLED scores. Transthoracic echocardiogram and TOE were evaluated. TE complications during 30 days after discharge were assessed.

Results: Were selected 432 patients, aged from 22 to 89 years (mean 65.0 ± 11.5); 277 (64.1%) males, 155 (35.9%) females; 306 (70.8%) on warfarin, 126

(29.2%) on direct oral anticoagulants (DOACs). Mean CHA₂DS₂-VASc score 3.5 ± 1.5 . TOE was performed for 120 (27.8%), more frequently for patients on DOACs and for ones with III° LA enlargement.

TOE revealed LA thrombi in 7 (5.8%) patients. In warfarin and DOACs groups thrombi were revealed in 5 (7.0%) and 2 (4.1%) patients, respectively.

No thrombi in patients with normal left ventricular ejection fraction (LVEF); however, thrombi were found in 2 (6.1%) patients with slightly decreased LVEF, and in 5 (17.9%) patients with markedly decreased LVEF.

In patients with decreased LVEF thrombi in LA were found more frequently than in patients with normal and slightly decreased LVEF (17.9% vs 2.2%, $p=0.008$). CHA₂DS₂-VASc score of all 7 patients was ≥ 5 .

There were no TE complications 30 days after discharge.

Conclusions: The risk of LA thrombi in patients prepared for scheduled DCC in line with the guidelines is low. Higher risk of thrombi was present in patients with decreased LVEF ($\leq 40\%$), CHA₂DS₂-VASc ≥ 5 .

The Impact of Chronic Pain in Adolescence

Poster - Abstract ID: 137

Dr. Jenny Roche (University Hospital Limerick), Dr. Roy Gavin Stone (Dept. of Paediatrics, University Hospital Limerick), Dr. Anne-Marie Murphy (Dept. of Paediatrics, University Hospital Limerick), Prof. Dominic Harmon (Dept. of Anaesthesia & Pain Medicine, University Hospital Limerick)

Background: Chronic pain is prevalent among adolescents and negatively influences their quality of life. Furthermore, it may persist into adulthood. Multidisciplinary outpatient and intensive inpatient treatment has been shown to improve pain intensity and disability at this developmental stage.

Objectives:

1. To describe the inpatient and outpatient characteristics of an adolescent cohort with chronic pain,
2. To explore their past and present pain management programmes,
3. To highlight the impact of chronic pain at this developmental stage.

Methods: Data for this retrospective cohort (aged 12-19) study were obtained from the University Hospital Limerick Integrated Patient Management System (IPMS) and patient medical records were hand searched for the relevant information. Data was analysed using IBM SPSS Statistics version 22.

Results: A total of 21 patients (71% female) with chronic pain were identified from January 2016 through to February 2017. The mean age of these adolescent patients were 15.7 years. One of the most common presenting complaints and principal diagnoses was lower back pain. Comorbid diagnoses were common. Past and present pain management programmes included: assessment; therapeutic interview; education/self-management; exercise/physiotherapy/rehabilitation; pharmacology; psychology; pain intervention procedure and review. Chronic pain had a negative impact on patients general activities (notably school going), their enjoyment of life, mood; sleep and relationships.

Conclusion: Chronic pain is more prevalent in female adolescents and is complicated by a wide variety of comorbid conditions. These findings are consistent with recent literature. Different types of treatment example medical and psychological were used in the management of chronic pain in this adolescent cohort. This is in accordance with the biopsychosocial model which states that pain is caused by a complex interaction between biological, psychological and social variables.

The Opinions of Medical Professionals on Integrity in Medical Writing; From Professor to Medical Student

Poster - Abstract ID: 61

Dr. Siofra Flannery-McDermott (University of Limerick)

Introduction

Publications and medical literature are the primary method by which new research is communicated to medical professionals. It is for this reason that academic integrity is a fundamental concept. The term 'research misconduct' can include such breaches of publication ethics such as plagiarism, data fabrication, redundant publications, salami slicing of data and ghost authorship.

A literature search was conducted and there was a clear gap in the knowledge with regards to medical professional's opinion on maintaining integrity in medical literature.

Methodology and Methods

The aim is to conduct a cross-sectional, self-administered questionnaire investigating the opinions of medical professionals and students on integrity in medical writing, including appropriate sanctions for breaches in ethical behaviours. We also aimed to explore participant's awareness of guidelines and resources available.

Three pilot questionnaires were developed for our individual target groups; (1) Professors and Consultants, (2) Registrars, Senior House Officers and Medical Interns and, (3) Medical Students. These questionnaires were devised using a validated questionnaire.

Recruitment was to be conducted in University Hospital Limerick. Sample size would be determined based on initial analysis of pilot questionnaires.

Discussion and Conclusion

We hope to conclude whether Clinicians and students are aware of academic misconduct in medical literature. We also hope to investigate the knowledge of the participants with regard to ethical considerations in medical writing, either their own or those they have sourced and cited. Ultimately we aim is to use the information gathered to formulate a module in medical school training programme.

TheraPEP device contamination with *Stenotrophomonas maltophilia* in a child with cystic fibrosis

Poster - Abstract ID: 85

Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Ms. Neidin Bussmann (UL GEMS), Ms. Louise Collins (HSE), Ms. Noelle Power (HSE), Ms. Clare Lynch (HSE), Prof. Nuala O'Connell (UHL), Dr. Barry Linnane (Graduate Entry Medical School, University of Limerick. National Childrens Hospital, Crumlin, Dublin 12.)

There is increasing association between the opportunistic pathogen *Stenotrophomonas maltophilia* and pulmonary exacerbations in cystic fibrosis (CF). There has been further literature regarding approaches for surveillance of *S. maltophilia* in this patient population, potential prediction of clinical outcomes based on such monitoring and, in light of escalating incidence of multi-drug resistance, the potential benefit of early and appropriate antimicrobial treatment.

In response to an observation made by a nine-year-old patient with CF at his routine clinic visit that the plastic tubing of his positive expiratory pressure (PEP) therapy device (TheraPEP, Smiths Medical, Minneapolis, MN, USA) had become discoloured, microbiological analysis of swabs confirmed presence of *S. maltophilia*. While *S. maltophilia* has been identified in hospital-use devices such as ventilators, humidifiers and nebulizers used to deliver aerosolized therapy to CF inpatients, as well as hospital tap water and water used for bronchoscope flushing, there were no previous reports of isolation from portable home- and hospital-use devices. Detailed review of guidelines for nebulizer care by others reported that, against the guidelines of the Cystic Fibrosis Foundation, manufacturers sometimes advised use of tap water as a final step in rinsing respiratory equipment, when sterile water should be used. This instance of contamination may have occurred due to that practice.

PEP devices are ubiquitous in hospital CF care.

The detection of a potential CF pathogen in a patient's TheraPEP device raises the possibility that physiotherapy airway clearance adjuncts may themselves represent a source of airway infection.

Time for a paradigm shift in Paramedic education?

Poster - Abstract ID: 23

Mr. Frank Keane (UL GEMS Paramedic Studies), Mr. Mark Dixon (UL GEMS Paramedic Studies)

Introduction

Fanfare surrounds the ever-increasing extension of skills associated with being a paramedic. However, conventional didactic, protocol driven theologies remain during paramedic training. Transitioning to modern educational methodologies such as Problem Based Learning (PBL) has derived acceptance in peer health care professions. This abstract describes such a process with an undergraduate Paramedic cohort in the University of Limerick (UL) and prescribes alternatives for a new genesis in paramedic education.

Methodology

Willis et al (2003) documents a system using PBL methodology, which remains static in its delivery over the educational timeframe. UL Paramedic Studies have developed this further in an escalating format where students assimilate three stages of PBL development. Electronic cases are offered describing patient signs and symptoms, students then work via differential diagnosis, evidence based medicine and proposed treatment regimes to identify the morbidity and management plan. With familiarity, the complexity escalates as below;

1. Conventional case based format with drip fed information and development.
2. Video driven scene development and research.
3. Student driven cases without reference to external media.

Cases cover the range of the educational syllabus with required learning objectives achieved through critical thinking, assimilation of resource knowledge and sound group synergy.

Results

Post programme evaluation in the form of interviews, group discussion and satisfaction surveys demonstrates the overwhelming preference for PBL over conventional didactic lecture based formats. This is matched by improved Grade Point Average scores.

Conclusion

It is the opinion of the authors that a dynamic PBL model for Paramedic education facilitates Paramedic students in taking true ownership of their education. Comparison of didactic models versus PBL are akin to "*give a man a fish – feed him for a day, teach him to fish – feed him for life* (author unknown)"

TIMI 3 flow in STEMI patients loaded with Ticagrelor

Poster - Abstract ID: 199

Dr. Zia Ullah Jan (University of Limerick), Prof. Tom Kiernan (University Hospital Limerick)

BACKGROUND

Ticagrelor is a reversible oral P2Y₁₂ receptor inhibitor, provides faster, greater and more consistent platelet inhibition. The p2y₁₂ inhibitor is recommended as initial loading agent along with aspirin in STEMI patients. Whether Ticagrelor can recanalise the occluded vessel without any percutaneous intervention is not well documented. We looked into STEMI patients from our practice to see how many of those loaded with ticagrelor have TIMI 3 flow on initial angiography prior to any PCI.

Aim. This study Aimed to find out what percentage of STEMI patients loaded with Ticagrelor have TIMI grade 3 flow prior to any Percutaneous intervention.

MATERIAL and Methods

This retrospective observational study included STEMI patients presented to cardiology primary percutaneous intervention services in university hospital Limerick in 2016.

Hipe and heart beat data were used to identify patients with STEMI. patients charts were reviewed for required information especially on medication administration. All angiograms were reviewed for TIMI flow grading. Standard parametric multivariate analysis was performed. R-Commander GUI was used to analyse the data.

Results

Out of 224 patients 16 were excluded from study due to various reason mainly due to unsuitability for cath lab. Out of 208 patients 157 (75.48%) were loaded with ticagrelor and 31 (19.74%) had TIMI 3 flow. There were 163 (78.36%) males and 45(21.63%) females. Mean age was 64.42 years.

Conclusions In this small single centre study Ticagrelor showed good promising results. Larger studies are warranted and comparison with clopidogrel would give more interesting results.

Transfer of Tasks at University Hospital Limerick: Implemented or Not?

Poster - Abstract ID: 187

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Background:

The Health Service Executive (HSE) agreed to transfer four key tasks from Non-Consultant Hospital Doctors (NCHDs) to nurses in 2016¹. The study aimed to A. Identify the portion of NCHD tasks classified under the agreed Transfer of Tasks, B. Measure time taken for Interns-on call to complete Intravenous Cannulation (IVC) & Phlebotomy.

Methods:

A. Retrospective data was collected from three wards for September 2016.

Retrospective data was also collected from four additional wards in 1st May to 14th May 2017, 1st June to 14th June 2017 & 1st August 2017 to 14th August 2017.

Inclusion criteria: written requests in the Intern Job Book for 'IVC', 'Phlebotomy', 'First Dose Antibiotic Administration' and 'Patient Discharge'. Exclusion criteria: tasks not written in the book, illegible writing & verbal task requests.

B. Interns on-call were asked to time themselves undertaking IVC and Phlebotomy.

Results:

A. 1116 tasks were requested in September 2016 across three wards; total transfer of tasks ($n=413$); IVC 54% & Phlebotomy 44% were the most common requests.

555 tasks were requested for a two week period in May 2017 across four selected wards. 27.7% ($n=154$) were Transfer Tasks; IVC 50.6% ($n=78$) and Phlebotomy 49.3% ($n=76$) were the most common requests.

774 tasks were requested in June 2017 for the same wards. 31.1% ($n=241$) of total tasks were Transfer Tasks; IVC 61.4% ($n=148$) & Phlebotomy 38.6% ($n=93$).

603 tasks were requested two weeks in August 2017, 50.4% ($n=304$) were Transfer Tasks; IVC 26.1% ($n=158$) & phlebotomy 24.1% ($n=146$) B. Timing for IVC averaged 18.8 minutes ($n=50$) & 14.6 minutes per Phlebotomy ($n=44$). Taking 3.8 hours to complete during a 14-hour on-call period (27% of on-call time).

Discussion: The slow progress of this process negatively impacts not only the total on-call work burden for NCHDs, but adversely affects the overall efficiency of patient care. A scheduled re-audit is planned for the end of September 2017 with hopes for an increased number of nurses trained in the tasks and hence a reduction in the time spent by NCHDs.

Unusual clinical presentation of Renal Cell Carcinoma

Poster - Abstract ID: 229

Dr. Mohamed Osman (St John's Hospital, ULHG), Dr. Heather Holloway (St John's Hospital, ULHG), Dr. Con Cronin (St John's Hospital, ULHG)

Renal Cell Carcinoma is the most prevalent primary renal neoplasm in adults. Renal cell carcinoma with a venous tumor thrombus in the inferior vena cava has a poor prognosis. We illustrate a case of a renal cell carcinoma which was associated with significant tumor thrombus into the inferior vena cava in which the patient presented with unusual symptoms for renal neoplasm.

Case:

61 years old female, presented with four weeks history of abdominal pain and bilateral lower limb swelling. Clinical examination showed massively distended abdomen, dilated abdominal veins, positive shifting dullness, and bilateral lower limb edema. No signs of chronic liver disease. Cardiovascular and respiratory examination was unremarkable.

Blood tests showed a c-reactive protein 10.4, full blood count (white blood cells 7.9, neutrophils 5.2) hemoglobin 14.7, platelets 175. Liver function test (albumin 36.8, total bilirubin 26.0, direct bilirubin 4.3). Liver enzymes (alkaline phosphatase 143, alanine transaminase 27, gamma glutamyl transferase 91). Renal function test (creatinine 58).

Chest x-ray showed feature of chronic obstructive airway disease, otherwise unremarkable. Computed tomography scan of thorax, abdomen and pelvis with contrast, showed large right sided renal neoplasm and perinephric extension, with tumor thrombus extending into the inferior vena cava and proximally into the right atrium, and multiple low attenuation lesions in the inferior lobe of the liver and within the lungs raising possibility of metastatic disease.

During course of admission, she developed episode of desaturation of 92% on room air with computed tomography scan of pulmonary arteries turned to be negative for pulmonary embolism. Patient's case was discussed with different specialties including urology team, oncology and palliative team and the patient started immediately on therapeutic low molecular weight heparin, in addition to per rectal tyrosine kinase inhibitor (sunitinib), as surgical options was not recommended due to high risk. Patient eventually discharged home with regular follow up with oncology team.

"Patient heal thyself": a feasibility study of Platelet-rich plasma (PRP) therapy in primary care for knee osteoarthritis.

Poster - Abstract ID: 78

Prof. Liam Glynn (Graduate Entry Medical School, University of Limerick), Ms. Monica Casey (NUI Galway), Ms. Alaa Mustafa (Graduate Entry Medical School, University of Limerick.), Prof. Christian Mallen (Keele University), Prof. Andrew Murphy (NUI Galway)

Introduction

Platelet-rich plasma (PRP) is a concentrate of autologous blood growth factors which emerging evidence suggests has the potential to have a regenerative effect on certain body tissues. PRP has been shown to provide some symptomatic relief in early osteoarthritis (OA) of the knee and be at least as effective as intra-articular steroid injections for symptom control. The aim of this study is to explore the feasibility of using this novel approach in primary care to treat degenerative lesions of articular cartilage of the knee.

Methods: Patients with radiologically confirmed OA were recruited to the study and were consented. All participants received 3 injections of PRP four weeks apart. Self-reported clinical outcomes were evaluated before and after therapy (4 months). The following outcome measures were used in accordance with OMERACT guidelines. Pain and disability was measured using ICOAP questionnaire; Quality of life was measured using EUROQol (EQ-5D and EQ-VAS); and adverse events were measured using Adverse Event Forms at 8 weeks and 16 weeks.

Results: A total of 12 patients with radiologically confirmed OA received PRP therapy in primary care. The procedure consisted of approximately 25ml of venous blood collected and twice centrifugated at 1800rpm and 3500rpm for 5 and 10 minutes respectively. Significant improvements in pain and quality of life scores was demonstrated as well as attainment of patient goal-orientated outcomes. There were no significant adverse events reported.

Conclusions

Platelet-rich plasma therapy is a simple, low-cost and minimally invasive intervention which is feasible to deliver in primary care to treat degenerative lesions of articular cartilage of the knee. This therapy appears to have minimal associated adverse events. Further studies, particularly well designed randomised controlled trials are needed to understand the mechanism of action, outcomes and durability of effect.

**HEALTH SERVICES &
POPULATION HEALTH
RESEARCH**

A geo-statistical investigation of agricultural and infrastructural risk factors associated with primary verotoxigenic *E. coli* (VTEC) infection in the Republic of Ireland, 2008–2013

Poster - Abstract ID: 15

Dr. Jean O'Dwyer (University of Limerick), Dr. Paul Hynds (Dublin Institute for Technology), Dr. Coilín ÓhAiseadha (Health Service Executive), Dr. Una Fallon (Health Service Executive)

Ireland reports the highest incidence of verotoxigenic *Escherichia coli* (VTEC) infection in Europe. This study investigated potential risk factors for confirmed sporadic and outbreak primary VTEC infections during 2008–2013. Overall, 989 VTEC infections including 521 serogroup O157 and 233 serogroup O26 were geo-referenced to 931 of 18,488 census enumeration areas. The geographical distribution of human population, livestock, unregulated groundwater sources, domestic wastewater treatment systems (DWWTS) and a deprivation index were examined relative to notification of VTEC events in 524 of 6,242 rural areas. Multivariate modelling identified three spatially derived variables associated with VTEC notification: private well usage (odds ratio (OR) 6.896, $p < 0.001$), cattle density (OR 1.002, $p < 0.001$) and DWWTS density (OR 0.978, $p = 0.002$). Private well usage (OR 18.727, $p < 0.001$) and cattle density (OR 1.001, $p = 0.007$) were both associated with VTEC O157 infection, while DWWTS density (OR 0.987, $p = 0.028$) was significant within the VTEC O26 model. Findings indicate that VTEC infection in the Republic of Ireland is particularly associated with rural areas, which are associated with a ubiquity of pathogen sources (cattle) and pathways (unregulated groundwater supplies). The results from this study, along with future research, will aid in the development of more proficient disease surveillance and will subsequently facilitate the implementation of systematic, preventive public-health interventions.

A National Study of Life Stress, Psychological Well-Being & Child-Parent Relationship Quality in Children

Poster - Abstract ID: 63

Ms. Grace McMahon (University of Limerick), Dr. Stephen Gallagher (University of Limerick), Dr. Ann-marie Creaven (University of Limerick)

Background: The importance of social relationships for stress and health is well-established, with support from poorer quality relationships seen as less effective as buffering against stress. Further, social and close relationships are equally important for children's health. However, few studies have examined the *quality* of relationships as buffering against stress in children's emotional well-being, particularly parent-child relationships.

Methods: Secondary data analyses were carried out on the results of the Growing Up in Ireland survey. The study contains a nationally representative sample of young children approximately 9 years-old ($N=8568$) from across Ireland. Our independent variable was stressful life events (e.g. death of a parent), our mediator, social relationships (e.g. child parent closeness) and finally our dependent variable, psychological well-being.

Results: Regression analyses showed that stressful events was positively associated with negative emotional well-being ($p<.001$, $b=.86$), with higher life events predictive of poorer emotional well-being. Further, closeness of child-parent relationships acted as a significant mediator of this association ($p<.001$, $b=.03$), such that children reporting higher negative life events and closer relationships with their parents had better emotional well-being.

Conclusion: The results suggest that a supportive social relationship, particularly between parent and child, is an important mediator influencing children's psychological well-being. In particular, higher levels of closeness between children and parents are protective against stressors, thus reducing the negative impact of stress on psychological well-being.

A point prevalence survey of the current prescribing practices on inpatient Medication, Prescribing and Administration Records

Poster - Abstract ID: 18

Dr. Caroline Burke (Milford Hospice/University Hospital Limerick), Ms. Sile O'Connor (Pharmacy Department, University Hospital Kerry), Dr. Patricia Sheahan (Palliative Care Department, University Hospital Kerry)

Background:

Medication errors are a national and international safety issue. Quality improvement processes including audit and feedback, educational initiatives, improving medication charts and multidisciplinary working can raise standards. This is a hugely topical area, The National Medication Safety Programme have recently launched "Safermeds" and are charged with practical improvements to the way medicines are managed to deliver better more efficient care for patients and avoid harm. "Safermeds" have recently released templates for adult inpatient medication records and these are intended for use as an aid in the development or revision of local medication records.

Aims:

To examine the current adherence to kardex safety features and to explore areas for improvement in medication prescribing.

Objectives:

Collect 30 Medication charts, Use and excel audit tool to assess current adherence to safety features such as patient identifiers, weight, allergy status, generic prescribing etc. Create an educational intervention by presenting initial results to colleagues during a teaching session. Re-audit to assess response to intervention.

Standards for audit: Australian "Guide to auditing the NIMC 2014" and GMMMGG "Generic prescribing Guidelines"

Results:

Front page identifiers were present on all kardexs. Only 2 patients had eGFR documented and on reaudit 0. Just 2 MPARS had patient identifiers on each page& on reaudit 4. For the 6 patients who had positive allergy status documented, 4 had the specific reaction documented. One third of patients had weight recorded. 57% of patients were on DVT prophylaxis and 55% at re-audit. The prevalence of trade prescribing was at 44% on initial audit and 41.7% at re-audit.

Conclusion:

There is huge scope for improvement in prescribing practices with regard to both adherence to safety features and the culture of prescribing in trade names. Educational interventions to raise awareness may be beneficial in increasing safer prescribing.

Apparent treatment resistant hypertension in general practice: A cross sectional study of prevalence with consideration of morbidity, white coat hypertension, dosing and adherence

Poster - Abstract ID: 86

Dr. Peter Hayes (NUIG), Prof. Andrew Murphy (NUI Galway), Ms. Monica Casey (NUIG), Prof. Gerry Molloy (NUIG), Ms. Hannah Durand (NUIG), Prof. John Newell (NUIG), Prof. Liam Glynn (Graduate Entry Medical School, University of Limerick.), Prof. Eoin O'Brien (University College Dublin), Dr. Eamon Dolan (Connolly Hospital Dublin)

Background: For Treatment Resistant Hypertension (TRH), target BP levels need to be adapted to specific morbidity (e.g. diabetes), ambulatory blood pressure measurement (ABPM) should be used where available to exclude white coat hypertension, doses should be the optimal tolerated, and non-adherence and lifestyle should be examined. Most previous studies have not accounted for these 'pseudo-resistance' factors.

Research questions: We conducted a cross sectional study of the prevalence of apparent TRH in general practice, utilizing the appropriate ESH/AHA definition, and then accounted for possible pseudo-resistance in an attempt to see how low the true estimates for the prevalence of TRH may be.

Method: Forty university-research affiliated practices were invited to participate. We ran a standard ATC drug search identifying patients on any possible hypertensive medications and then searched individual patient's records. A standard BP cut-off of < 140/90 mm Hg was applied but < 130/80 mm Hg was utilised for patients with diabetes or CKD. The World Health Organisation-Defined Daily Dosing guidelines determined adequate dosing. A measure of adherence was whether patients were printed greater than nine repeat prescriptions within the last year.

Results: Sixteen practices participated (N=50, 878), and 646 patients were deemed to have aTRH. 19.0% had adequate medication dosing and 79.9% were deemed adherent. The prevalence estimate for apparent TRH was 10.0%, reducing to 9.0% when higher thresholds were applied for over eighties. Considering adequate dosing and adherence reduces prevalence rates to minimal levels.

Conclusions: Reviewing individual patient records results in a lower estimate of the prevalence of aTRH than has been generally previously reported. Consideration for individual patients of pseudo-resistance additionally lowers these estimates, and may be all that is required for management in the vast majority of cases.

Points for discussion:

Nonadherence, Treatment Resistant Hypertension, Prevalence, Drug-dosing, White Coat Hypertension

Appropriateness of Polypharmacy in Medical Outpatient settings

Poster - Abstract ID: 201

Dr. Ashraf Elgaali (St.Johns Hospital, University Limerick Hospital Group), Ms. Geraldine Creaton (St.Johns Hospital, University Limerick Hospital Group), Dr. Con Cronin (St. Johns Hospital, University Limerick Hospital Group)

Background: The term " Polypharmacy" is often linked with harm, adverse drug reactions and is often deemed inappropriate. The pill burden is significant and concerns are raised with reference to drug compliance, side effects, and adverse drug reactions especially in elderly population. However, the polypharmacy term may hide medication "cascade" and a new better definition maybe needed.

Methods: We conducted a prospective cohort analysis of 5 OPD Clinics February & March 2016; a detailed drug list was taken at each of the 5 clinics. Data collected was complete in 138; 94 patients were on more than three Medications (Meds). We analyzed these patients(94) in more detail with special reference to: age, number and type of medications per patient, principle diagnosis.

Results:Of the 94 Patients, on 3 Meds plus ,71 pts (75%) were on 5 Meds or more. 41 pts. were male. 52 patients (55%) were over the age of 70. Statins (53 /94), Proton pump inhibitor (49/94), ACE/ARB (46/94) and Aspirin/Plavix (45/94) were the principal drugs prescribed. 31 patients (34%) were Diabetic(DM), 37 patients (39%) were treated for cardiovascular disease. The average number of Meds used in DM was 7.2 per pt., and in Cardiovascular pts. was 6.9 per pt.

Conclusion: Areas of interest for further audit were identified in particular indications for high PPI usage. Areas for evaluation related to increasing use of key drugs (statins) particularly in DM population. "Multiple medication use" maybe more appropriate term than "Poypharmacy".Active constructive "De-prescribing " is very essential and is an area that needs further exploration.

Assessing the facilitators and barriers of interdisciplinary team working in primary care using normalisation process theory: An integrative review

Oral - Abstract ID: 114

Dr. Pauline O'Reilly (University of Limerick), Prof. Anne MacFarlane (University of Limerick)

Aim

Interdisciplinary team working is of paramount importance for the reform of primary care in order to provide cost effective and comprehensive care for patients and professional satisfaction for service providers. Little is known about the factors that promote and inhibit teamworking in practice. It is imperative to address this gap in knowledge in order to understand how these act as levers and barriers to its normalisation. This review examines interdisciplinary team working in practice, in primary care, from the perspective of service providers and analyses 1) barriers and facilitators to implementation of interdisciplinary teams in primary care and 2) the main research gaps.

Review Methods

An integrative review following PRISMA guidelines was conducted. Searches of ten international databases were conducted. Empirical papers (n=49), that provided data about at least two members of an interdisciplinary formal statutory team for the general population in primary care, were included for final analysis. Data were analysed following the principles of deductive Framework Analysis using Normalisation Process Theory (NPT). NPT describes four constructs known to impact on implementation processes: sense making, enrolment, enactment, and appraisal.

Findings and Conclusion

The literature is dominated by a focus on interdisciplinary working between physicians and nurses. Physicians play a key role in encouraging the enrolment of others in team working and in enabling effective divisions of labour. The experience of interdisciplinary working emerged as a lever for its implementation, particularly where communication and respect were strong between professionals. This review has (1) identified gaps in knowledge relating to sense-making, enactment and appraisal work among professionals and (2) highlighted that the vision for interdisciplinary team working needs to be backed by a funding model that enables team working and (3) there is much to be done to improve primary care professionals' knowledge of and trust in each other's work.

Association of Gout Control with reduced incidence of Kidney Failure in the UK Health System

Poster - Abstract ID: 209

Prof. Austin Stack (Graduate Entry Medical School, Health Research Institute, University of Limerick.)

INTRODUCTION AND AIMS: Recent studies implicate gout as a potential risk factor for kidney disease; however it is uncertain whether optimal control of gout confers clinical benefit. The aim of this study was to evaluate the association of gout control with progression to kidney failure in a national study. **METHODS:** This cohort study used primary care data from the UK Clinical Practice Research Datalink (CPRD) linked to national data on hospitalisation and mortality (England only). From 1/01/2000 to 31/03/2013 all adult (≥ 18 years) patients identified with gout (by clinical diagnosis or treatment with a urate lowering agent). Optimal gout control was defined as serum uric acid (sUA) $< 357 \mu\text{mol/L}$ and an absence of tophi or gout flares in the 12 months following gout diagnosis and was assessed among patients newly diagnosed with gout ("incident gout patients"). The principal outcomes were new-onset kidney failure, defined as either initiation of long-term dialysis or kidney transplant or stage 5 Chronic Kidney Disease, or progression to an estimated glomerular filtration rate (eGFR) of $< 10 \text{ ml/min/1.73m}^2$. Multivariable Cox regression provided hazard ratios (HRs) and 95% confidence intervals (CI) to compare the rate of kidney failure between patients with good control ("controlled gout") and those without ("uncontrolled gout"). Analyses were adjusted for age, sex, 12 medical conditions, Charlson comorbidity index, lifestyle factors, socioeconomic status, and medication use.

RESULTS: Accounting for baseline differences, patients with controlled gout experienced lower rates of kidney failure (HR 0.24, 95 % CI (0.06-0.98), or reaching a glomerular filtration rate (GFR) of $< 10 \text{ ml/min/1.73m}^2$ (HR 0.54, 95% CI (0.29-1.01) compared with controls (HR, 1.00 referent).

CONCLUSIONS: Optimal control of gout was associated with reduced risk of kidney failure. Future randomised clinical trials should test the efficacy of gout control strategies for the prevention of kidney disease progression.

Association of Serum uric acid with Death in the Irish Health System

Oral - Abstract ID: 234

Dr. Leonard Browne (Graduate Entry Medical School, University of Limerick, Health Research institute, University of Limerick), Dr. Arun Kumar (Graduate Entry Medical School, University of Limerick, University Hospital Limerick, Ireland), Dr. Gasim Ahmed (Graduate Entry Medical School, University of Limerick, University Hospital Limerick, Ireland), Dr. Sandy Fraser (University Hospital Limerick, Graduate Entry Medical School, Health Research Institute,), Prof. Austin Stack (University Hospital Limerick, Graduate Entry Medical School, University of Limerick, Health Research institute, University of Limerick)

Background: Hyperuricaemia is common in the general population and emerging evidence suggest strong biological and epidemiological links with several chronic diseases. The aim of this study was to evaluate the relationship of serum uric acid (SUA) concentrations with mortality in the Irish health system

Methods: We established a retrospective cohort of 128, 014 patients who had a SUA concentration recorded on first entry to the health system between 2005 and 2014. Data were extracted from clinical information systems in the Midwest and Northwest regions and linked with national mortality files. Patients were followed until death, lost to follow-up or December 31st 2014, whichever occurred first. Serum uric acid was modelled as a continuous variable and in quintile groups (1st < 233.7, 2nd 233.7-280, 3rd 280-326, 4th 327-386, and 5th > 386 $\mu\text{mol/L}$ respectively) with mortality. Multivariable models using Cox regression were adjusted for age, sex, location of medical supervision, and 5 clinical indicators of illness.

Results: There were 8,382 deaths overall with an overall crude death rate of 22.9 per 1000 person-years. In multivariable analysis, adjusting for age, sex, location of medical supervision, serum albumin, haemoglobin and estimated glomerular filtration rate (GFR), the adjusted hazard ratio (HR) for each 60 $\mu\text{mol/L}$ increase in SUA with mortality was, 1.04, (95% CI, 1.02-1.06), $P < 0.001$. However, on further inspection a u-shaped association was observed. The multivariable HR for each increasing quintile of SUA were 1.07 (0.97-1.18), 1.04 (0.94-1.15), 1.00 (referent), 1.07 (0.97-1.18), and 1.17 (1.06-1.28), respectively, with the highest mortality for patients occurring values > 386 $\mu\text{mol/L}$.

Conclusion: Serum uric acid is independently associated with mortality for patients within the Irish health system. The association is u-shaped with the highest risks for patients with threshold values > 386 $\mu\text{mol/L}$. Targeting of SUA with ULT may serve to extend patient survival.

Audit of Time in the Therapeutic Range, a measure of anticoagulation control

Poster - Abstract ID: 11

Dr. Thomas O'Halloran (UHL), Ms. Jane Conway (UHL), Mr. Oliver Power (UHL), Dr. Denis O'Keeffe (UHL), Ms. Carolyn Holt (UHL), Prof. Mike Watts (UHL)

Background: The introduction of novel oral anticoagulants, NOACs, has revolutionised the field of anticoagulation therapy. While warfarin remains the anticoagulation agent of choice in many countries, patients who are not achieving good INR (International normalised ratio) control on warfarin therapy have the option of transferring to a NOAC. Time in the therapeutic range (TTR) is used by pharmaceutical trials and guidelines as a measure of INR control over time.

Aims: The warfarin clinic measures the INR and advises on warfarin dose for over 1000 patients. The mean TTR of patients at the warfarin clinic was calculated to assess how INR control at this clinic compares to other clinics. The number of patients with TTRs outside of the target defined by NICE, 2014, was enumerated.

Methods: A retrospective audit of all INR tests performed by the clinic from June 2015 to July 2016 was conducted. 14,425 tests were processed offline using a bespoke computer program. TTRs were calculated for 872 patients using the Rosendaal method.

Results: The mean TTR of patients attending the clinic is 75% which is 10-20% higher than that reported in the major pharmaceutical trials. 233 patients, 27% of total should have their anticoagulation strategy reviewed according to NICE, 2014.

Conclusions: The mean TTR of the clinic is excellent. Despite this, a substantial number of patients have poor INR control as defined by the NICE guideline. Review of those patients with an option to transfer to a NOAC would further improve the INR control at the clinic.

Cardiovascular disease and risk factor control among patients with Chronic Kidney Disease in the Irish Health System

Poster - Abstract ID: 223

Dr. Gasim Ahmed (Graduate Entry Medical School, University of Limerick), Dr. Leonard Browne (Graduate Entry Medical School, University of Limerick), Dr. Wael Hussein (Graduate Entry Medical School, University of Limerick.), Prof. Austin Stack (Department of Nephrology, Department of Medicine, University Hospital Limerick; Graduate Entry Medical School, University of Limerick; Health Research Institute, University of Limerick)

Background:

Cardiovascular (CV) disease is a serious cause of mortality and morbidity among patients with chronic kidney disease (CKD). Control of known CV risk factors is essential in reducing major events. The aim of this study was to determine the prevalence of major CV conditions in CKD and evaluate risk reduction strategies.

Methods:

A multicentre study of patients with CKD (n=530) was conducted at specialist nephrology clinics in Ireland. A standardized data collection tool was used to record clinical information. Kidney function was assessed with standardised creatinine measurements and glomerular filtration rate (GFR) was estimated using the CKD-EPI equation. Prevalence of major CV conditions was determined and compared across CKD stage and the proportion of CKD patients with good CV risk factor control ascertained. Comparisons across groups were assessed using chi-square.

Results:

The prevalence of CV conditions increased significantly with worsening stage of CKD; stages 1-2, 3, and 4-5; for coronary disease (9.1%, 15.8% and 23.9% respectively, $P < 0.01$), and for peripheral vascular disease (3.3%, 10.2% and 10.9%), respectively, $P < 0.05$. Excellent blood pressure control ($< 130/80$ mmHg), was achieved in 44.3% overall and this was similar across all CKD stages. Among diabetics, the proportion with a glycosylated haemoglobin $< 7\%$ decreased from 85% to 55.6% respectively, $p < 0.01$. Use of cardioprotective medications was low, although rates increased with each CKD stage, (aspirin 25%, 34% and 54% respectively, $P < 0.005$; and statins, 25%, 36.3% and 40.4% respectively, $P < 0.05$). Use of ACE or ARB treatment decreased (43.1%, 43.9% and 34% respectively), while rates of albuminuria increased with CKD stage (from 37% to 80.4%, $p < 0.001$).

Conclusion:

Major CV conditions are common in CKD, and increase with worsening kidney function. Optimal control of known and emerging CV risk is low. Greater implementation and adoption of CV risk reduction strategies are warranted.

Chronological Variation in STEMI in Ireland

Poster - Abstract ID: 28

Mr. Napohn Chongprasertpon (Graduate Entry Medical School, University of Limerick.), Dr. JJ Coughlan (University Hospital Limerick), Prof. Tom Kiernan (University Hospital Limerick)

Background:

Day-of-the-week and circadian variation in STEMI incidence has been reported. Studies found the "weekend effect", higher 30-day mortality for patients admitted on the weekend was not present for STEMI patients treated with primary percutaneous coronary intervention (PPCI).

There is currently no published data on day-of-the-week or circadian variation in presentation of STEMI patients in the Republic of Ireland. Such information would benefit pre-planning regarding staffing.

Aims:

To analyse for day-of-the-week or circadian variation of STEMI incidence in our centre. To analyse for association between one-month mortality and weekend/weekday presentation and between one-month mortality and off/in-hours presentation.

Methods:

Retrospective study of 881 STEMI patients treated with PPCI at our centre from 2012 to 2016. Day-of-the-week data was recorded for 877 patients. Time of presentation data was recorded for 870 patients. Off/in-hours data was recorded separately in the STEMI database and was available for all patients. Analysis of continuous variables were performed using the Independent Samples t-Test and categorical variables using Pearson's Chi-Squared test. In addition to statistical analysis Day-of-the-week and circadian data was displayed in graph form. Ethical approval was received prior to commencing this study.

Results:

The rate of STEMI from 2300 to 0759 hours was less than 0800 to 2259 hours ($P < 0.001$). No association was found between one-month mortality and weekend/weekdays presentation ($P = 0.81$) or off/in-hours presentation ($P = 0.86$). Percentage one-month mortality within the weekend group was 4.8% and within the off-hours group was 4.6%.

Discussion:

Our weekend (4.8%) and off-hours (4.6%) one-month mortality were less than the national 2014 crude in-hospital mortality rate for STEMI (5.9%).

Conclusions:

Chronologically, fewer patients presented between 11pm and 8am. This has important ramifications regarding staffing.

We found no evidence of a 'weekend effect' with respect to mortality in STEMI patients presenting to our centre. This is reassuring, indicating our patients receive consistent care.

Clustered Interventions to Reduce Inappropriate Duplicate Laboratory Tests in an Irish Tertiary Hospital

Poster - Abstract ID: 65

Mr. Hugh Brady (HSE), Ms. Laura Piggott (University of Limerick), Dr. Suzanne Dunne (UL GEMS), Prof. Nuala O'Connell (UHL), Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.)

Background

There is increasing emphasis on understanding the rate and avoidable costs, of inappropriate laboratory testing in hospitals, especially associated with duplication of tests following transfer of patients from one hospital to another. While studies of inappropriate testing have been reported previously, there are no published data relevant to Ireland.

Aims

To determine the baseline rate of inappropriate testing for a subset of clinical parameters, specifically, full blood counts (FBC), biochemistry profiles (Bio) and coagulation (Coag) screens for geriatric patients transferring to and from University Hospital Limerick (UHL). Prospective pilot-scale implementation of five clustered interventions, and assessment of their effect.

Methods

Baseline testing levels were determined between October 2013 and January 2014. A patient survey was conducted to evaluate patient awareness of the blood tests they underwent. Five interventions were trialled sequentially each month between January and May 2014. These included: educational poster, intern training, presentations and communication to consultants; automated prompt in the Lab Information Technology system; highlighting of patient survey results to medical staff; inclusion of laboratory test details on patient transfer document; patient booklet promoting empowerment. Impact was assessed by determining rates of inappropriate laboratory testing monthly, and associated actual cost reductions were calculated.

Results

Approximately two-thirds of inpatients were unaware of why they underwent blood tests. Baseline rates of inappropriate testing for FBCs, Bio profiles and Coag screens were 29%, 29% and 12%, respectively for patients transferring from UHL and 58%, 57% and 45%, respectively, for patients transferring to UHL.

Conclusion

The interventions resulted in sustained reduction in rates of inappropriate testing by May 2014. Extrapolated cost reductions exceed two million Euro annually. The most effective intervention involved staff education.

Coming of Age in Ireland - The Twilight Zone!

Poster - Abstract ID: 99

Dr. Bronwyn Power (University Hospital Limerick), Dr. Peter O'Reilly (University Hospital Limerick), Dr. Roy Gavin Stone (UHL), Prof. Clodagh O'Gorman (University Hospital Limerick), Dr. Anne-Marie Murphy (UHL)

Background and Aims

Adolescence is a transitional period of physical, emotional, cognitive, and behavioural development that can bring curiosity and opportunity, but also angst and upheaval.

'Coming of age' presents a myriad of challenges to the modern Irish teenager. In the era of 'Snapchat' and 'Instagram', 'Sexting' and 'Tinder', the ubiquitous presence of social media in the lives of Irish adolescents has amplified age-old peer pressures. Ireland has the 4th highest suicide rate in Europe amongst adolescents – a stark and powerful reminder that further investment in adolescent health and well-being is urgently required. Our objective was to describe the healthcare needs of patients inhabiting "the seventh age of childhood" in our region with a view towards workforce and infrastructure planning for their future.

Methods: The study period was taken as the 10 year time-frame between 01/07/2006 and 01/07 2016. The Study cohort consisted of patients aged 14-16 years who accessed healthcare in our hospital group during that study period. Hospital electronic databases were used to collate data on demographics, diagnoses, duration of hospitalisation, type of inpatient ward and specialty of admitting Consultant.

Summary of Results: An average 6.5 beds were used per day for this cohort. The average length of stay was 2.1 days. There were 10, 992 hospital admissions and 41, 456 outpatient appointments. Only 17% of patients were admitted to age appropriate Paediatric wards . Only 11.3% of our cohort were admitted under the care of a Paediatrician.

Conclusion: The Irish healthcare agenda needs to be advanced to ensure the highest attainable standards for health and wellbeing for this valuable, yet vulnerable generation.

Further investment will help shape the fledgling discipline of 'adolescent health' in Ireland.

'There is in every child at every stage a new miracle of vigorous unfolding.'

Erik Erikson (1902-1994)

Communication between Primary and Secondary Care Physicians: An Evaluation of Referral and Discharge Letters

Oral - Abstract ID: 30

Ms. Elsa Dinsdale (University of Limerick), Prof. Ailish Hannigan (University of Limerick), Ms. Jane O'Doherty (University of Limerick), Dr. Ray O'Connor (University of Limerick), Dr. Andrew O'Regan (University of Limerick)

Background: Accurate transfer of patient information in referral and discharge letters enables better communication between primary and secondary care and patient outcomes.

Objective: To evaluate the quality and content of referral and discharge letters using patients' medical records in an Irish general practice setting.

Methods: All general practices affiliated with the University of Limerick Graduate Entry Medical School (GEMS) (n=72 practices) were invited to participate. Medical students on placement used practice software functions to generate a random sample of 100 adults aged over 50 years to examine consults between 2013-2015. The content of referral letters from general practices and hospital discharge letters were evaluated against current national guidelines. Data from participating practices was collated and descriptive statistics were performed. Ethical approval for the study was granted from the Irish College of General Practitioners Research Ethics Committee.

Results: A total of 70 clinical practices participated in the study. Data from 3348 referral letters and 2468 discharge letters were analysed. Most referral letters included the reason for referral 3262 (97.4%), history of complaint 3005 (89.8%) and examination findings 2648 (79.1%). The most frequently omitted data in referral letters related to the primary care management up to the point of referral 2180 (65.1%). Evaluation of discharge letters revealed that information pertaining to the hospital course, such as investigations 1806 (73.3%), results 1729 (70.0%) and follow-up plan 2093 (84.8%) were generally included. Omissions in discharge letters related to medication changes 746 (30.2%) and medication lists 810 (32.8%).

Conclusion: Most essential patient information was included in referral and discharge letters. The categories of data most likely to be omitted in both referral and discharge letters related to therapeutic management and medications.

Comparative injury and biopsychosocial traits of elite ballet, contemporary and Irish dancers

Poster - Abstract ID: 55

Dr. Roisin Cahalan (University of Limerick), Ms. Edel Quin (Trinity Laban Conservatoire of Music and Dance), Dr. Orfhlaith Ni Bhriain (University of Limerick), Dr. Kieran O'Sullivan (Aspetar Orthopaedic and Sports Medicine Hospital)

Injury in elite dance is prevalent and associated with several biopsychosocial factors. However, comparisons between, and within, various genres are problematic. This study used uniform assessment instruments to assess elite ballet, contemporary and Irish dancers to develop comparative biopsychosocial profiles between genres, and to identify factors associated with pain/injury.

Elite ballet (n=14), contemporary (n=30) and Irish dancers (n=27) were screened using several subjective and objective tools to establish baseline biopsychosocial characteristics. Subjects provided information on their pain/injury history over the previous year. Genre-specific characteristics were compared using descriptive methods and one-way ANOVA, with Bonferroni post-hoc analyses. Sixty eight subjects were allocated to either a Less Pain/Injured (LPI) (n=29) or More Pain/Injured (MPI) (N=39) group, based on the frequency of pain/injury, and number of dance days lost, over the previous year.

Ballet dancers demonstrated significantly better balance ($p<0.001$), cardiovascular fitness ($p=0.046$), hamstring flexibility ($p<0.001$), and trunk muscle endurance ($p<0.001$) than the other genres, but had a significantly lower level of harmonious passion for dance ($p=0.010$). Contemporary dancers had significantly higher levels of catastrophizing ($p=0.031$) than the other genres, and reported significantly more subjective health complaints than Irish dancers ($p=0.013$). Contemporary dancers also reported significantly poorer sleep ($p=0.017$) and less energy ($p=0.018$) than the other genres. There were no significant differences in the biopsychosocial characteristics of the LPI and MPI groups, apart from a higher number of affected body parts in the MPI group ($p=0.004$). This study provides valuable insights into the similarities and differences of the biopsychosocial profiles of dancers from multiple genres, thereby highlighting areas that may be appropriate for common screening approaches across genres. This study also supports previous findings regarding the incidence, diagnoses and bodily location of pain/injury in dancers. An ongoing prospective study of these subjects may provide further insights into causes of pain/injury in these genres.

Cost-Effectiveness of Infant Feeding Modalities for Mothers in Canada Living with HIV: A Health Economic Modelling Study

Poster - Abstract ID: 71

Ms. Reyhaneh Keshmiri (University of Limerick), Dr. Peter Coyte (University of Toronto), Dr. Audrey Laporte (University of Toronto), Dr. Prameet Sheth (Queen's University), Dr. Mona Loutfy (University of Toronto)

Background: We determined whether exclusive breastfeeding (EBF) or exclusive formula feeding (EFF) is the more cost-effective approach when a mother with HIV, living in Canada, is taking antiretroviral therapy (ART) and has full virologic suppression. Current Canadian guidelines recommend that mothers with HIV practice EFF, contrasting the updated World Health Organization (WHO) guideline, which recommends that mothers with HIV should breastfeed for at least 12 months while supporting ART adherence. There remains expert disagreement on whether the WHO recommendations should be adopted in high-income countries. Those against indicate that zero risk of infant transmission from breastfeeding is acceptable in high-income countries. Those in favour, indicate that the true risk of HIV transmission from EBF is negligible and that there are immunologic and social benefits to EBF that are being overlooked. Our cost-utility analysis takes into consideration the cost of EFF and EBF as well as the infant's utilities assigned to clinical states associated with EFF and EBF, aiming to inform practices in high-income countries.

Methods: A micro-simulation model was developed to estimate lifetime costs and effectiveness (i.e. infant's quality-adjusted life years [QALYs]), if his/her mother with HIV was on ART with full virologic suppression and EBF or EFF. The model was developed from the perspective of the Ontario Ministry of Health. Uncertainties related to model parameters were evaluated using one-way and probabilistic sensitivity analyses.

Findings: In comparison to EFF, EBF was the dominant feeding modality (i.e. less costly and more effective) yielding cost-savings of \$13,812.49 per additional QALY. Neither one-way nor probabilistic sensitivity analyses altered the conclusions.

Interpretation: Despite the small risk of HIV transmission, EBF was more cost-effective than EFF. These findings merit review of current infant feeding guidelines for mothers with HIV living in high-income countries.

Does early introduction of food allergens protect against the development of food allergy? A systematic review

Poster - Abstract ID: 68

Ms. Gillian Quinlan (University Hospital Limerick), Dr. Debbi Marais (University of Warwick), Dr. Mark-Alexander Sujan (University of Warwick)

Introduction

The time at which infants are first given potential food allergens such as egg and peanut, may impact on whether or not they develop food allergy. It was previously widely believed that delaying the introduction of common food allergens protected against developing allergy to these foods. Recent studies, however, suggest that earlier introduction of allergens promotes tolerance and reduce the development of food allergy.

Aim

The aim of this systematic review was to determine whether the early introduction of common food allergens in infancy reduces the risk of developing allergy to those foods.

Methods

All primary study designs investigating the impact of the timing of the introduction of food allergens were eligible for inclusion. The food allergens included were cow's milk, egg, peanut, fish, wheat, tree nuts, soy and shellfish. MEDLINE, EMBASE, CENTRAL and OpenGrey were searched without date or language restrictions. A second reviewer screened a 20% sample of titles and abstracts and full text articles for quality assurance. Risk of bias was assessed using the Cochrane Collaboration Tool and the Newcastle-Ottawa Scale.

Results

In total, 796 records were identified. Twenty of these met full inclusion criteria, which included eight randomised controlled trials and 12 observational studies.

Early introduction of peanut between four and 11 months to infants at high risk of food allergy was associated with a reduced risk of peanut allergy. Early introduction of egg from four to six months in infants at high risk of food allergy also reduced the risk of egg allergy. There was no association between the time of introduction of cow's milk, fish, wheat, tree nuts, soy or shellfish and the development of allergy or sensitisation to those foods.

Conclusion

The introduction of peanut and egg at four months may be of benefit to infants at high risk of food allergy.

Effectiveness of a simple Educational Programme in improving the quality of Radiological Requests at a Tertiary Teaching Hospital

Poster - Abstract ID: 49

Dr. Gasim Ahmed (University Hospital Limerick), Dr. Sami Ahmed (University Hospital Limerick), Prof. Austin Stack (Graduate Entry Medical School, University of Limerick. National Childrens Hospital, Crumlin, Dublin 12.)

Background:

Incompletely filled radiology request forms are a common problem in radiology departments and may delay investigation and appropriate patient management. The Royal College of Radiologists mandates that requests should be complete and legible to avoid misinterpretation. We assessed the completeness and quality of radiological requests in University Hospital Limerick emergency department (UHL-ED).

Methods: Retrospective review of 200 consecutive x-ray requests were conducted at UHL-ED on March 2017. Data were recorded on the presence /absence of clinical details, differential diagnosis, and clinical question to be addressed. Data was collected using a standard data collection form and results were benchmarked against national standards. A targeted education strategy was developed and implemented via one-to-one and small group discussions. A follow-up study was conducted in May and July 2017, to determine its effectiveness.

Results: The primary audit found that only 17% of requests met the standard. In 20% of requests, there were deficiencies in the history, 67% lacked relevant clinical signs, and 45% had no explicit or implicit question. 91% of all radiological requests were generated by physicians within the ER. ED registrars, SHOs, interns and consultants were responsible for 49% 34%, 15% and 2% of incomplete requests, respectively (P-value<0.001). Following the intervention, follow-up audits at 8 and 12 weeks (n=100 requests each time), found that the proportion of requests meeting the standard under assessment had increased to 88% (P< 0.01 vs baseline) and 92% (P<0.01 vs baseline) respectively.

Conclusion: Deficiencies in the quality of radiological requests are common in tertiary referral hospitals. However, simple targeted education programmes are effective in improving quality to optimise patient management.

Financial analysis of Carbapenemase Producing Enterobacteriaceae acquisitions post-infection control cohort ward introduction in an Irish tertiary hospital

Poster - Abstract ID: 90

Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Prof. Nuala O'Connell (UHL), Dr. Lorraine Power (HSE), Mr. James Powell (HSE), Ms. Patricia Treacy (HSE), Ms. Barbara Slevin (HSE), Ms. Maureen O'Hara (HSE)

The emergence and spread of carbapenemase producing Enterobacteriaceae (CPE) is a clinical and public health concern both nationally and internationally. University Hospital Limerick (UHL) had the first documented case of CPE in Ireland in 2009 and since then the number of new cases has risen exponentially year on year since 2013, accounting for 53% of the total national burden in 2015.

A quality improvement (QI) project was undertaken with the aim of improving the patient's experience at UHL through the reduction in newly identified CPE cases from 27 (the total for the first 6 months in 2015) to 13 for the first 6 months of 2016.

Multifaceted approaches were utilised to review all aspects of CPE management from a Quality Improvement perspective including a financial analysis of costs related to a newly detected CPE patient during the study period.

All newly identified CPE patients, for the first 6 months of 2015 and 2016, were included in the cost analysis. Their acute episode of care was mapped and costs calculated.

Summary outcomes are that in 2015, the 27 patients identified generated costs of €1,375,022 (or €2,902 per night in additional costs) for their treatment. This does not include 473 lost Hospital Bed Nights attributable to patients' extended stay. In 2016, the 16 patients identified generated €682,086 in additional costs. As per 2015, this does not include 168 lost Hospital Bed Nights.

The financial costs calculated at UHL have been shared with the National Irish CPE Taskforce in order to assist with the national strategy for the control of multi-drug resistant organisms including national capital funding requirements to improve the infra-structure of Irish Healthcare facilities.

General Practice Quality Assurance Initiative.

Poster - Abstract ID: 103

Dr. Aidan Culhane (U), Dr. Patrick O'Dwyer (UL)

Context:

This project describes a quality assurance initiative of general practices that participate in the education of medical students

There are a number of reasons why it is important to access quality assurance of general practice's that teach medical students, chief amongst these would include the following:

- To ensure a similar standard of teaching and educational activity occurs across all general practice teaching sites.
- To provide evidence to the host institution and other external agencies that the educational standards in teaching practices are sufficient and appropriate to meet current education criteria for teaching medical students.
- To help GP tutors to maintain and enhance their teaching skills.

Methods:

A literature review of previous quality assurance initiatives in relation to general practices that teach medical students was performed. Information gained from this process was then compared with host institutions own criteria for teaching general practices and a set of criteria plus a process by which teaching general practices would be assessed was devised.

Results:

Nearly 100% of teaching practices had the correct teaching facilities e.g. own room for the student, own computer, internet access etc. Suggested teaching methods e.g. parallel consulting, as advised by the Department of General Practice were carried by 100% of practices. Use of the two way feedback form and the GP/Student manual was poor. GP tutors requested more regular visits from the GP teaching staff as well as more guidance on content for formal tutorials so that a consistency teaching approach could be achieved.

Conclusion:

To our knowledge this was the first quality assurance initiative on an extended clinical placement i.e. greater than 12 weeks, in a general practice. The knowledge gained will lead to a more inclusive standard setting process for teaching medical students in general practice settings.

Geographical Distribution of STEMI Incidence in Limerick City

Poster - Abstract ID: 59

Mr. Napohn Chongprasertpon (Graduate Entry Medical School, University of Limerick.), Dr. JJ Coughlan (University Hospital Limerick), Prof. Tom Kiernan (University Hospital Limerick)

Background:

Prior to our study there was no data available on the geographical distribution of STEMI incidence in Limerick City. Identification of geographically susceptible subgroups would be of benefit for EMS staff in preparing to manage the condition. It may also be of benefit for effective risk factor prevention, patient information campaigns and management in public health.

Aim:

To analyse for geographical distribution of STEMI incidence in Limerick City.

Methods:

Observational retrospective study of 881 STEMI patients treated with PPCI at our centre from 2012 to 2016. Geographical incidence of STEMI was organised into map form using area information from the patients' addresses. The map was created using Adobe Photoshop Version 8. Ethical approval was received prior to commencing this study.

Results:

Within Limerick City, the Castletroy area had the highest incidence of STEMI at 14 STEMIs. There were also high STEMI incidences in the Garryowen, Dooradoyle, Raheen and Kennedy Park areas with 12, 8, 6 and 6 STEMIs respectively in these areas. The Caherdavin, Caherdavin Park, Caherdavin Heights and Ennis Road areas are in close proximity and had a combined incidence of 14 STEMIs. The geographical distribution of STEMI patients presenting to our centre was wide with patients from around Ireland, Europe, and the rest of the World.

Discussion:

Geographical distribution of STEMI incidence for Limerick City more closely reflects the location where the STEMIs occurred than the distribution for patients from further areas. The geographical data for the rest of Ireland, Europe and the World provides a rough indication of the diverse areas patients come from and may be of use when considering planning of healthcare resources such as medical interpreters.

Conclusion:

There was a range of STEMI incidence for different areas in Limerick City. This has ramifications for EMS staff.

GPs and research involvement: Barriers, motivations and strategies to enhance research capacity

Poster - Abstract ID: 117

Ms. Jane O'Doherty (Graduate Entry Medical School, University of Limerick.), Dr. Ray O'Connor (Graduate Entry Medical School, University of Limerick.), Prof. Walter Cullen (University College Dublin), Dr. Geoff McCombe (University College Dublin), Dr. Aidan Culhane (Graduate Entry Medical School, University of Limerick.), Dr. Patrick O'Dwyer (Graduate Entry Medical School, University of Limerick.), Prof. Liam Glynn (Graduate Entry Medical School, University of Limerick.), Dr. Andrew O'Regan (Graduate Entry Medical School, University of Limerick.)

Background: General practitioners (GPs) have been involved in partnership with hospital colleagues that have impacted guidelines and health outcomes for the general population. GPs recognize the need for research but lack of time is the biggest barrier to research involvement.

Aim: To identify the barriers to GPs research involvement, their views of research and what strategies exist that will encourage GPs to engage with research in the future

Design & Setting: All GPs associated with the Graduate Entry Medical School (GEMS) in the University of Limerick were eligible. GPs were contacted to take part in the study via email by the principal researcher in October 2016. Of the GPs who responded, a convenience sample was selected until data saturation was reached.

Methods: Individual semi-structured interviews, phone and Skype interviews were conducted from December 2016 to March 2017. Data was analysed thematically.

Results: 22 GPs were included in this study. GPs described lack of time, resources and research skills as barriers to their research involvement. GPs noted that they valued research in medicine and how it has affected their practice. Improving relationships between GPs and GEMS and the development of research networks were recognised as strategies to improve future research involvement.

Conclusion: This study highlights the need for the development of a research network and collaboration between GPs. Improving the relationship between GPs and GEMS will encourage future research by GPs and future clinicians.

Groundwater as a source and pathway for antibiotic-resistant infection in the Republic of Ireland.

Oral - Abstract ID: 14

Dr. Jean O'Dwyer (University of Limerick), Dr. Paul Hynds (Dublin Institute for Technology), Prof. Catherine Adley (University of Limerick), Dr. Michael Ryan (University of Limerick)

Antibiotic resistant organisms and genes are now acknowledged as significant emerging aquatic contaminants with potentially adverse human health impacts. The current study is an environmental health investigation on the presence of antimicrobial-resistant (AR) bacteria (*E. coli*) in Irish groundwater, and the role of anthropogenic and natural drivers on levels of resistance. Antibiotic susceptibility testing was carried out on groundwater-derived *E. coli* isolates (N = 125) against a panel of commonly prescribed human (N = 13) and veterinary (N = 8) therapeutic antibiotics. Geo-spatial data extraction and geo-statistical analyses were employed to elucidate the sources and transport mechanisms associated with antimicrobial presence in groundwater. Resistance to the human panel of antibiotics was moderate (21.4%) with the most frequently occurring resistance phenotypes associated with 1st/2nd generation broad spectrum antimicrobials. Highest levels of resistance were associated with the penicillins, while notable levels of resistance were found among the fluoroquinolones. In contrast, high levels of resistance to veterinary antibiotics were found; all isolates presented resistance to >1 veterinary antibiotic, with high levels of resistance (93%) found among the aminoglycosides. Geostatistical modelling indicates a significant association between the presence of both human AR (p = 0.011) and Multiple Antibiotic Resistance (MAR) (p = 0.002) and Domestic Waste Water Treatment Systems (DWWTs) reliance, indicating that regions characterised by a higher density of septic tanks are associated with the presence of AR *E. coli*. Furthermore, a significant association was found between households comprising children <5 years and the presence of both human AR (p = 0.022) and MAR (p < 0.001). Results also indicate a significant relationship (p = < 0.001) between livestock density and the prevalence of veterinary MAR. This study presents evidence of the presence and extent of AR in *E. coli* isolates the Irish groundwater environment, which represents the primary daily source of drinking water for ≈750,000 people.

Growth Assessment in the General Paediatric Outpatient Setting: An Irish Experience

Poster - Abstract ID: 176

Dr. Allan Jenkinson (General Paediatric Department, UHL), Dr. Barry Linnane (Graduate Entry Medical School, University of Limerick. National Childrens Hospital, Crumlin, Dublin 12.)

Introduction

Growth assessment is the single most useful tool for defining health and nutritional status at both the individual and population level. Growth charts are a universal standard used for growth assessment in paediatrics, enabling comparison with population based normative data and permitting identification of trends over time. There is little information on how often growth parameters are currently documented in hospital settings. Two recent studies have shown that rates of documentation of growth parameters in the teaching hospital setting were unacceptably low.

The aim of this retrospective study was to ascertain rates of growth assessment in children in an Irish healthcare context and to define the frequency of placement of growth data on appropriate growth charts.

Methods

A prospective audit of 200 charts of children from a general paediatric outpatient setting was performed from July 2017-August 2017. Data collected included the presence of growth charts, the frequency of documentation of centiles and the accuracy of the documentation.

Results

The cohort consisted of 176 return patients, and 24 new patients. Growth charts were present in only 118 charts (59%), and where present, they were incorrectly located in 27 cases (25%). Only 88 patients (44%) had their centiles plotted on the day of their clinic visit.

Discussion/Conclusion

There was an under reporting of growth parameters. This constitutes a missed opportunity for the assessment of nutritional status. In particular, it is a missed opportunity at a time when overweight and obese children is a major public health concern, in addition to the child who may be failing to thrive or have faltering growth, for a variety of medical, and potentially psycho-social reasons.

Has the Introduction of the DOACs Moved Patients with Labile INRs from Warfarin Therapy?

Poster - Abstract ID: 12

Dr. Thomas O'Halloran (UHL), Mr. Oliver Power (UHL), Ms. Jane Conway (UHL), Dr. Denis O'Keeffe (UHL), Ms. Carolyn Holt (UHL), Prof. Mike Watts (UHL)

Background: Warfarin therapy is first line for long term anticoagulation but patients with labile INRs, measured by TTR, should be considered for DOAC (NICE UK, MMP Ireland). If patients with low TTRs are switching to DOAC therapy, the mean TTR of the patients remaining on warfarin therapy should improve.

Aims: This study investigates if the mean TTR of the warfarin clinic has been affected by the introduction of the DOACs to the market in 2011.

Methods: A retrospective study of INR tests performed by the clinic from June 2008 to July 2016 was conducted. The patients were divided into two groups short term (≤ 4 months) and long term (> 4 months) anticoagulation. A one-way ANOVA of the yearly TTR was performed. The patients achieving TTR $\geq 70\%$ were identified.

Results: There is an overall reduction in patients on warfarin therapy since 2013. The numbers of patients on short term warfarin therapy has reduced (101-52) since 2013, although the percentage achieving target TTR has decreased (59-33%). The numbers of patients on long term warfarin therapy has reduced since 2013 (895-864). The mean TTR of the long term group has increased (74.9% to 76.3%), a one way ANOVA showed a statistical difference $p=0.04$. The mean of the combined group increased from 74.5-75.3% since 2013 (ANOVA $p=0.001$).

Conclusions: The reduction of patients on warfarin therapy, is likely due to the introduction of the DOACs. There is a small increase in mean TTR for those on long term therapy which may reflect some patients, with labile INRs, actively switching to DOAC therapy. The combined TTR of the clinic has increased due to improved TTR in the long term group and a reduction in numbers in the short term group. There is clearly potential for improvement; 32% of patients in the long term group have TTRs below target

Infant Nutrition and the Attitudes, Knowledge, and Beliefs of Medical Students Attending the National University of Ireland, Galway

Poster - Abstract ID: 29

Dr. Éamonn McCrave (UHL), Dr. Janisha Manhas (NUIG), Dr. Casey Card (NUIG), Dr. Michelle Choynowski (NUIG), Dr. Sarah Brennan (NUIG)

Introduction: This study aims to explore the knowledge and attitudes of medical students, and assess the adequacy of the medical curriculum at the National University of Ireland Galway in infant nutrition.

Methods: A survey, composed of questions obtained from a selection of published questionnaires assessing knowledge and attitudes toward breastfeeding among students or doctors, was administered to medical students from NUIG. 305 students responded: 115 from the clinical (C) years (years 4 & 5) and 190 from the pre-clinical (PC) years (pre-med to year 3). The survey was designed to assess knowledge and attitudes regarding infant nutrition, as well as opinions on the medical school's curriculum on the topic. The results were compared between the clinical and pre-clinical years. Data was recorded using a questionnaire and analysed with Excel.

Results: We received 305 responses, 69.5% of whom were female. Two thirds were of Irish, with the remainder consisting of North American and Asian students. Only 15.4% of preclinical students reported receiving education on infant nutrition versus 64.8% of their clinical counterparts. Of the clinical group, 57% believed this to be sufficient to advise patients. Almost three quarters (72.5%) of our responses had been breastfed themselves to a degree. 58% believe that breast feeding is less restrictive than bottle feeding, and 77% would recommend breastfeeding to patients. However, 28% stated they would be uncomfortable if they or their partner were to breastfeed in public. Almost half (45%) believed that there should be more focus on infant nutrition during clinical rotations, with 83% feeling that it should become an integral part of the medical school's curriculum.

Conclusions: As the results suggest, many believe there is a need for increased education around infant nutrition. These results provide a welcome display of interest, as well as a promising indication of improved breast-feeding advocacy going forward.

MAPPING SOCIAL INCLUSION IN THE IRISH CONTEXT

Poster - Abstract ID: 215

Dr. Patrick O'Donnell (University of Limerick Graduate Entry Medical School), Dr. Diarmuid O'Donovan (NUIG / HSE West Public Health), Dr. Khalifa Elmusharaf (University of Limerick Graduate Entry Medical School)

Background:

Social inclusion is a complex concept and its relationship to health has been vociferously debated in the past. In Ireland, there has been a move towards policies promoting social inclusion over the last twenty years. Despite this, there has not been analysis of how the concept of social inclusion is operationalised across aspects of Irish society, and how this influences the health system.

Aim & Objectives:

To document how social inclusion is operationalised in the Irish context. The objectives are to identify relevant stakeholders in Irish society, to understand current policy context and describe the relevance of social inclusion in the domain of health.

Methods:

We conducted a systematic search of all policies, grey literature databases, websites of government departments, relevant statutory agencies and stakeholders relevant to social inclusion or social exclusion in the Irish context since 2006. A total of 954 results were located, mapped and analysed using a stakeholder identification framework that allowed us to accurately document the social inclusion landscape in Ireland.

Results:

The relevant stakeholders were the research community, professionals, service providers, civil society organisations, policy makers and socially excluded people themselves. Most documents and policies refer to current National Action Plan for Social Inclusion 2015-2017 as an overarching guideline. Social inclusion is being operationalised in the context of health in Ireland, but the relationship between relevant policymakers and those who provide the services is unclear.

Conclusions:

The concept of social inclusion is discussed and being operationalised in the Irish context. This is in keeping with the prevailing European policy environment. There are a multitude of stakeholders across all sectors of society involved, reflecting the very wide reach of this concept in society. This research to map the social inclusion landscape and the relevant stakeholders in Ireland is important for researchers and policy makers alike.

Maternal antenatal body mass index BMI and degree of glucose intolerance in pregnancies affected by gestational diabetes mellitus.

Oral - Abstract ID: 170

Ms. Alexandra Cremona (Graduate Entry Medical School, University of Limerick.), Prof. Clodagh O'Gorman (University Hospital Limerick), Prof. Alan Donnelly (University of Limerick), Dr. Kevin Hayes (University of Limerick), Prof. Amanda Cotter (University Maternity Hospital, Limerick)

Introduction: Gestational diabetes mellitus (GDM) is a condition of transient glucose intolerance presenting in pregnancy. GDM has increased in prevalence worldwide and is a growing public health concern due to its consequences for mother and infant during and after pregnancy. Diagnostic criteria are currently based on excursions from the norms of thresholds set out around a 75g oral glucose tolerance test (OGTT) procedure according to International Association of the Diabetes and Pregnancy Study Groups (IADPSG) guidelines, at 28 weeks gestation. Data from this retrospective cohort study aims to present the degree of glucose intolerance in pregnancies affected by GDM.

Methods: Data were abstracted from patient medical records. Records of singleton pregnancies affected by GDM born in 2016 at the University Maternity Hospital Limerick (UMHL) who were not treated with insulin were included. Data was recorded during routine hospital visits by medics and allied health professionals. Demographic data was acquired by facilitated questionnaires; anthropometrics measured at the first antenatal appointment; and blood biochemistry through laboratory diagnostic tests. Post risk stratification, patients undergo a 75g OGTT as a diagnostic test for. Plasma glucose area under the curve (PG-AUC) was calculated from OGTT results as an index of glucose intolerance.

Results: 216 pregnant women aged between 18.2-44.0 years, diagnosed with GDM were described. Maternal antenatal BMI ($15.9-48.2 \text{ kg.m}^{-2}$) and OGTT results from 28 weeks gestation are presented. PG-AUC did not correlate with maternal BMI ($\text{PG-AUC } 23.9 \pm 3.8 \text{ mmol.h/L}$, $\text{BMI } 28.3 \pm 6.2 \text{ kg.m}^{-2}$, $r_s(207) = -0.029$, $p = 0.358$).

Conclusion: Body mass index (BMI) is used as one of the risk stratifications for identifying those patients with greater risk of developing GDM. However, insight into the body composition of pregnant women can potentially be of diagnostic importance in detecting GDM at an earlier stage in gestation.

Maternal Health of Migrants in Ireland – a scoping review

Poster - Abstract ID: 133

Ms. Amy Hannigan (University of Limerick), Dr. Nazmy Villarroel (University of Limerick), Dr. Soorej Jose Puthoopparambil (University of Limerick), Prof. Anne MacFarlane (University of Limerick), Dr. Khalifa Elmusharaf (University of Limerick), Prof. Carlos Siqueira (University of Massachusetts), Prof. Ailish Hannigan (University of Limerick)

Background: The number of international migrants (people living outside their country of birth) has increased by 41% since 2000, reaching 244 million in 2015. In Ireland, one in six of the population is non-Irish born with one in four babies born to non-Irish mothers in 2015. Cultural differences, access to healthcare, language barriers and legal status can impact the health outcomes of migrant women. The aim of this study was to scope existing research on the maternal health of migrants in Ireland and identify any gaps in the evidence.

Methods: Electronic databases Psychinfo, PsycArticles, CINAHL, Medline, Academic search complete, Social Sciences Full Text, Cochrane library, Embase, Web of Science, Econlit and Lenus were searched for articles published between 2001 - 2017 using search terms adapted from a WHO review. Inclusion criterion was a primary focus on maternal health (pregnancy, childbirth, postpartum) of migrants in Ireland. Chain-referencing was conducted to identify any additional studies.

Results: Twenty-one articles met inclusion criteria with the majority published since 2010. 14 (67%) studies had a quantitative design but only three were population representative (secondary analysis). Of the 21 studies, seven focused on pregnancy, six on the post-partum period, four on childbirth, two on all three areas and two on health-service providers. Studies reported higher breastfeeding rates among migrant mothers and lower caesarean-section rates for Eastern-European mothers. Cultural differences and barriers to communication were also reported. Migrant groups studied included Eastern European, Asian, and African with three studies on refugees and asylum seekers.

Conclusion: Despite the growing attention to maternal health of migrants in Ireland in the literature, there is a dearth of population representative studies, with the diversity of migrant groups and topics not fully represented. Further research is needed to understand the complex and dynamic relationship between migration and maternal health in Ireland.

Moving towards a National Behçet's disease Registry: Results From a Single Tertiary Centre Registry in Ireland

Poster - Abstract ID: 82

Dr. Fahd Adeeb (University of Limerick), Prof. Austin G. Stack (University of Limerick), Dr. Sandy Fraser (University Hospital Limerick)

Introduction

The epidemiology of Behçet's disease (BD) has been poorly studied in many parts of the world, especially among non-endemic countries. One of the main challenges faced by the scientific community today relates to the magnitude of racial, regional and geographical phenotypic and genotypic differences among BD patients.

Aims/Background

1)To conduct a pilot project to establish a local BD registry and provide framework for a national registry 2)to clarify the true prevalence, incidence and treatment strategies among BD patients in Ireland and to compare with other international studies.

Method

BD patients attending our rheumatology service were identified and specific clinical data were collected: 1)Basic demographics 2)time/age of diagnosis 3)evolution of clinical characteristics 4)HLA-B*51 status 5)pathergy phenomenon 6)details of treatment strategy/safety/efficacy.

Results

24 Caucasian Irish patients and 1 patient from the Middle Eastern ancestry were identified satisfying the diagnostic criteria. The most common clinical manifestation was recurrent oral aphthosis(100%) followed by genital ulcerations(92%) and skin lesions(92%), arthralgia/arthritis(40%), ocular involvement(32%), vascular thrombosis(12%) and pathergy phenomenon(8%). The most frequently encountered skin lesion was pseudo-folliculitis and/or papulopustular eruptions(72%) followed by erythema nodosum-like lesions(8%). The most common ocular manifestation was unilateral uveitis(20%), while two male patients(8%) lost their vision totally in one eye. Only 1 patient was positive for HLA- B*51. 18 patients were on anti-TNF(5 of which had potentially life-threatening structural laryngeal destruction). The point prevalence of BD on the 30th of August 2017 was 6.5/100,000 population.

Conclusions

The prevalence of BD is higher than previously reported in the Northern European region. The establishment of this first BD registry in Ireland would hopefully drive further new research and collaborations to improve patients' overall outcome. We advocate for future collaborations among all rheumatology centres throughout Ireland to gain more insights into the epidemiology and determine the extent of geographical influences on this rather complex disease.

Nurse/Midwife Prescribing: Findings of a 2017 Irish Study

Poster - Abstract ID: 74

Dr. Donna M Wilson (University of Alberta and University of Limerick), Ms. Anne Fahy (University of Limerick), Ms. Jill Murphy (University of Limerick), Ms. Mavis Nam (University of Ghana), Dr. Susanna Tella (Saimaa University of Applied Sciences)

In Ireland, the nursing and midwifery professions have undergone significant changes in the last decade in relation to clinical roles and responsibilities. Since 2007, registered nurses and midwives in Ireland who have passed a rigorous six-month theory and practice-based educational program may prescribe medicinal products relative to their respective clinical practices. Ireland is one of around 20 countries now where select nurses and/or midwives prescribe medications and other medicinal products at work. As this scope of practice extension is relatively new, only a small amount of research has been done on the need for and value of nurse/midwife prescribing. Additional research is needed as all patients require safe and effective prescribing. A qualitative study involving interviews of 12 key informant nurse/midwife prescribers in Ireland was undertaken in mid-2017 to determine the need for and value of nurse/midwife prescribing as identified by them. Six data themes were determined:

- (1) This work involves more than just writing a prescription.
- (2) Highly individualized evidence-based specialist nursing/midwifery care is intentionally provided.
- (3) Assured, timely, and rapid accessibility for patients to needed medications, medicinal products, and related healthcare services is ensured.
- (4) Health system and health care efficiency gains were noted, through collaborative working relationships with consultants and family physicians, and patients and their families.
- (5) Broad-based satisfaction with nurse/midwife prescriber services was evident.
- (6) Care quality improvements were potentiated as nurse/midwives are long-term invested health service employees.

This study indicates there is place for nurse/midwife prescribing. The findings emphasize the commitment and value of nurse/midwife prescribing for the patients utilizing the health service and the health care system as a whole. Nurse/midwife prescribing is value added, with positive working relationships and collaborative partnerships between nurse/midwife prescribers and the multidisciplinary/interdisciplinary team apparent. Additional research to validate these findings in Ireland and elsewhere would be helpful.

Nurses Experiences of Using the Early Warning Score (EWS)

Poster - Abstract ID: 121

Ms. Siobhan Egan (Clinical Research Unit, Health Research unit, University Hospital Limerick), Dr. Margaret Graham (University of Limerick), Ms. Jan Mc Carthy (University of Limerick, Lecturer, Nursing and Midwifery Department)

Background: In Ireland the EWS was introduced nationally to support the early recognition and management of patient deterioration in acute hospitals. An EWS is a track and trigger system that is calculated by nursing staff from the vital signs recorded. The EWS aims to recognize early signs of patient deterioration and trigger an escalated protocol of care (Health Service Executive 2011). Patient deterioration in acute hospitals is a pertinent issue and it is well recognized in the literature that sub-optimal patient care may lead to unrecognized deterioration which as a consequence leads to unplanned admission to intensive care units, or a worst case scenario of cardiac arrest or sudden death. Nurses are pivotal in responding and managing patient deterioration. Their role is fundamental in implementing the EWS.

Methods: A qualitative narrative approach aimed to gain an understanding of nurses' experiences. Ten in depth interviews took place with qualified nurses with at least two years' experience. Burnard's framework was used to analyse the transcribed data.

Findings: Three themes emerged namely: navigating the EWS, tracking and triggering, fusing knowing and doing. The first theme describes participants' experiences of preparing to use the EWS and its initiation into practice. The second theme describes participants' experiences of using the EWS to track a patient's deterioration and trigger a medical response. The third theme illustrates the fusion of knowing and doing and describes the fundamental requisites to identify patient deterioration.

Conclusion: While the EWS provides an assessment framework to measure deterioration, the findings of this study suggest that recognising deterioration is a complex process. Nurses draw upon intuitive knowledge and experience to recognise patient deterioration. Utilising a scoring system to recognise and manage deterioration without essential knowledge and experience to interpret the score will have serious consequences for patient safety.

Palliative Care for Patients with End Stage Renal Disease – A Nursing Perspective from the West of Ireland

Poster - Abstract ID: 198

Ms. Fiona Leahy (University Hospital Limerick)

Introduction:

Co-ordinated care between renal and palliative care teams can lead to improved patient care at the end of life (1) and support individuals with End Stage Renal Disease (ESRD) in a number of areas. However at present in Ireland, this is not an established service and individuals are being referred to palliative services too late in their illness trajectory (4). This project aimed to explore the views and experiences of renal nurses regarding palliative care and Advance Care Planning (ACP). It examined their experiences in providing palliative care and identified potential barriers and facilitators for its implementation in practice.

Methods:

The methodology was based on a qualitative study approach and comprised of qualitative data collection and analysis techniques. Purposive sampling was used and data was collected via four focus groups. Twelve nurses directly involved in the care of patients with ESRD working in the West of Ireland participated in the focus groups.

Results:

Findings revealed that nurses regard palliative care and ACP for patients with ESRD positively and readily recognise the benefits of this approach to care. However, specific resources namely time, privacy and specialist personnel are needed in order to facilitate this. The role of education and family involvement was highly regarded by study participants for effective palliative care and ACP for ESRD.

Conclusion:

Professional guidance is needed for nurses to support them in providing palliative care and ACP to patients with ESRD. Further education, training and skilled personnel are required if successful palliative care implementation and ACP is to be achieved. The need for a renal palliative approach is recognised however there is a lack of empirical research on how best to incorporate this into practice. It has been advocated that future research examines how to implement this care as opposed to the need for it (2).

Patient Record Duplications in Health Information Systems – The Case of UL Hospitals (ULH) Group

Poster - Abstract ID: 83

Dr. Abdulhussain Mahdi (University of Limerick), Dr. Arash Joorabchi (University of Limerick), Mr. Brian Mckeen (University Hospital Limerick)

A duplicate medical record occurs when a single patient is associated with more than one medical record, resulting in partial duplications that only capture a portion of a patient's medical history. Treating patients based on incomplete medical history or profile, can cause serious errors and complications. Duplicate medical records can also negatively affect communications between healthcare providers and their patients. Healthcare organisations often use multiple information systems for clinical and administrative services, which increase the vulnerability to patient matching errors and duplicate medical records. In addition, many duplicate medical records occur due to small errors and inconsistencies introduced mainly in patient registration process. Simple mistakes, like misspelling a patient's name can easily create duplicate records, resulting in inconsistent medical histories and information. Identifying individual patients becomes even more difficult when multiple patients share the same name and other personal information.

Reportedly the average duplication rate worldwide is 8% - 12%. The database holding the patient records from the six hospitals in the ULH network currently has over one million records. A preliminary experiment using exact string matching on three fields of *first name, surname, and DOB*, indicated a potential duplication rate in excess of worldwide average.

This presentation will give an overview of a recent joint research project between UL and the eHealth Division at ULH to investigate the extent of record duplication problem in ULH patient database. It will provide an overview of medical record linkage problem and current solutions. This is followed by the current state of ULH patient database, our observations to date, and how current record linkage and health big data solutions can be applied to this system. This will be presented along with our preliminary results from applying a couple of common record linkage methods.

Patterns of Vascular Access Use in the first year of Haemodialysis: Results from the National Vascular Access Project

Poster - Abstract ID: 230

Dr. Wael Hussein (Graduate Entry Medical School, University of Limerick.), Dr. Husham Mohamed (Graduate Entry Medical School, University of Limerick.), Dr. Gasim Ahmed (Graduate Entry Medical School, University of Limerick), Mr. Cathal Collier (University Hospital Limerick), Dr. Liam Plant (National Renal Office, HSE Clinical Programmes and Strategy Division, Department of Renal Medicine, University College Cork), Prof. Austin Stack (Graduate Entry Medical School, University of Limerick. National Childrens Hospital, Crumlin, Dublin 12.)

Background: Utilisation rates of arteriovenous fistulas (AVF) are low among incident haemodialysis (HD) patients. Little is known about the evolution of access use among Irish patients. We explored patterns of vascular access type during the first year of dialysis among patients who started HD during 2015.

Methods: Data were extracted from the National Kidney Disease Clinical Patient Management System (KD-CPMS). The principal vascular access in use for HD was noted on: day 14, day 90, day 180 and day 360 for each patient. Comparisons between groups were conducted using Chi-square and ANOVA tests, while logistic regression explored associations with AV fistula using adjusted odds ratios (OR) and 95% Confidence intervals (CI).

Results: 340 HD patients began chronic HD therapy in 2015. The median age was 67 (IQR 52-77) years and 63% were men. Prevalence of recorded hypertension, diabetes and atherosclerotic heart disease were 52%, 30% and 17% respectively. The proportion of patients with a functioning AV fistula increased from 22% at initiation to 25%, 32% and 46% of patients at day 90, 180 and day 360 respectively ($P < 0.01$). Rates of conversion from CVC to AV fistula increased significantly over time from 6% at day 90 to 11% at day 180 and 23% by day 360. In multivariable analysis, male gender, OR 0.64 (1.0 – 2.1), affiliation to Hospital Group B, OR 0.20 (0.03 – 0.99) and Hospital Group F, OR 0.28 (0.09 – 0.80) were associated with significantly lower likelihood of AV access.

Conclusions: The majority of Irish patients starting HD begin therapy with a CVC. Although conversion rates to a functioning AVF improve in the first year of dialysis, overall rates are low and less than internationally recommended targets. The availability of national data on vascular access is necessary to inform policy initiatives and drive quality improvement programs in HD.

Pharmacoeconomic Evaluation of Clinical Pharmacists Interventions

Poster - Abstract ID: 106

Ms. Aisling O'Connor (University Hospital Limerick)

Introduction: Clinical pharmacy interventions are an integral part of a clinical pharmacists' job. The aim of this study is to calculate the cost avoidance generated by pharmacists and the interventions they make at a university teaching hospital due to the prevention of adverse drug events(ADE).

Methods: Interventions were recorded by a group of pharmacists at a university teaching hospital over a 3-week period. Interventions were then assigned a rating based of the likelihood of an ADE occurring if the intervention hadn't been made. These scores were then used to calculate cost avoidance and net cost benefit.

Results: A total of 729 interventions were recorded over the 3-week period. These interventions generated a cost avoidance of €128,658. The cost of providing this pharmacy service was calculated at €12,583. This gave a net cost benefit of €116,075 and a net cost benefit ratio of 9.2:1. The most common intervention types related to medicines omissions and unintentional changes in the prescription. 83.29% of all interventions were accepted or partially accepted.

Conclusions: This study has shown that there is substantial cost avoidance to the healthcare provider achievable through the implementation of clinical pharmacy services. The study also highlighted the importance of medicines reconciliation at this hospital in preventing ADEs.

Postpartum Screening for Type-2 Diabetes Following Gestational Diabetes: A Structured Review

Poster - Abstract ID: 221

Mr. Fionn Clarke (Graduate Entry Medical School, University of Limerick.), Dr. Eoin Noctor (University Hospital Limerick)

Introduction

Gestational diabetes mellitus (GDM) is a common condition complicating an estimated 12.4% of pregnancies in Ireland, which in addition carries the risk of progression to pre-diabetes or diabetes following pregnancy. Postpartum diabetes screening identifies both women with overt diabetes, and those who may benefit from interventions proven to postpone or prevent the development of diabetes.

Aims

This structured review aimed to assess the uptake of postpartum diabetes screening among women diagnosed with GDM internationally, as well as factors associated with increased screening uptake.

Methods

Medline and Embase were searched for original research articles published between Jan 1st 2010 and July 20th 2017. This period was chosen as it corresponds to when the International Association for Diabetes in Pregnancy Study Groups (IADPSG) criteria for diagnosing GDM were introduced into clinical practice. Articles were excluded if they met ≥ 1 of the following criteria: 1) data derived from survey alone; 2) did not include OGTT data; 3) did not include information on postpartum diabetes screening for women diagnosed with GDM.

Results

There is a major disparity among published studies in the proportion of women attending for postpartum screening. Uptake was overall poor, with even the most successful programme internationally missing over one quarter of pregnancies at 6–12 weeks postpartum (median 30%, range 7-71%). Of interventions proven to increase participation in postpartum screening programmes, patient and/or physician reminder systems were the most consistent factors found to increase uptake across studies.

Conclusions

Patient and physician reminder systems may have a role in increasing screening uptake, however, no randomized controlled trials have assessed the efficacy of such interventions. Practice varies widely among centres, and adoption of clear, standard guidelines for follow-up of GDM would facilitate appropriate and timely diagnosis and management of this growing patient population, and enable accurate comparisons across different centres worldwide.

Potentially modifiable determinants of malnutrition in older adults: a systematic review

Poster - Abstract ID: 151

Dr. Mary O'Keeffe (University of Limerick), Ms. Mary Kelly (University of Limerick), Ms. Melanie Streicher (Friedrich-Alexander-Universität Erlangen-Nürnberg), Ms. Gabriel Torbahn (Friedrich-Alexander-Universität Erlangen-Nürnberg), Dr. Eva Kiesswetter (Friedrich-Alexander-Universität Erlangen-Nürnberg), Prof. Marjolein Visser (Vrije Universiteit Amsterdam), Prof. Dorothee Volkert (Friedrich-Alexander-Universität Erlangen-Nürnberg), Dr. Eibhlís O'Connor (University of Limerick)

Background: Malnutrition in older adults is common and costly, resulting in significant personal, social, and economic burden. To develop effective prevention strategies, evidence-based information is needed on the modifiable determinants of malnutrition in this population. Many cross-sectional studies and narrative reviews exist, but systematic reviews of prospective studies are lacking. Therefore, the aim of this systematic review was to investigate the modifiable determinants of malnutrition in older adults.

Methods: Eight databases were searched by two researchers. Prospective cohort studies with participants of a mean age of 65 or over were included. Studies were required to measure at least one determinant at baseline and malnutrition as outcome at follow-up. No restriction was placed on definition and/or measurement of malnutrition, or length of follow-up. Two researchers independently assessed study quality using the Newcastle Ottawa Scale. Pooling of data in a meta-analysis was not possible due to substantial heterogeneity across studies. The findings of each study have been synthesized narratively.

Results: Twenty-five studies were eligible. Seven categories of modifiable determinants of malnutrition emerged.

- 1.**Oral:**swallowing problems, teeth/mouth problems, dentate status, chewing difficulty.
- 2.**Food and appetite:** poor appetite, complaints about taste, low food intake, specific diet, specific nutrient intake.
- 3.**Psychological:**cognitive function, dementia, memory impairment, depression, anxiety, loneliness, loss of interest in life.
- 4.**Physical function:**eating dependence, mobility, dependence in activities of daily living (ADLs), visual and hearing impairment, functional status/physical performance/frailty.
- 5.**Lifestyle:**physical activity/inactivity, alcohol, and smoking.
- 6.**Disease:**self-perceived health, specific disease, co-morbidity, medication/polypharmacy, hospitalisation
- 7.**Social:**living status, marital status, retired or working, social support.

Conclusions & implications: Multiple factors contribute to malnutrition. However, strong robust evidence is lacking for the majority of determinants. Better quality prospective cohort studies are required. With an increasingly aging population, targeting modifiable factors will be crucial to the effective treatment and prevention of malnutrition.

Pregnancy risk and neonatal complications amongst infants of mothers with gestational diabetes mellitus admitted to University Maternity Hospital Limerick (UMHL), Ireland.

Poster - Abstract ID: 171

Ms. Alexandra Cremona (Graduate Entry Medical School, University of Limerick.), Prof. Amanda Cotter (University Maternity Hospital, Limerick), Prof. Alan Donnelly (University of Limerick), Dr. Kevin Hayes (University of Limerick), Prof. Clodagh O'Gorman (University Hospital Limerick)

Introduction: The prevalence of pregnancies complicated with gestational diabetes mellitus (GDM) is increasing and is associated with an increased risk of complications in both mother and fetus. The aim of this research is to describe the neonatal complications of GDM in an Irish cohort.

Methods: Preliminary data from a retrospective observational cohort of pregnancies affected by GDM born in 2016 at UMHL are presented. Inclusion-criteria included singleton pregnancies, and no treatment with insulin. Data was abstracted from maternal medical records. Pregnancy risk was defined as maternal-age (high risk >35), delivery method, obstetric history, family-history of diabetes, pre-existing insulin-resistant condition and GDM in previous pregnancy. Neonatal complications described were large-for-gestational-age (LGA >90th percentile), macrosomia, admission to neonatal-high-dependency-unit, neonatal hypoglycaemia (plasma glucose <2.2 mmol/L), neonatal-jaundice, pre-term delivery (<37 weeks), respiratory distress and low APGAR score (<7 at 1 or 5 minutes).

Results: Data from 152 pregnancies were included. Seventy-nine neonates (52.0%) were males and 73 (48.0%) female. Maternal-age at birth was 32.8y, ranging from 18.2-44.0. Forty-three (7.2%) mothers were aged >35y. Their BMI ranged from 18.6-48.2 kgm⁻². Twenty-eight (18.42%) women had GDM in a previous pregnancy, 10 (6.6%) mothers had a parity of ≥3. Fifty-seven (37.5%) mothers reported a family-history of diabetes, and 12 (7.9%) had a pre-existing insulin resistant condition. Sixty neonates (39.5%) were born by caesarian section, amongst these 17 (11.2%) were emergencies. Mean gestational-age was 38.6±1.2 weeks of which 16 (10.5%) neonates were born pre-term (<37 weeks). The mean birth-weight was 3.415±0.5 kg. Thirteen (8.6%) were born LGA, and 16 (11%) were macrocosmic (birth weight >4kg). Thirty-five (23.0%) neonates were admitted to the neonatal high dependency unit. Complications included hypoglycaemia, of which 21 (13.8%) experienced, 7 (4.6%) suffered neonatal-respiratory-distress and 37 (24.3%) experienced neonatal-jaundice. A low APGAR Score was reported in 7 (4.6%) neonates.

Conclusion: Despite strict criteria for diagnosis of GDM, clinical management typically starts at 28-weeks gestation following 75g-oral glucose tolerance test results. This leaves a short timeframe for medical nutritional intervention of blood glucose control. Finding methods of earlier diagnosis of GDM are warranted in this population.

Prevalence and Treatment of Gout among Patients with Chronic Kidney Disease in the Irish Health System: A National Study

Poster - Abstract ID: 217

Dr. Elshaeima Mohammed (Graduate Entry Medical School, University of Limerick.), Dr. Leonard Browne (Graduate Entry Medical School, University of Limerick.), Dr. Arun Kumar (Graduate Entry Medical School, University of Limerick.), Dr. Fahd Adeeb (University of Limerick, Ireland), Dr. Sandy Fraser (University Hospital Limerick), Prof. Austin Stack (¹ Division of Nephrology, Department of Medicine, University Hospital Limerick, ² Graduate Entry Medical School, University of Limerick, ³ Health Research Institute, University of Limerick)

Background: Gout is a common inflammatory arthropathy associated with adverse clinical outcomes. Under treatment is common in the general population. The aim of this study was to determine the prevalence of gout among patients with chronic kidney disease (CKD) and assess use of urate lowering therapy (ULT).

Methods: A multicentre study of patients with CKD (n=530) was conducted at specialist nephrology clinics in Ireland. A standardized data collection tool was used to record clinical information. Kidney function was assessed with standardised creatinine measurements and glomerular filtration rate (GFR) was estimated using the CKD-EPI equation. The prevalence of gout was determined across CKD stages and corresponding use of ULT (xanthine oxidase inhibitors and uricosuric agents). Comparisons across groups were assessed using chi-square and ANOVA while multivariable logistic regression explored correlates using adjusted odds ratios (OR) and 95% confidence intervals (CI)

Results: The overall prevalence of gout was 15.8% and increased significantly from 7.5% in Stage 1-2 CKD to 22.1% in stage 4-5 CKD, $P < 0.05$. Prevalence increased with advancing age ($P < 0.005$) and was higher in men than women (19.7% versus 10.0% $P < 0.005$). Overall, 59.7% of gout patients were receiving ULT, and this proportion increased with advancing stage CKD (from 44.4% to 70%). In multivariable logistic regression analyses, gout was associated with male gender, OR 2.08 (1.06-4.00); lower serum albumin, OR, 1.06, (1.01-1.12) per 1 mg/dl lower, and tended to be associated with poorer kidney function, OR, 1.05, (0.98-1.13) per 5 ml/min lower, and diuretics, OR, 1.79, (0.91-3.51).

Conclusion: Gout is very common among Irish patients with CKD and increases with worsening kidney function. Although ULT use is common, a large proportion remains untreated. Future studies should address current dosing of ULT in CKD and the extent to which uric acid targets are met based on EULAR guidelines.

Preventing Suicides in Public Places; a pilot project.

Poster - Abstract ID: 147

Ms. Katie Evans (Department of Public Health Mid-West), Dr. Douglas Hamilton (Department of Public Health Mid-West), Ms. Lynda Breen (An Garda Síochána, Limerick), Ms. Deirdre Morris (An Garda Síochána, Limerick), Dr. Marie Casey (Department of Public Health Mid-West)

Introduction

Research suggests that approximately a third of all suicides take place outside the home, in a public location. A public suicide affects not only the person's family and friends but can be traumatic for bystanders who witness the act or discover the body¹. In 2015, Public Health England published a practical toolkit for suicide prevention for local authorities including a step-by-step guide to identifying frequently used locations¹. This information can be used to restrict access to means of suicidal behaviour, which is one of the goals for *Connecting for life*, Ireland's national strategy to reduce suicide 2015-2020². This approach was piloted in Limerick.

Methods

This collaborative project between An Garda Síochána and the Department of Public Health MW used data from the Garda PULSE (Police Using Leading Systems Effectively) system to identify frequently used locations for suicidal acts in Limerick and develop an approach that could be used elsewhere in Ireland. Learning points from this pilot process are being used to create an Irish version of the PHE toolkit, a process which is supported by the National Office of Suicide Prevention (NOSP) and the National Suicide Research Foundation (NSRF). A data analysis plan was created to enable structured analysis of the dataset and it was piloted on a PULSE dataset (geo-coded suicide and suicide attempt data) from 2012-2016) to identify frequently used locations, understand suicide /self-harm methods and profile the groups demographically.

Results

Important data points such as location, age, sex, method, location category and time and date of the incident are collected routinely within the PULSE system. Decisions needed to be made about event/location aggregation. Additionally detailed analysis on areas with small numbers of cases was not meaningful. No information on past medical/psychiatric history is recorded.

1. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/481224/Preventing_suicides_in_public_places

2. <https://www.healthpromotion.ie/hp-files/docs/HME00945.pdf>

Seasonal and Monthly Variation in STEMI Incidence in Ireland

Poster - Abstract ID: 60

Mr. Napohn Chongprasertpon (Graduate Entry Medical School, University of Limerick.), Dr. JJ Coughlan (University Hospital Limerick), Prof. Tom Kiernan (University Hospital Limerick)

Background:

Studies described a relationship between the weather and acute myocardial infarction (AMI), many reported highest incidence of STEMI in Winter. Previous reports have described association between cold climate and increased risk of AMI.

There is currently no published data on seasonal or monthly variation in STEMI incidence in the Republic of Ireland.

Aims:

To analyse for seasonal and monthly variation of STEMI incidence in our centre.

Methods:

Observational retrospective study of 881 STEMI patients treated with PPCI at our centre from 2012 to 2016. Seasonal and monthly variation were analysed. Analysis of continuous variables were performed using the Independent Samples t-Test and ANOVA. Analysis of means was performed using both the traditional Celtic seasonal calendar and the International definitions of seasons for the Northern Hemisphere. In addition to statistical analysis seasonal data was displayed in graph form and monthly temperatures plotted with monthly STEMI incidence on a dual axis graph. Ethical approval was received prior to commencing this study.

Results:

No significant difference was found between the incidence of STEMI across seasons using both the International seasonal calendar ($P=0.29$) and the Celtic seasonal calendar ($P=0.82$). Numerically there were less STEMIs in Winter than in the other three seasons. December, January, and February had similar mean temperatures despite differing incidences in STEMI. Unlike the other months, the Winter months had a constant mean temperature of 6°C , with maximum variation across these months to be from 6.0°C to 6.3°C .

Discussion:

This study did not demonstrate a seasonal variation in STEMI presentations to our centre, suggesting that seasonal variation previously described in STEMI may not exist ubiquitously. Our results showed less STEMIs presenting in Winter which is contrary to almost all previous research.

Conclusion:

Unlike previous reports, no seasonal variation was found in the incidence of STEMIs in our data.

Serum Potassium Levels and All-cause Mortality in End-Stage Renal Disease: A Systematic Review

Poster - Abstract ID: 200

Ms. Natalie Hsiao-Fang-Yen (Graduate Entry Medical School, University of Limerick.), Prof. Rose Galvin (Department of Clinical Therapies, University of Limerick), Dr. Leonard Browne (Department of Nephrology, University Hospital Limerick), Dr. Wael Hussein (Department of Nephrology, Department of Medicine, University Hospital Limerick; Graduate Entry Medical School, University of Limerick), Prof. Austin Stack (Department of Nephrology, Department of Medicine, University Hospital Limerick; Graduate Entry Medical School, University of Limerick; Health Research Institute, University of Limerick)

BACKGROUND: Hyperkalemia is a common clinical abnormality that is associated with an increased risk of serious adverse events, including cardiac arrhythmias, sudden death, and all-cause mortality. The prognostic value of serum potassium measurements during hyperkalemic events remains unknown. This systematic review investigates the risk of short and long-term mortality associated with elevated serum potassium levels among patients with end-stage renal disease (ESRD).

METHODS: A systematic literature search was conducted in multiple databases. Prospective and retrospective cohort studies were included if they focused on a population of ESRD, reported baseline serum potassium levels, and measured mortality and morbidity at follow up. Short and long-term survival was compared in patients with serum potassium measurements ranging from <3.0 to >6.5 mEq/L.

RESULTS and CONCLUSION: The literature search yielded 3747 citations, of which 9 studies qualified for inclusion in the systematic review. 669,095 patients were included in the analysis. Of these, 16,748 underwent peritoneal dialysis and 652,347 were treated with hemodialysis. Duration of follow-up ranged from 4 days to 81 months. The narrative findings indicate a U-shaped mortality curve exists for patients with abnormal serum potassium levels. In a non-linear dose response analysis, high serum potassium levels were associated with an increase in both short and long-term mortality. The potassium value at which mortality risk became significant was different for patients undergoing hemodialysis versus peritoneal dialysis.

High serum potassium was associated with a significant increase in all-cause mortality in all patients with ESRD. A sharp rise in mortality occurred for those with severe hyperkalemia.

Sleep and Physical Activity: A Nationwide Survey among people with Inflammatory Arthritis

Oral - Abstract ID: 42

Mr. Sean McKenna (University of Limerick), Prof. Alan Donnelly (University of Limerick), Dr. Alexander Fraser (University Hospital Limerick), Dr. Norelee Kennedy (University of Limerick)

Introduction: Sleep is an important aspect in maintaining circadian rhythm and plays an important role in maintaining health. Sleep disturbances and poor sleep quality are prevalent complaints in people with inflammatory arthritis and may exacerbate pain in this population, potentially leading to reduced levels of physical activity (PA).

Methods: Members from Arthritis Ireland were invited to participate in a cross-sectional survey hosted on SurveyMonkey^{(R)TM}. Descriptive statistics, Chi-square tests/Fisher's exact tests were used to analyse the data using SPSS v22.

Results: Ninety (90) people with Inflammatory Arthritis responded and report an average of 5.7 (SD 1.46) hours sleep per night. Mean number of years with condition 10.09 (SD 9.92). Majority (61%) report sleep quality as fairly bad/very bad, with 31% taking medications at least once a week to help sleep. Majority report 'pain' (95%), 'waking up in the middle of the night or early morning' (97%) and 'cannot get to sleep within 30 minutes' (91%) as disturbances. Statistically significant association between longer years with symptoms ($p=0.004$), taking medication at least once a week ($p=0.009$) and limited in their activities ($p=0.004$), when rating their sleep quality as bad. PA levels were a low 1,210 minutes per week, compared to other physical activity surveys from their healthy counterparts, even-though 72% believe it is important to measure PA.

Conclusions: People with Inflammatory Arthritis fall below the 'sleep needs spectrum' with those having symptoms longer, taking medications regularly and having limitations with their activities, reporting poorer sleep quality. Research needed to investigate poor sleep quality and disturbances in order to promote health and well-being in people with Inflammatory Arthritis. Effects of PA activity interventions on poor sleep needs to be examined to show if it is a positive non-pharmacological treatment approach for the management of poor sleep in patients with Inflammatory arthritis.

The characteristics of non-fatal intentional drug overdose in Limerick

Poster - Abstract ID: 31

Ms. Caroline Daly (National Suicide Research Foundation), Dr. Eve Griffin (National Suicide Research Foundation), Prof. Darren Ashcroft (University of Manchester), Dr. Roger Webb (University of Manchester), Prof. Ella Arensman (National Suicide Research Foundation)

Non-fatal Intentional Drug Overdose (IDO) is the most common form of hospital treated self-harm. This research examines the profile of individuals engaging in IDO in Limerick, identifies the drugs used and quantifies the contribution of alcohol involvement.

We included data recorded by the National Self-Harm Registry, Ireland (NSHRI) between Jan 1st 2012 and Dec 31st 2014 collected from presentations in the HSE University of Limerick Hospital Group.

1,416 presentations involving IDO were recorded. The majority of presentations were made by females (885; 63%) and peaked among individuals aged 25-44 years (676; 48%). Alcohol was involved in 45% (642) of presentations. Just over half of IDOs involved multiple drug use (744; 53%). Nervous system drugs were the most commonly used in IDO (1,008; 71%) of which many were psycholeptics (680; 48%) and one quarter (357) were psychoanaleptics. Drugs used to treat the musculoskeletal system were taken in 8% (115) of presentations. Illegal drugs were involved in 6% of IDOs (84) and more so in males (56, 11%) than females (38, 4%). Analgesics were taken in almost one-third (440; 31%) and antiepileptics in 17% of IDO presentations (245). Hypnotics and sedatives were taken in approximately one in every four presentations (337; 24%). Benzodiazepines were involved in 44% of all IDOs (628). Paracetamol was taken in 27% (382) of presentations, more commonly in female than male IDO (32% vs 22%). Seventeen per cent of presentations involved over 50 tablets per presentation (205).

This research provides a comprehensive profile of IDO presentations in Limerick, highlighting the misuse of prescription and over the counter drugs and the contribution of alcohol. The findings reinforce the need for continuous monitoring of i) prescribing practices and ii) drug misuse by individuals, and encourages the enforcement of legislation in place to regulate the sale of over-the-counter drugs.

The effects of Behçet's disease flare-ups on mood: The Midwest Study

Poster - Abstract ID: 138

Dr. Wan Lin Ng (University Hospital Limerick), Dr. Fahd Adeeb (University Hospital Limerick), Dr. Alwin Sebastian (University Hospital Limerick), Dr. Aqeel Anjum (University Hospital Limerick), Ms. Mary Brady (University Hospital Limerick), Ms. Mary Gillespie (University Hospital Limerick), Ms. Siobhan Morrissey (University Hospital Limerick), Ms. Fiona Irwin (Croom Orthopaedic Hospital), Ms. Breeda McCarthy (Croom Orthopaedic Hospital), Dr. John Paul Doran (University Hospital Limerick), Dr. Joe Devlin (University Hospital Limerick), Dr. Sandy Fraser (University Hospital Limerick)

Introduction

Behçet's disease (BD) is a chronic autoinflammatory disorder that is poorly understood but can be debilitating to patients. The course of the disease is hard to predict and may cause heavy psychological burden to those with the disease.

Objective

The aim of the study is to evaluate the effect of BD flare on mood of the patients.

Methods

25 patients satisfying the International Study Group for Behçet's Disease (ISGBD) diagnostic criteria were recruited from a regional rheumatology centre. Telephone interviews were performed to assess the level, significance and severity of patients' mood during disease flare-ups. Patients were asked to rate their mood between 0-10 to reflect their mood (0-1=very poor, 2-3=bad, 4-6=fair, 7-8=good, 9-10=excellent). Patients were then requested to list the reasons contributing to the final mood score.

Results

The mean age is 43.88 years with 16(64%) females and 9(36%) males. 13(52%) patients rated their mood less than 7 with some listing more than one reason for their low mood. The most common reason for their low mood was BD flare-ups(69.23%), followed by other health reasons(46.15%), family issues(38.46%) and problems at work(23.08%). 15(60%) had flare-ups of BD within the past six months. Of those with flare-ups, 11(73.33%) have oral ulcers, followed by arthralgia(53.33%), genital ulcers(33.33%), fatigue(26.67%), intestinal involvement(13.33%) and skin involvement(6.67%). 4(16%) are currently on antidepressant medication.

Conclusion

This study demonstrates that disease flare in BD causes significant distress to patients. Therefore it of utmost important to consider both the physical and mental wellbeing of patients when managing this group of patients.

The impact of reconfiguring acute hospital services on hospital-treated self-harm: a before-and-after study

Poster - Abstract ID: 34

Dr. Eve Griffin (National Suicide Research Foundation), Ms. Catherine Murphy (National Suicide Research Foundation), Prof. Ivan Perry (University College Cork), Ms. Brenda Lynch (University College Cork), Prof. Ella Arensman (National Suicide Research Foundation), Dr. Paul Corcoran (National Suicide Research Foundation)

Health services in Ireland have developed strategies to reduce the number of acute hospitals. This has involved the centralisation of services to centres of excellence along with the reconfiguration of smaller hospitals to urgent care centres – with reduced emergency department (ED) hours. However, the evidence base for improved patient outcomes is limited. We aimed to assess the impact of the reconfiguration of a hospital group in Ireland in terms of the burden of hospital-treated self-harm on each hospital and the clinical management of individual self-harm patients. The study was conducted in three Mid-Western regional hospitals in Ireland. The reconfiguration in April 2009 involved two hospitals (B and C) reducing the operation of their EDs while services at a third hospital (A) remained unchanged. As part of the National Self-Harm Registry Ireland, data were recorded relating to all self-harm presentations during the period January 2004 to April 2014. We used Poisson regression analysis to assess changes in the hospital burden and clinical management of self-harm. During the study period there were 9,223 self-harm presentations to the EDs of the three hospitals. Hospital A received the majority (75%), with Hospitals B and C receiving 14% and 11% of presentations, respectively. The reconfiguration was associated with a marked increase in the rate of self-harm presentations at Hospital A [+19.2 per month (95% CI 16.2, 22.4)]. This increase was approximately equivalent to the decreases at Hospitals B and C. Despite this large increase in presentations, there was only a small increase in admissions into Hospital A. Reconfiguration of acute hospital services impact on patterns of patient flow. Findings have implications for those implementing reconfiguration of acute services. Patient outcomes following hospital reconfiguration should be an ongoing research priority.

The Irish Rugby Injury Surveillance (IRIS) Project: a meta-analysis of global injury incidence and a survey of Irish injury surveillance and prevention strategies.

Poster - Abstract ID: 105

Ms. Caithriona Yeomans (University of Limerick), Dr. Roisin Cahalan (University of Limerick), Dr. Ian Kenny (University of Limerick), Dr. Giles Warrington (University of Limerick), Dr. Drew Harrison (University of Limerick), Dr. Kevin Hayes (University of Limerick), Dr. Mark Lyons (University of Limerick), Dr. Mark Campbell (University of Limerick), Dr. Tom Comyns (University of Limerick)

Background:

Rugby is one of the most played collision sports, with approximately 8.5 million registered players worldwide. The incidence of injury in Rugby has been widely reported in the literature (Williams et al., 2013, Freitag et al., 2015). However, currently, no long-term prospective injury surveillance and prevention strategy exists in Irish amateur Rugby.

Aim:

The primary aim was to systematically review the literature on the epidemiology of injuries in senior amateur Rugby and to conduct a meta-analysis of the findings. The secondary aim was to investigate the methods of injury surveillance and prevention within the Irish amateur game.

Methods:

A comprehensive search was performed, of the electronic databases PubMed, Scopus, SportDiscus and Google Scholar. Six articles regarding the incidence of injury in senior amateur male Rugby players were retrieved and included in meta-analysis to determine the overall incidence rate of injury. A survey was designed and sent to the coaches and team medical staff of all Ulster Bank League (men, n = 50) and All Ireland League (women, n = 8) clubs.

Results:

The overall incidence rate of match injuries was 46.8/1,000 player hours (95% CI 34.4-59.2). The knee was the most commonly injured joint (3.8/1,000 player hours 95% CI 3.1-4.5). Sprains (6.3/1,000 player hours, 95% CI 5.6-6.9) and strains (4.6/1,000 player hours, 4.2-5.1) were the most common type of injury. While 91% of the clubs surveyed monitor injuries, only 36% monitor training load. Players were educated on injury prevention in 71% of clubs, with 64% operating a return to play protocol for all injuries.

Conclusion:

The overall rate of injury in amateur Rugby is lower than that in professional players but higher than youth players. By understanding the injury surveillance and prevention strategies currently used in Irish amateur Rugby, a long-term prospective strategy may best be designed and implemented.

The Nurses' Role in Diabetes Mellitus Management

Poster - Abstract ID: 233

Ms. Louise Barry (University of Limerick), Ms. Charity Bell-Gam (University of Limerick)

This systematic integrative review explored the complex and multifaceted nurses' role in Diabetes Mellitus (DM) management. Using thematic analysis, three major themes were identified: Nursing Care, Patient Education for Self-Management and Multidisciplinary Collaboration. Patient education for self-management was identified as an overarching theme. From review findings, it is clearly evident that the role has evolved from traditional aspects such as patient education and skill training to more specialised and person-centred functions such as prescribing, psychological care and patient advocacy. Although nurses perform these multifaceted roles, there is clear indication of the under appreciation of role complexity and capability. Skills associated with the role are not being utilised to their fullest extent. This review suggests that role definition is essential and that nurses are given the professional recognition for the multifaceted roles they play in DM management.

The findings would also suggest that role diversification and increased specialisation in DM management should be encouraged. Nurses should show leadership and willingness to take on more responsibilities. A greater appreciation for the diverse roles played by nurses pertaining to this aspect of care should be exhibited by the MDT team. Furthermore, organisations must value the expertise and facilitate the utilization of nurses' role and the skill capabilities. Consequently, this will exhibit nurses acquired education and competence in performing these specialised roles. Guidelines and policies that provide extensive role definition could ensure the uniformity and consistency of nursing care provision in DM management.

Further research into nurses' perceptions on their role in DM management is warranted to pin-pointed areas for practice and role development. Role conflict between generalist and specialist nurses in DM management warrants exploration and to define specific nursing role functions.

This review has indicated areas for practice development, further education and future research.

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The Toilet Assistance Needs of Older People with Urinary Incontinence in Residential Care: A nursing Staffs' Perspective.

Poster - Abstract ID: 33

Ms. Louise Barry (University of Limerick, Lecturer, Nursing and Midwifery Department)

The provision of toilet assistance (TA) to this complex group is often considered to be a simple task, poorly recognised as a vital aspect of nursing care provision. However, the literature would suggest otherwise presenting a complex and multifaceted view of urinary incontinence (UI) and TA which contradicts this simplistic representation. This intervention is often described as having a minor role in holistic older person care provision and is presented as part of a larger context (e.g. UI management). This research aimed to explore the TA needs of older people with UI specifically, shedding light on a relatively unexplored and under articulated nursing staff intervention using a qualitative inquiry. The exploration for nursing staffs experiences was indicated by the existing literature.

This aspect of care emerged as a complex and multifaceted intervention. TA needs were defined and repercussions of a lack of evidence based care for both staff and older people were identified. Areas for future development in terms of research and feasible practice development were also pin-pointed e.g. The exploration of the TA needs of individuals with dementia and pin-pointing staff members with specialist knowledge to educate their colleagues.

Four Major Themes emerged from the Data Analysis with Sub-Themes

Complex TA Needs of Older People: An inconsistent MDT approach, Complex Behavioural Interventions for UI and Complex Care Needs and Considerations were described by staff.

Nursing Staffs Role in TA Delivery: Nursing Leadership, Education and Family Involvement, Knowledge Development and Holistic Care Provision were described which some insightful narrative extracts.

Barriers and Challenges to TA Delivery: Untapped Resources, Environmental and Behavioural Challenges, Staff Shortages and Time Constraints and a Lack of Education and Evidence Based Practice impacted on this care.

Repercussion of Restricted TA: Staff guilt, Urinary Incontinence and a Negative Impact on Older Individuals Behaviour were identified.

The use of antibiotics for Acute Respiratory Tract Infections (ARTI) in primary care; what factors affect it and why is it important? a narrative review

Poster - Abstract ID: 95

Dr. Raymond O'Connor (University of Limerick), Ms. Jane O'Doherty (University of Limerick), Dr. Andrew O'Regan (University of Limerick), Prof. Colum Dunne (University of Limerick)

Antimicrobial or antibiotic resistance (AMR) is an increasingly serious threat to global public health. Consequently, there is an emerging risk that standard antibiotic treatments no longer work making infections harder or impossible to control. Increased consumption of antibiotics is associated with the development of antibiotic resistance at individual, community, country, and regional levels. It is estimated that 25,000 humans in the EU die annually as a result of infections caused by resistant bacteria, at a societal cost of approximately €1.5 billion annually. Over the last 30 years, no major new types of antibiotics have been developed. Acute respiratory tract infection (ARTI) is the most common reason for antibiotic prescription in adults and these prescriptions are often inappropriate because the benefits are marginal for the management of most cases of ARTI. It is estimated that 75% of overall antibiotic prescribing takes place in primary care. Large variations in antibiotic prescribing for URTI exist and are difficult to explain.

This paper reviews the literature on antibiotic prescribing for ARTI in primary care, and important factors contributing to this. We consider specifically the effects of patient expectation and desire for antibiotics to treat respiratory symptoms, other patient characteristics, physician characteristics and the setting of the consultation. Our findings are that primary healthcare professionals are highly influenced to prescribe antibiotics by patient expectation for antibiotics, patient's socioeconomic background, clinical uncertainty and time pressures. Mid or late career physicians also prescribe more antibiotics. Strategies proven to reduce such prescribing include appropriately aimed educational interventions, good communication skills in the consultation, use of delayed prescriptions especially when accompanied by written information, point of care testing and, probably, longer less pressurised consultations.

Too late to win the war? The epidemiology of CRE in the Mid-West of Ireland.

Poster - Abstract ID: 89

Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Ms. Sarah Ni Mhaolcatha (UL GEMS), Dr. Ciara O'Connor (HSE), Mr. James Powell (HSE), Ms. Cathriona Finnegan (HSE), Mr. Alan O'Gorman (HSE), Dr. Lorraine Power (HSE), Prof. Nuala O'Connell (UHL)

We report the increasing prevalence of carbapenemase-producing Enterobacteriaceae (CPE) at our 440-bed hospital in Ireland's mid-west. The first reported case of CPE in Ireland was in Limerick in 2009, as was the first outbreak of cfr-mediated linezolid-resistant *Staphylococcus epidermidis*. We have now identified 140 discrete isolates, each pertaining to a single patient, by retrospective audit of microbiological analyses performed at University Hospital Limerick between February 2009 and December 2015. Despite identification of operational factors associated with the incidence, and best efforts towards rectifying those, there has been an inexorable increase in CPE detection; two were identified in 2009, four in 2010, 11 in 2011, 10 in 2012, eight in 2013, 45 in 2014, and 60 in 2015.

Of the associated carbapenemases, one was imipenem, three were oxacillin (OXA), 13 were New Delhi metallo- β -lactamase (NDM), and 123 were *Klebsiella pneumoniae* carbapenemase (KPC). Rectal swabs accounted for 74% ($N = 103$) of our CPE-positive results over this six-year period. This is in contrast to the outcome of an Irish prevalence study performed in 2011 across 40 Irish critical care units (37 adult and three paediatric), which found no CPE carriage.

Due to observed seasonality and prevalence of agriculture in the Limerick region, we are exploring a sectoral link to our CPE challenge. This is further warranted as previous reports (from the UK) have linked NDM-1 and OXA-48 with close proximity to animals.

Limerick is known as Ireland's 'Treaty City' due to a Jacobite siege in 1691. We are developing a new siege mentality, and we believe that a national strategy for CPE, akin to that adopted in Israel, is urgently needed to avoid a country-wide replication of the Limerick CPE endemic

Unstoppable carbapenemase-producing Enterobacteriaceae in the Mid-West of Ireland? A retrospective epidemiological and microbiological review of 133 isolates from 2009 to 2015.

Poster - Abstract ID: 79

Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Dr. Ciara O'Connor (HSE), Ms. Miranda Kiernan (UL GEMS), Ms. Sarah Ni Mhaolcatha (UL GEMS), Ms. Barbara Slevin (HSE), Mr. Alan O'Gorman (HSE), Ms. Marion Commane (HSE), Ms. Emer O'Donovan (HSE), Ms. Siobhan Barrett (HSE), Ms. Cathriona Finnegan (HSE), Mr. James Powell (HSE), Dr. Lorraine Power (HSE), Prof. Nuala O'Connell (UHL)

Background

There has been a rise in the number of CPE cases in the Mid-West of Ireland.

Material/Methods

Our laboratory database of CPE positive isolates allowed molecular confirmation. Manual chart review for patients involved in CPE outbreaks was completed. Each CPE positive patient was recorded once only, irrespective of whether CPE positive on multiple admissions.

Results

134 CPE cases were detected (IMI 1; KPC 118; NDM 12; OXA-48 3). Rectal swabs account for 74% (n=98) of positive specimens. There were two KPC bacteraemias to date with 100% mortality. CPE was isolated from theatre specimens (n=3). Two outbreaks have occurred; the first Irish KPC outbreak in 2011 (nine patients; three deaths) and the first Irish NDM-1 outbreak in 2014 (ten patients; one death). Pulse field gel electrophoresis confirmed nosocomial cross-transmission in both outbreaks. The largest number of cases to date were recovered from UHL (438 beds; 99 cases). No cases were identified in the maternity or orthopaedic hospitals. Median patient age was 72 years (range 7 to 94 years). The only paediatric case was a non-Irish national living in Ireland who had recent surgery in country of origin. Seasonality is evident peaking in spring and summer. Staff screening and air sampling has never been performed. Limited environmental sampling has been performed with no CPE detected. Whole genome sequencing to determine whether the same KPC strain has been circulating has never been performed.

Conclusions

Despite implementation of Public Health England CPE toolkit, H2O2 vapour decontamination post-routine discharge cleaning, restricting carbapenem prescription, prescriber education, monitoring hand hygiene compliance figures and performing surveillance screening, there has been a continued rise in the number of cases. Local infrastructural issues, e.g., reliance on acute 16-bedded nightingale wards, deficit in the number of isolation rooms and lack of integrated information technology systems hinder efforts to control CPE.

Using Patient Stories from Carbapenemase Producing Enterobacteriaceae (CPE) patients in a quality improvement project to understand and improve the patient experience at University of Limerick Hospital

Poster - Abstract ID: 87

Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Ms. Barbara Slevin (HSE), Prof. Nuala O'Connell (UHL), Ms. Patricia Treacy (HSE)

There is expanding literature regarding carbapenemase-producing Enterobacteriaceae (CPE) outbreaks, control measures and their effectiveness. These papers report the number of cases (CPE infection or colonization) involved in outbreaks; multi-component infection control measures including patient screening; contact precautions (e.g. gowns, gloves); cohorting of patients; and patient isolation. However, there is scant mention of how a CPE diagnosis and subsequent treatment can impact patients' lives.

In 2011, University Hospital Limerick (UHL) was the site of the first Irish CPE outbreak. Since then, we have reported on outbreaks and their management, with emphasis placed on clinical parameters. However, in the context of quality improvement (QI), we recognized that there was a gap in our knowledge relating, specifically, to the experience of those patients central to our CPE incidences. UHL experienced an increase in newly-identified CPE-positive patients between June and August 2015. We surveyed such patients sensitively using a series of open-ended questions.

The outcomes were sobering. While patients expressed a high level of satisfaction with the physical design of our newly-established infection control cohort ward, they were confused by communication to them of their CPE and the explanatory leaflets provided. Further, they used emotive terms such as 'leper', 'pariah' and 'plague' to describe treatment by staff, clearly demonstrating the need for consistent, effective education of healthcare professionals regarding multi-drug-resistant organisms and holistic needs of affected patients.

As healthcare professionals, we often do not look beyond specimens and infection control aspects of managing patients. The impact of CPE diagnosis on patients and their families should not be underestimated as it influences subsequent quality of life and future aspirations and can involve ongoing engagement with medical treatment and hospitalizations. Listening to the voices of those receiving our care is just the beginning. The challenge is to use these narratives to improve practice and patient experiences.

What are the perceptions of the child and parent with a disability regarding a community based dance health service intervention that targeted participation outcomes?

Poster - Abstract ID: 67

Mrs. Aine O' Dea (University of Limerick), Dr. Barry Coughlan (University of Limerick), Prof. Susan Coote (University of Limerick), Dr. Elizabeth O'Mahony (University Hospital Limerick), Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.)

Aims:

To explore participant's perceptions about their health related participation outcomes following involvement in a community based dance (hip hop) intervention.

Methods:

A qualitative design was used. Semi-structured interviews were completed with 15 parents and 3 children post intervention. Deductive thematic analysis was completed using the family of Participation Related Constructs framework. 15 participants with a neurodevelopmental condition(s), mild to normal intellectual range, between 8-18 years were recruited. Participants attended a 1-hour dance intervention for 8 weeks. The intervention was facilitated in partnership with dance instructors and health professionals. Health professionals addressed and coached instructors to support identified individual child goals such as, social skill development, motor skills, emotional and physical regulation.

Results:

The core theme of involvement was reflected in all interviews. "With the hip hop group it didn't matter whether he was doing it right or wrong...he didn't compare himself." Involvement enabled participation that was similar to their siblings and peers and the subsequent achievement of multiple secondary health related goals i.e.; sense of self, motivation to engage in physical activity, activity competence and social connection. As a health service intervention the predominant outcome was the need for a greater choice of multidisciplinary interventions provided in partnership between community organisations.

Conclusions:

Developing health service interventions in collaboration with community partnerships provides a key mechanism for facilitating outcomes of participation for children with a disability. Research targeting the design, implementation and evaluation of interventions participation outcomes is required to support health service provision and to inform disability health policy.

What factors are associated with anti-depressant and benzodiazepine prescribing to people with type two diabetes mellitus?

Poster - Abstract ID: 115

Ms. Jane O'Doherty (Graduate Entry Medical School, University of Limerick.), Dr. Jennifer Gettings (Graduate Entry Medical School, University of Limerick.), Dr. Ray O'Connor (Graduate Entry Medical School, University of Limerick.), Prof. Ailish Hannigan (Graduate Entry Medical School, University of Limerick.), Prof. Walter Cullen (University College Dublin), Ms. Louise Hickey (Graduate Entry Medical School, University of Limerick.), Dr. Andrew O'Regan (Graduate Entry Medical School, University of Limerick.)

Background: General practitioners (GPs) are responsible for diagnosing and treating people with type 2 diabetes mellitus (T2DM) and co-morbid depression and anxiety. The prevalence of depression in T2DM is estimated to be 10-15% but there is no data on the proportion of people with T2DM that are prescribed antidepressant or benzodiazepine medications. This study aimed to investigate patients with T2DM who were prescribed antidepressant or benzodiazepine medications. A secondary objective was to establish the proportion that was referred to mental health services.

Research questions: What percentage of people with T2DM are prescribed antidepressants or benzodiazepine medication?

Method: Senior medical students on placement in general practices with the University of Limerick Graduate Entry Medical School and their GP supervisors used practice software functions to collect quantitative data from the clinical records of patients with T2DM in the practice.

Results: The sample included 2,696 patients with T2DM who had visited their GP in the previous year. The percentage of people with T2DM with a current prescription for antidepressants or benzodiazepine medication varied from 6% to 37% across practices with a median rate across practices of 23%. Using logistic regression analysis, the following were found to be associated with having this type of prescription were: female gender, eligibility for free medical care, urban location, smoking, and consulting with the GP more frequently. 22% of patients with a prescription for antidepressants or benzodiazepine medication were referred or attended a mental health service

Conclusions: This study shows that the rate of antidepressant and benzodiazepine prescribing in a T2DM population is high. Based on the findings, screening for depression in this population is advised and appropriate resources for GPs should be provided.

**LIFESTYLE,
TECHNOLOGY & HEALTH
RESEARCH**

3D Printing to Create Bespoke Repair of Percutaneous Endoscopic Gastrostomy (PEG) Tube in Patient Unfit for Surgical Replacement

Poster - Abstract ID: 10

Mr. Kevin J. O'Sullivan (University of Limerick), Mr. Aidan O' Sullivan (University of Limerick), Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Mrs. Noelle Power (University Hospital Limerick), Dr. Leonard O'Sullivan (University of Limerick), Dr. Barry Linnane (Graduate Entry Medical School, University of Limerick. National Childrens Hospital, Crumlin, Dublin 12.)

We report a case of 3D printing technology being utilised to solve a difficult bedside clinical problem and avoidance of substantial risk associated with alternative solutions. A 15 year old male with advanced cystic fibrosis developed a small (one mm) linear tear in his PEG tube, approximately 40mm from the skin surface.

His oral intake during the day was minimal so he was dependent on high calorie overnight feeds via the PEG tube. The patient had advanced CF lung disease with an FEV₁ between 20-25% predicted, continuous oxygen requirement, overnight bi-level positive pressure ventilation and frequent (2-3 weekly) admissions for intravenous antibiotics. The patient's advanced condition precluded replacement of the PEG tube under general anaesthetic.

An option to cut the PEG close to the skin and allow the device to pass naturally through the gut had a low risk of causing obstruction, however, if such obstruction were to occur it could prove fatal. The PEG line had been managed for a number of days on an ad hoc basis by nursing staff using an adhesive surgical tape, which leaked consistently and was repeatedly replaced.

Further to consulting with the design team, a bespoke three piece sealing device was designed and fabricated overnight using a multi-material 3D printer. The device was precision made to fit tightly over the PEG tube and was positioned over the fractured section of the tube.

On fitting the sealing device, the PEG tube was immediately ready for use and the patient was recommenced on his full supplement overnight feeding regime. In all, the completed device was fitted less than 24 hours after initial discussions between the clinical and design teams. The device is functioning well, two months post discharge of the patient.

A comparison follow-up study on the geometric, hemodynamic and biomechanical changes in a patient-specific arteriovenous fistula

Oral - Abstract ID: 112

Dr. Nicolas Aristokleous (University of Limerick), Mr. Daniel Moran (University of Limerick), Mr. Connor Cunnane (University of Limerick, Ireland), Prof. Michael Walsh (University of Limerick)

Autogenous arteriovenous fistula (AVF) remains the first choice for end-stage renal disease patients, as it is the best access for longevity and has the lowest association with morbidity and mortality. However, it suffers from high failure rates. The current study aims to evaluate computationally the geometric, hemodynamic and structural alterations of a brachial-cephalic fistula in a follow-up clinical case.

The follow-up study includes MR images from four post-operative time points: A(2-4wks), B(4-6wks), C(6-8wks) and D(23-25wks). Images were segmented using ITK-Snap and the morphometric analysis was based on center-lines with the use of the VMTK. Computational fluid dynamics simulations were carried out using Star-CCM+. The blood was modeled as incompressible Newtonian fluid ($\rho=1050 \text{ kg/m}^3$, $\mu=0.0035 \text{ kg/m}\cdot\text{s}$). Abaqus was used for finite element analysis. The artery and vein wall were assumed to have a constant thickness of 0.4mm, and modeled as a hyperelastic material following the 3rd-order Yeoh model. A uniform systolic pressure of 120mmHg was applied for wall loading.

The anastomosis angle was 60.6° at scan-A, increased to 68.4° on scan-B and decreased to 63.3° and 50.5°, for scan-C and -D, respectively. Curvature and Tortuosity, shows a consistent decrease of approximately 40% between scan-A and D. The pressure drop increased considerably from scan-A to -D: time-averaged pressure from 22.55 to 33.45mmHg and at peak systole from 24.24 to 47.71mmHg. The maximum Principal and the von Mises stresses increased from 1.7 to 2.46 MPa and 0.28 to 0.33 MPa, respectively.

This study aimed to investigate the geometric; hemodynamic; and structural alterations of an AVF at four consecutively time-points. This analysis highlighted the morphological alterations that took place and the vascular reshaping due to changes in wall shear stress. The observed changes need further investigation to correlate them at the early stage of AVF creation for better understanding of surgery outcomes, success or failure.

A perfusion device mathematical model to apply varying trans-wall oxygen gradients to venous tissue.

Poster - Abstract ID: 203

Mr. David O'Connor (University of Limerick), Dr. Marco Franzoni (University of Limerick), Prof. Michael Walsh (University of Limerick)

Development of a custom novel perfusion device designed to study the effect of varying the hemodynamic parameters on venous samples requires a mathematical model to define the input parameters. The perfusion device requires stringent monitoring and control of the flow ensuring replication of *in vivo* flow parameters within the system. The oxygen concentration within the perfusion device can be controlled by adjusting the flow rate of media through the device along with calculating the required dimensions of tubing to allow for sufficient oxygen regeneration within the media post tissue sample. The development of a mathematical model to parameterise the flow, allowed the system to output defined flow conditions to induce specified oxygen gradients across the tissue sample. A steady state shell balance for oxygen on a shell volume of the fluid of width W going from x to Δx and from y to Δy was used in conjunction with assuming parallel plate flow theory with a cell monolayer present at both the top and bottom of the tissue to calculate the oxygen consumption rate of the cell monolayer. The inlet partial pressure of oxygen used was 95mmHg to calculate the outlet concentration of the tissue which results in a decrease of 0.11mmHg over a length of 8cm. Using the known oxygen concentration depletion calculated, the oxygen-permeable silicone tubing dimensions can be determined using the similar theory as Piola et. Al., 2016. Leading to the determination of 0.05m as the required length of tubing to ensure sufficient oxygen concentration within the media for the defined parameters. Additionally, the input parameters can be altered to suit a defined waveform or desired flow conditions giving a change in the oxygen gradient across the system. Identification of these parameters leads to the manipulation of the system to replicate clinical applications *ex vivo*.

A pre-trial call for a clinical research partnership to advance the treatment of newly diagnosed women with osteopenia

Oral - Abstract ID: 19

Dr. Catherine Norton (Health Research Institute, University of Limerick), Prof. Phil Jakeman (Health Research Institute, University of Limerick)

Background: The Clinician's Guide to Prevention and Treatment of Osteoporosis developed by National Osteoporosis Foundation (NOF) (Cosman et al. 2015) advise a calcium (1200 mg/day) and vitamin D (800–1000 IU/day) intake for women 51 and older, incorporating dietary supplements if diet is insufficient.

A 5y innovative programme of research by the authors under the aegis of the National Technology Centre, Food for Health Ireland (www.FHI.ie) led to discovery of a synergistic action of milk protein, dairy calcium and vitamin D on bone remodeling and bone health. Specific to women aged 50-65y, ingestion of milk protein enhanced the secretion of enterogastric hormones, a bioactivity augmented by co-ingestion of calcium. Putatively acting through the entero-osseous axis, the resultant change in bone remodeling led to increased BMD.

Bone remodeling exhibits circadian periodicity; higher resorption rates at night relative to day. To be most effective, coordination of the temporal bioactivity to timing of ingestion of nutrient supplements designed to affect bone health is proposed to optimise nutrient intervention.

Aim: Applying the outcome from our recent discovery, a pilot trial is currently underway to investigate the magnitude of change in acute, 24h, bone remodelling induced by coordination of the temporal bioactivity to timing of ingestion timing of a milk-protein based supplement, fortified with dairy calcium and vitamin D to the NOF's recommendation, in women aged 50-60y diagnosed with osteopenia.

Results: The results of the pilot study presented and related to the putative mechanism of action of the entero-osseous axis in the regulation of bone remodeling. The challenge ahead is to translate to a comparative intervention in a clinical setting.

Discussion: In providing evidence for a novel nutrient prescription (composition and timing) to mitigate against osteopenia we inform of cutting-edge research and hope discussion will lead to a collaborative interventional trial in newly diagnosed women with osteopenia.

Activity Matters: A Web-based resource to enable people with Multiple Sclerosis to become more active.

Oral - Abstract ID: 107

*Ms. Blathin Casey (Clinical Therapies, University of Limerick), Prof. Susan Coote (Clinical Therapies, University of Limerick),
Dr. Molly Byrne (Health Behaviour Change Research Group, NUI Galway.)*

Introduction: Increasing physical activity (PA) through exercise is associated with improvements in many of the symptoms associated with Multiple Sclerosis (MS) such as fatigue, strength, balance and mobility. Despite this, people with MS (pwMS) remain largely inactive. Interventions that are grounded in theory and that aim to change PA behaviour need to be developed, implemented and evaluated further. The aim of this study is to describe the development process of a web-based resource to enable pwMS to become more active, namely, 'Activity Matters'.

Methods: Development of 'Activity Matters' was guided by the UK's Medical Research Council (MRC) Complex Interventions framework and a behavioural model entitled the Behaviour Change Wheel (BCW). Seven sources of data were used to inform the process and were mapped on to both the MRC and BCW. Five of these sources were research papers conducted by the authors. These included three systematic reviews and two original research studies. Whilst the other two sources of data were conducted by known MS PA research groups from North America and Europe.

Results: Using the 7 data sources and following steps of the BCW and MRC, an outline of the 'Activity Matters' intervention has been developed. The intervention is theoretically based and constructs including, knowledge, memory, attention and decision processes, skills, social influences, environmental context and resources, beliefs about capabilities, beliefs about consequences, goals and emotions were recognised as important. Intervention functions and techniques that will be used on the website include, education, enablement, environmental restructuring, persuasion, incentivisation, action planning, goal-setting, social-support and problem-solving.

Conclusions: 'Activity Matters' is the first MS PA intervention to use the theoretical approach outlined by the MRC and BCW. The next phase of this work is to test the usability, acceptability and preliminary effectiveness of 'Activity Matters' among pwMS.

An investigation into the impact of helical flow on factors affecting fistula maturation in patient-specific models of an arteriovenous fistula.

Poster - Abstract ID: 206

Mr. Connor Cunnane (University of Limerick), Dr. Stephen Broderick (University of Limerick), Prof. Michael Walsh (University of Limerick)

Areas of disturbed shear that arise following fistula creation are hypothesised to lead to the development of intimal hyperplasia (IH), which can lead to arteriovenous fistula (AVF) dysfunction. Helical flow has been found to suppress flow disturbances that lead to disturbed shear. However, the impact of helical flow within AVFs remains relatively unexplored to date. Clinical studies found the presence of spiral laminar flow (SLF) in newly created fistulas to be a strong predictor of AVF maturation. Therefore this study aims to determine if SLF is present in patient-specific models of AVFs and if it coincides with an overall reduction in disturbed shear, as a method of quantifying the benefit of SLF.

CFD simulations were conducted on 4 patient-specific AVF geometries, acquired using non-contrast MRI. Patient-specific boundary conditions were applied to each model attained through the use of phase-contrast MRI.

This revealed that SLF is present in 1 of the 4 fistulas analysed as part of this study. This AVF also displayed the lowest overall distribution of disturbed shear. Therefore this suggests that the presence of SLF is associated with a reduction in exposure to disturbed shear and therefore a decrease in the incidence of AVF dysfunction. These results are exemplified by the fact that this AVF is the only fistula that did not develop a stenosis prior to reaching maturity.

The findings of this study in conjunction with the findings of previous clinical studies should result in fistulas being scanned for the presence of SLF immediately following creation, as quantifying SLF in-vivo has the potential to act as a clinical tool for assessing the likelihood of fistula maturation. Alternatively, the absence of SLF could aid in identifying fistulas susceptible to AVF dysfunction, as the early identification of AVF dysfunction can improve fistula longevity and function.

Dairy Lipids, Inflammation, and Cardiovascular Disease

Poster - Abstract ID: 153

Mr. Ronan Lordan (University of Limerick), Dr. Ioannis Zabetakis (University of Limerick)

Cardiovascular diseases (CVDs) are the leading cause of death globally and in Ireland. Approximately 10,000 Irish people die each year due to CVDs - including coronary heart disease, stroke, and other circulatory diseases. CVDs account for 36 % of all adult deaths, surpassing cancer, and respiratory diseases as Ireland's leading cause of death [1]. The occurrence of CVDs have reached epidemic proportions, and thus there is an urgent need to address this through dietary prevention and the consumption of novel functional foods with anti-inflammatory properties [2]. Our group has an ongoing interest in the functional role of food lipids, in particular dairy phospholipids for the prevention of inflammatory processes. In particular, we focus on dairy lipids that inhibit the pro-inflammatory actions of platelet-activating factor (PAF). These lipids upon consumption may aid in preventing the onset of atherosclerosis and subsequent cardiovascular events [3]. Recent research trends have shown that dairy products may possess positive cardiometabolic health effects due to their content of anti-inflammatory lipids, contrary to the negative perception they earned due to their high levels of SFA [2]. Our data indicates that the fermentation of milk into yogurt or cheese increases the bioactivity of the polar lipid fraction of dairy products. This lipid fraction exhibits potent anti-thrombotic and anti-inflammatory activity against PAF-induced platelet aggregation *in vitro* [4]. These lipids may be important microconstituents of foods that may aid in the dietary prevention of CVDs. Our aim is to optimise the fermentation process to enhance this biochemical phenomenon and to test these products through clinical trial.

References Available on Request

Deciphering factors involved in breast cancer metastasis to the bone

Poster - Abstract ID: 202

Ms. Anushree Dwivedi (Graduate Entry Medical School, University of Limerick; Bernal Institute, University Of Limerick), Dr. Mary McCumiskey (Department of Surgery, University Hospital Limerick; Bernal Institute, University Of Limerick), Dr. David Hoey (Trinity College, Dublin), Dr. Pat Kiely (Graduate Entry Medical School, University of Limerick; Health Research Institute, University of Limerick; Bernal Institute, university Of Limerick)

Metastasis is what kills most cancer patients, and approximately 70 percent of metastatic breast cancer patients develop bone lesions. The establishment and growth of metastasis at distant sites is dependent on crucial interactions between tumour cells and the host environment. Our aim is to decipher this process at the molecular level and identify factors that influence adhesion, proliferation, migration and invasion of breast cancer cells and metastasis of breast cancer to the bone.

To investigate this mechanism we are culturing breast cancer cells with conditioned media derived from bone cells in culture. To best mimic in-vivo conditions, we mechanically stimulated bone cells to release essential factors that could potentially play significant role in metastasis. Having optimised the mechanical stimulation process and identified the best suitable media for the study, our results show that there is a significant increase in the proliferation of breast cancer cells when they are maintained in media derived from bone cells. As a second approach, we are using Chipster software¹ to integrate and analyse publically available gene expression repositories to identify a set of highly dysregulated genes in breast cancer patients who have gone on to develop bone metastasis. We have been able to identify a set of genes that we believe to be involved in breast cancer metastasis to bone. We are now examining the expression pattern of these genes in cell models and in cancer patients. This investigation may help to identify tumours that have a higher chance of metastasising to the bone and identify methods that prevent bone metastasis in breast cancer patients.

Reference

¹Kallio, M. A., *et al.* (2011). Chipster: user-friendly analysis software for microarray and other high-throughput data. BMC Genomics.

Dependency of meniscus mechanical properties on glycosaminoglycan content and its regional variation

Oral - Abstract ID: 158

Ms. Caroline Murphy (University of Limerick), Dr. Maurice Collins (University of Limerick), Dr. Atul Garg (Johnson & Johnson)

The meniscus is a complex structure of collagen fibers which plays a major role in the mechanical function of the knee. Knee joints are subjected to high forces; up to five times body weight during normal activity whereby 75% is transferred through the meniscus. As a result of these forces and its avascular structure, the meniscus is prone to irreparable damage. Meniscectomy was once a common procedure for damaged menisci, however approaches for meniscus regeneration are now being developed to restore the mechanical function of the meniscus. Therefore, the compressive properties of the meniscus are of paramount importance to provide a design criteria for researchers to develop scaffolds with appropriate properties for meniscus regeneration. Previous studies have been conducted on the bulk compressive properties of the meniscus. However limited studies have examined the meniscus structure function relationship. This study correlates the major constitute of the meniscus extracellular matrix, glycosaminoglycan's (GAG), and its role on the mechanical properties of the meniscus. Furthermore, to the authors knowledge this is the first study to analyse the GAG distribution and mechanical properties with regards to depth and region within the meniscus. Biopsies were taken from twelve bovine meniscus zones and were analysed for GAG content, phosphate buffered saline (PBS) absorption and mechanical properties. Results showed that the medial zone of the meniscus had a significantly larger quantity of GAG compared to the peripheral zone. The tibial and femoral layers displayed higher quantity of GAG over the middle layer, with no significant difference between central and outer section being observed. These results correlate well with PBS absorption and compressive properties which suggests that the hydrophilic nature of these molecules play a role in the absorption of interstitial fluid which acts to support the meniscus under compressive loads.

Development and experimental validation of a Fluid-Structure Interaction Numerical Model of a porcine jugular vein

Poster - Abstract ID: 227

Mr. Daniel Moran (University of Limerick), Dr. Nicolas Aristokleous (University of Limerick), Dr. Marco Franzoni (University of Limerick), Prof. Michael Walsh (University of Limerick)

Numerous studies have cited a correlation between shear stresses outside of normal physiological ranges and development of intimal hyperplasia (IH) and arteriovenous fistula (AVF) dysfunction. To develop a greater understanding of the mechanisms which lead to IH, a detailed analysis of vessel compliance and its effect on local hemodynamics is vital. The aim of this study is to use experimentally derived pressure waveforms to perform a computational 3D Fluid Structure Interaction (FSI) model capable of reproducing experimental radial displacements in a porcine jugular vein. This will evaluate the limitations of FSI in correctly reproducing hemodynamic and physiological characteristics. The outer diameter (11mm), wall thickness (0.4mm), and length (120mm) of a segment of porcine jugular vein was measured. Inlet and outlet pressure waveforms were recorded using pressure transducers and resulting radial displacements were measured using a video extensometer. A comparative 3D numerical simulation of an idealised vein was established using the obtained experimental data. A number of different material models were trialled in an effort to determine the model that most accurately describes venous tissue. These preliminary results show that at peak systolic pressure the linear elastic models displayed radial displacements for the artery and vein of 0.2495mm and 0.3054mm respectively, far from the experimentally measured approximately 0.4mm. However, the displacement over time strongly correlates with the pressure waveforms applied. The aim of this study is to validate FSI as a reliable method of determining hemodynamic and structural alterations in porcine jugular vein. The mismatch in displacement between experimental and computational results can in part be attributed to the material properties used. To develop accurate displacement values, more realistic material models are required. Future work shall aim to develop FSI simulations capable of predicting physiological changes in AVF and determine whether vessel wall distensibility plays a significant role in AVF hemodynamics.

Development of a Cell-based Therapy for Type 1 Diabetes Mellitus using a Novel Hyaluronic Acid Derivate

Poster - Abstract ID: 148

Ms. Fernanda Zamboni (University of Limerick), Dr. Maurice Collins (University of Limerick)

INTRODUCTION

Type 1 diabetes mellitus (T1DM) arises from pancreatic β -cell loss in response to an autoimmune reaction, resulting in a state of absolute insulin deficiency and hyperglycaemia. T1DM has been effectively treated with insulin, but the exogenous insulin replacement therapy still does not mimic the physiological pancreatic insulin secretion pattern, resulting in life threatening hypoglycaemic episodes and macro and microvascular complications. Currently, T1DM treatment is shifting towards pancreatic beta cell replacement in order to restore responsive insulin competence and achieve long-term euglycaemia. Although islet transplantation is feasible, the shortage of donors and the dangers of pharmacological immunosuppression makes it not a widespread option.

In this landscape, we propose a pathway to nanoencapsulate pancreatic beta cells within a novel modified-hyaluronic acid (HA) hydrogels using bis(β -isocyanatoethyl) disulphide (BIED) crosslinker in order to provide a bioengineered immunoprotective environment for transhepatic cellular delivery for T1DM patients.

EXPERIMENTAL METHODS

HA (MW: 0.10 MDa, 0.60 MDa, 1.20 MDa and 1.90 MDa) was crosslinked using BIED. In order to verify the optimal molecular weight and the optimal degree of crosslinking for cell nanoencapsulation, hydrogels were submitted to a variety of tests to analyse rheological properties, stability profiles and chemical properties (FTIR and DSC).

RESULTS AND DISCUSSION

Higher MW, polymeric concentration and crosslinking densities produced hydrogels with increased stability, increased storage modulus (G'), but decreased average MW between crosslinks and mesh size.

All gels showed $G' > G''$, where the system is more elastic than viscous

CONCLUSION

High conc. 1.2 and 1.9 MDa HA (7%) at higher crosslinker conc. (30%) produced hydrogels with superior structure-function properties that are suitable for further development of HA-bearing thiol groups derivatives for a cell encapsulation multi-layered system.

Did Cardiac MRI with perfusion helped us as a Changing Management tool In Cardiac Disease Patients?

Poster - Abstract ID: 193

Dr. Rajesh Kumar (University Hospital Limerick), Prof. Tom Kiernan (University Hospital Limerick), Dr. Paul Shiels (Midland Regional Hospital Tullamore,), Dr. Ahmad Basirat (Midland Regional Hospital Tullamore,)

Introduction: Cardiac MRI is a new modality diagnostic tool that helps in diagnosing and management of cardiac diseases. It is the only available diagnostic tool that looks both to the muscle and tissue ischemia. Its value in assessing cardiac volumes, mass and tissue is not compatible with any diagnostic investigation. It is not accessible in a lot of Irish hospitals.

Audit and its significance: Cardiac MRI request is referred to Dublin. Which is an expensive test that requires a visit to Dublin? We did an audit to review whether this diagnostic tool helps in changing management of the patient?

Explanation of methods: We retrospectively reviewed cardiac MRI's requested in a cohort of patients in year 2016. We reviewed all the charts that had cardiac MRI and whether their management was changed by it. The change in the management tool was signified by patients who had new diagnosis of cardiac tissue diseases- cardiomyopathy or new evidence of cardiac ischemia -(PCI and angiogram).

Results: Out of cohort of 120 patients, In 31 patients (26% of study population) new cardiac disease was found, Out of which 18 patients(18/31) underwent further intervention including PCI and 13 Patients (13/31) were newly diagnosed with cardiomyopathy (confirmed by MRI). 74% of population normal study avoided proceeding with invasive investigation, so its negative value was of great significance as well.

Implication/Conclusion: We should be offering more cardiac MRI as it is simple non invasive investigation that avoids patient from invasive procedures and stay in hospital with less complication and gives us answers to vast majority of indecisive cardiac cases. cardiac MRI is highly cost effective and we suggest it should be available to all the cardiac patients in local hospital.

Hand hygiene compliance: a systematic review of the evidence

Poster - Abstract ID: 53

Ms. Liz Kingston (University of Limerick), Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Dr. Nuala O'Connell (University Hospital Limerick)

Introduction

Reducing healthcare-associated infections through improving hand hygiene compliance amongst healthcare professionals remains topical. However, research evidence suggests that hand hygiene compliance remains sub-optimal across various geographical locations and healthcare settings. The aim of this poster is to report the outcomes of a recently published systematic review of peer-reviewed published studies, notably clinical trials, which focus on hand hygiene compliance among healthcare professionals.

Methods

Literature published between December 2009 and February 2014, which is indexed in PubMed and Cinahl, on the topic of hand hygiene compliance, was searched. Following examination of 57 publications initially reviewed the final number of papers appraised is 16.

Results

A lack of homogeneity in research design made meta-analysis difficult to achieve however, comparative analysis was possible. The majority of studies were conducted in the USA and Europe, in intensive care units and care of the elderly facilities. The nurse, the healthcare assistant and the doctor are the three categories of healthcare worker most often the focus of the research. Published studies demonstrate that moderate improvements to hand hygiene compliance rates were achieved when organisations adopted a multimodal approach, incorporating up to six strategies for change. The multimodal approaches used were either guided by the World Health Organisation (WHO) hand hygiene framework or by an independently tested multimodal framework.

Discussion

Hand hygiene compliance remains an important patient safety issue as we strive to reduce healthcare-associated infection rates across the globe. The WHO multimodal hand hygiene framework is transferable to a variety of healthcare and education settings globally and international research evidence suggests that moderate improvements in hand hygiene compliance rates can be achieved when it is adopted.

Hand hygiene: attitudes towards alcohol-based hand rubs and hand rubbing practices among nursing students in Ireland.

Poster - Abstract ID: 54

Ms. Liz Kingston (University of Limerick), Prof. Colum Dunne (Graduate Entry Medical School, University of Limerick.), Dr. Nuala O'Connell (University Hospital Limerick)

Background.

As members of the healthcare team, nursing students have direct patient contact during clinical practice; hence, good hand hygiene practice among nursing students is essential. While low to moderate levels of hand hygiene knowledge and poor attitudes and practices are reported among nursing students internationally, less is known about their attitudes and practices of handrubbing with alcohol-based hand rubs (ABHR), even though handrubbing is the recommended optimum practice in most clinical situations. The aim of the presentation is to present the results of a recently published study, exploring hand hygiene and handrubbing practices and attitudes towards ABHR among nursing students in Ireland.

Method.

Following ethical approval, a questionnaire was electronically administered to all BSc Nursing programme students (n = 342) at an Irish University in 2015.

Results.

Response rate 66%. Attitudes towards hand hygiene were generally positive. Self-reported compliance was high after contact with body fluid (99.5%) and before a clean or aseptic procedure (98.5%) and lower before (85%) and after (87%) touching a patient and lowest after touching patients' surroundings (61%). A trend towards greater self-reported compliance among first year students compared to fourth years was evident. Just 22% of students were handrubbing with ABHR >90% of the time and 32% were handrubbing <50% of the time. 16% were not aware of the clinical contraindications for using ABHR and 9% did not know when to use soap and water and when to use ABHR.

Conclusion.

Continuous hand hygiene education throughout undergraduate nursing degree programmes is recommended, in order to develop and maintain appropriate attitudes towards hand hygiene and to ensure engagement in optimal handrubbing practices among nursing students. Instilling good practice during the early career stage of nursing students may potentially have sustained long-term impact.

Declaration.

Study supported by grant from Infection Prevention Society UK.

How can e-learning be optimised for the teaching of undergraduate clinical medicine: a systematic review

Poster - Abstract ID: 189

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Background: E-learning is recognised as a useful educational tool and is becoming more common in undergraduate medical education. This review aims to systematically retrieve and critique published studies of e-learning interventions and to establish a framework for how and when they can be optimally used for undergraduate clinical medical education.

Methods: A systematic review using PRISMA guidelines and qualitative data including the study design, setting and population, aims and type of evaluations were recorded. Specific search terms were used to locate articles across eight databases: MEDLINE/PubMed, ScienceDirect, EMBASE, Cochrane Library, ERIC, Academic Search Complete, CINAHL and Scopus. Only studies that evaluated an e-learning intervention relating to clinical medicine and reported in English were selected.

Results: The 23 studies included varied in scope, cognitive domain, subject matter, design, quality and evaluation. Most studies used virtual patients or case-based approaches (57%), were interactive (78%), asynchronous (70%) and accessible from home (65%). Several studies failed to put their interventions in context (43%), did not assess usability (65%) or did not describe a pilot phase (87%). A framework was devised for optimising e-learning interventions in four distinct phases: planning, design, implementation and evaluation.

Conclusions: This review outlines a framework for optimising e-learning interventions in undergraduate clinical medical education. In particular, medical educators need consider factors including: design, usability, assessment of effectiveness and quality; as well as contextual factors, such as desired impact and learner and preceptor characteristics.

In-vitro strategies to define the role of WSS in vascular remodelling

Poster - Abstract ID: 204

Dr. Marco Franzoni (University of Limerick), Prof. Michael Walsh (University of Limerick)

Hemodynamics is a well-known regulator of vascular remodelling. In particular, the wall shear stress (WSS), the frictional force exerted by blood flowing through vessels at the interface with the endothelial layer, is capable to induce complex cellular signalling that is initiated by endothelial cells (EC) and then propagated to the rest of vascular wall, inducing the remodelling. According to the nature of the WSS waveform, the cell signalling generated can lead to vasodilation and outward remodelling, for physiological unidirectional WSS, or, on the contrary, to inward remodelling and stenosis of the vessels, in the case of non-physiological disturbed waveform. The current definition of disturbed WSS is based on a number of hemodynamic indexes that describe some of the features of WSS waveform that are related to unfavourable remodelling. In-vivo WSS however, has very complex unsteady waveform, characterized by high velocity fluctuations and large spatial and temporal gradients. The independent effects of these features in the development of vascular diseases remain uncertain. To investigate the effects of these WSS features, an in-vitro experimental approach is required. To this aim we designed and developed two systems capable of generating controlled WSS stimuli in EC cultures or in whole vascular tissues. The systems are designed to maintain tissues viable in a proper culture environment for long-term experiments. The first device is based on a cone-and-plate geometry and is capable of generating user-defined, highly unsteady WSS stimulations over cell cultures. The second system is an ex-vivo perfusion system capable of reproducing physiological flows in living vessels in order to assess the effects of geometry such as curvatures and bifurcations, in vascular wall remodelling. The overall goal is to provide clinicians with tools to predict vascular dysfunctions based on the evaluation of the nature of WSS waveforms in-vivo.

Is Light Intensity Physical Activity Beneficial for Adolescent Health?

Poster - Abstract ID: 185

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Introduction: Current national health guidelines for adolescents focus on increasing moderate to vigorous physical activity (MVPA). However, MVPA accounts for a relatively small proportion of an adolescent's total daily activity behaviour. The contribution of objectively-determined activity behaviour at the lower end of the activity intensity continuum, such as sitting/lying time (SLT), standing time (StT) and light intensity physical activity (LIPA) to biomarkers of health is understudied and unclear in adolescents. This study examined the relationship between activPAL 3™ micro (AP3M) determined activity behaviours and health biomarkers in Irish adolescents. **Methods:** 229 healthy Irish adolescents (mean age (SD) = 16.4 (0.93) yrs, BMI 23.5 (3.7) Kg.m²) provided fasted blood samples for measurement of total cholesterol (TC), HDL-C, LDL-C and triglycerides (TG). Participants had their height, weight, waist and hip circumference, blood pressure (Systolic, 123.6 (13.7) mmHg; diastolic 68.9 (9.4) mmHg (DBP) and four-site sum of skinfolds 47.1 (21.0) mm measured after wearing the AP3M for 9 consecutive days. The amount of time spent in SLT, StT, LIPA, and MVPA was quantified (2). Linear mixed-effects models examined the relationship between MVPA, SLT, ST, LIPA and health biomarkers while controlling for age, sex and school effects.

Participants spent 9.9 (1.9) hrs in SLT, 3.32 (0.8) hrs standing, 1.27 (0.37) hrs in LIPA and 0.53 (0.31) hrs in MVPA daily. Regression analysis identified LIPA to have a significant negative association with DBP ($\beta=-7.05$, SE=1.76, $p\leq 0.001$) and TG ($\beta=-0.20$, SE=0.071, $p\leq 0.005$). MVPA showed no significant association with any of the health variables. No relationship was observed between activity behaviours and body composition measures.

The findings of the present study indicate that participation in more LIPA may have health benefits for adolescents. In addition, increasing the amount of time spent in LIPA may be a plausible alternative strategy for reducing health risk in adolescents.

Pain and Injury in Elite Adolescent Irish Dancers: A Cross-Sectional Study

Oral - Abstract ID: 72

Dr. Roisin Cahalan (University of Limerick), Dr. Norma Bargary (University of Limerick), Dr. Kieran O'Sullivan (Aspetar Orthopaedic and Sports Medicine Hospital)

Dance is an extremely popular activity among adolescents with a range of associated physical and psychological health benefits. However, pain/injury in young elite dancers is pervasive, and the underlying risk factors are poorly understood. This study investigated the incidence of pain/injury in elite adolescent Irish dancers and examined a range of biopsychosocial risk factors potentially associated with that incidence. Thirty-seven championship level Irish dancers completed baseline questionnaires recording any episode of pain/injury over the previous twelve months. Additionally, dancers provided information regarding their dance practices, general health, sleep, eating habits, and a range of psychological factors including mood, catastrophizing, passion for dance, and achievement motivation. A baseline physical screening protocol including assessment of balance, fitness, flexibility, endurance, and functional movement was conducted. Subjects were separated into a "More Pain/Injury (MPI)" group (n= 17) or "Less Pain/Injury (LPI)" group (n=20) based on their reported pain/injury history over the previous year. Statistical analysis was conducted using independent samples t-test, the Mann-Whitney U test for skewed variables, and the *test of independence for categorical variables as appropriate*. *Eighty-four percent of subjects recorded at least one pain/injury during the previous year. The lower limb, particularly the foot and ankle, was most commonly affected. Factors significantly associated with pain/injury included having an unusual number of troublesome body parts (p = 0.002), often/always dancing in pain (p = 0.033), and high levels of anger/hostility (p = 0.045). This study demonstrates that elite adolescent Irish dance is associated with a substantial risk of pain/injury, which appears to be greater than that incurred by young dancers from other genres. Proposed explanations include inappropriate technique progression, unique choreographic features, and an overly arduous calendar of competitive events. A prospective study nearing completion will help clarify causal factors in these dancers.*

Particle Image Velocimetry Measurements in a Patient-Specific Arterio-Venous Fistula

Poster - Abstract ID: 116

Ms. Neda Alam (University of Limerick), Dr. Sita Drost (Delft University of Technology), Dr. David Newport (University of Limerick)

Chronic kidney disease (CKD) affects 14.8% of adults in the US alone. End stage renal disease (ESRD) is the final stage of CKD when the kidneys lose their ability to perform their primary functions. For ESRD renal replacement therapy such as kidney transplantation or dialysis is required for patient survival. The most common treatment option is hemodialysis. To enable hemodialysis, two elements are required: high flow rates and vascular access. There are three types of vascular access for hemodialysis: an arteriovenous fistula, an arteriovenous graft or a central venous catheter. Unfortunately these access types have high failure rates, one of the main problems being vascular occlusion. The problems of vascular access are a key concern in patient morbidity, mortality and ESRD costs. Particle image velocimetry (PIV) is a commercially available technique used to measure velocity fields by determining the displacement of tracer particles within the flow during a known time interval. This investigation aims to use PIV to capture the hemodynamics within a patient-specific AVF. Its spatial resolution can be chosen to match that of numerical simulations. Experiments were performed on a compliant and non-compliant model of a patient-specific brachio-cephalic AVF. PIV measurements were recorded across the anastomosis on planes parallel to each other. Both steady flow ($Re=1733$) and a patient-specific pulsatile flow ($Re_{av}=1733$, $Re_{max}=2145$) were studied. The results from this study displayed unsteady flow patterns which are further supported by the particle streaks. The work discussed here serves as a basis to investigate the feasibility of ultrasound imaging velocimetry, a non-doppler technique which combines PIV and ultrasound imaging, as an in-vivo validation technique for future work.

Recommendations for Designing Social Network Systems for Older Adults- A Multi-method Approach

Poster - Abstract ID: 164

Mr. Bilal Ahmad (University of Limerick/ Lero), Prof. Ita Richardson (University of Limerick/ Lero –the Irish Software Research Centre/ Health Research Institute), Dr. Sarah Beecham (University of Limerick/ Lero)

Social isolation is a recognised problem for the older adults (OAs). This problem is becoming more prevalent because the proportion of OAs is increasing throughout the developed world. Technology is regarded as a possible way to overcome this, allowing for the creation of a more inclusive society, where, for example, social network systems (SNSs) can keep OAs in contact with family, friends, colleagues and local communities.

The ultimate objective of our research is to come up with a set of reusable recommendations applicable for developing and evaluating SNSs that can overcome the social isolation of the OAs by integrating them into the community, thereby, enhancing their quality of life (QoL).

We have undertaken a systematic literature review using the snowballing approach, examining 51 peer-reviewed primary studies on SNSs for OAs. We investigated the current state of practice of SNSs for OAs as end-users. We explored what OAs think about SNSs, what they need from SNSs and whether these needs are met in existing systems. Currently, we are conducting semi-structured interviews to understand the QoL and social engagement of OAs and to elicit recommendations for the development of a prototype SNS.

There is a discernible increase in the number of social network systems designed for OAs since 2005, which claim to meet needs such as simplicity, ease of use, privacy and access to useful information. The majority of these systems are concerned with communication. However, our interviews with OAs are highlighting the need for SNSs which go beyond communication, extending their use to support the integration of OAs into the community..

SNSs remain a potential way to reduce the social isolation of OAs. However, the extent to which SNSs can replace real human contact is largely unexplored, as is whether SNSs can trigger the creation of new supportive communities.

Relating the mechanical properties of atherosclerotic calcification to radiologically classified density: a nanoindentation approach.

Poster - Abstract ID: 228

Ms. Rachel Cahalane (University of Limerick), Dr. Hilary Barrett (University of Limerick), Prof. Michael Walsh (University of Limerick)

Introduction:

The use of Cutting Balloon Angioplasty (CBA) has been advocated as a potential superior treatment strategy compared with conventional balloon angioplasty for the pre-dilation phase in calcified atherosclerotic plaque lesions. However, arterial site has a significant effect on the mechanical properties of plaques and the presence of different calcifications within the atherosclerotic lesions cause unpredicted outcomes for current endovascular interventions including CBA. In this regard, this study measures the hardness properties of calcifications from the femoral and carotid plaques and links hardness properties to specific radiologically classified density providing a method to preoperatively determine local plaque mechanics using CT imaging for endovascular intervention.

Materials and Methods:

The carotid and femoral samples were acquired from standard endarterectomies carried out at the University Hospital Limerick. Micro-Computed Tomography (μ CT) was used to simultaneously determine the location of the calcifications within the plaques and quantify their density. Density mapping was carried out at the site of calcification using three radiologically classified density gradients. Nanoindentation was then carried out to obtain the hardness properties of these calcified areas.

Results:

Structural analysis of the samples shows a significant difference in the ratio of calcification to total tissue content seen in carotid versus femoral plaques (0.28 ± 0.24 and 0.51 ± 0.17 respectively). The nanoindentation results obtained demonstrate that the average modulus for arterial calcifications ranges from 5GPa to 20GPa and the average hardness ranges from 200MPa to 700MPa. The results also show that these hardness properties increase with each increasing density gradient.

Conclusions:

To be able to use CBA as an endovascular method of treatment for calcified atherosclerotic plaques the mechanical characteristics of the tissue must be determined. Additionally, by relating these properties to radiologically classified densities, physicians may be able to predict the behaviour of the tissues prior to endovascular intervention.

Sleep & Physical Activity: A Nationwide survey among health professionals on their engagement with people who have Inflammatory Arthritis

Poster - Abstract ID: 41

Mr. Sean McKenna (University of Limerick), Prof. Alan Donnelly (University of Limerick), Dr. Alexander Fraser (University Hospital Limerick), Dr. Norelee Kennedy (University of Limerick)

Introduction: Disturbed sleep is a common complaint among people with inflammatory arthritis and this consequently has an effect on their quality of life, in addition to mental health. Little is known regarding the current practice of Health Professionals in Rheumatology on their engagement with patients in discussing their sleep.

Methods: Members from the Irish Rheumatology Health Professionals Society (IRHPS) (n=43) were invited to participate in a cross-sectional survey hosted on SurveyMonkey^{(R)TM}. Descriptive statistics, Chi-square tests/Fisher's exact tests were used to analyse the data using SPSS v22.

Results: Twenty eight (65%) Health Professional's (HP's) responded. Mean number of years qualified 16.93 (SD 6.82), mean number of years working in Rheumatology 10.07 (SD 4.04), with 40% of respondents reporting half of their patient workload coming from people with inflammatory arthritis. Just 52% discuss sleep with their patients, with 46% mentioning fatigue as their main reason when enquiring. Of those who do discuss sleep, 100% of their patients mentioned 'pain' and 'waking up in the middle of the night or early morning' as disturbances, while 67% reported 'taken prescribed or over the counter medication' to help with their sleep. There was no statistically significant association between longer years qualified, more years working with people with inflammatory arthritis or health profession, when discussing sleep.

Conclusions: Only half of HP's discuss sleep with their patients with fatigue as the main reason when enquiring. There is a need to develop education and training for HP's in the importance of enquiring about their patients sleep quality and disturbances and the potential impact it has on their physical activity levels. In addition, the effects of physical activity and exercise interventions on poor sleep quality and disturbances needs to be examined so that HP's are in a better position to promote health and well-being in people with Inflammatory Arthritis.

Sleep and physical activity: an objective profile of people who have rheumatoid arthritis

Poster - Abstract ID: 40

Mr. Sean McKenna (University of Limerick), Dr. Marie Tierney (NUIG), Ms. Aoife O'Neill (University of Limerick), Dr. Alexander Fraser (University Hospital Limerick), Dr. Norelee Kennedy (University of Limerick)

Introduction: Regular physical activity (PA) is important for people with rheumatoid arthritis (RA). Poor sleep is a common complaint among people with RA, which may have an effect on their PA levels. There is a lack of objective information regarding total sleep time (TST) and its relationship with PA in this population.

Methods: Cross-sectional study design was used to recruit people with RA, having a confirmed diagnosis according to the ACR classification criteria, at two UHL outpatient clinics. SenseWear Pro3 Armband^{(R)TM} applied to right upper arm and participants were encouraged to wear it 24 hours a day, for 8 days. Four valid days, with 95% wear time determined as measurement.

Results: Seventy five (75) participants completed period of monitoring, with 32 having required measurement criteria. Mean TST was 5.7 (SD_1.11) hours per night, with a median 1.25 (IQR_1.88) hours of daily PA. Sleep time had a positive significant relationship with PA ($p=0.018$); PA demonstrated a negative significant relationship with functional limitations ($p=0.009$); PA energy expenditure further demonstrated a significant negative correlation with disease activity ($p=0.011$) and low disease activity was strongly correlated with improved global health ($p<0.001$). PA correlated with lower CRP levels and CRP levels had in turn a significant relationship to global health ($p=0.034$).

Conclusion: People with RA who are more physically active have longer TST. Disease related and functional variables also correlate with sleep, with lower CRP, lower DAS, lower HAQ and increased global health in those with higher PA levels and longer TST. Findings are significant given recent information that sleep is commonly reduced in people with RA and that people with RA have lower physical activity profiles.

Future research should specifically investigate the effect of physical activity and exercise on sleep and from this, the most effective exercise prescription in terms of the FITT principle.

The Effect of a Mediterranean and Low Fat Diet on Intrahepatic Lipids, Liver Stiffness Measure and Insulin Resistance in Non Alcoholic Fatty Liver Disease

Oral - Abstract ID: 208

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Non Alcoholic Fatty Liver Disease (NAFLD) is the most prevalent liver disease globally. Lifestyle modification including diet is the mainstay of therapeutic management, however, there is lack of evidence supporting a preferred diet prescription. 'MEDINA' aims to determine the efficacy of a Mediterranean Diet (MD) and Low Fat Diet (LFD) on liver outcome measures and insulin resistance in NAFLD.

Patients with NALFD were randomised to a MD or LFD for 3months. Magnetic Resonance Spectroscopy (MRS) and Fibroscan™ were used to measure intrahepatic lipids (IHL) and liver stiffness (LSM), respectively. Insulin resistance was determined using homeostatic model of assessment (HOMA-IR).

Results are presented for the first 25 patients (52% females); 11 were randomised to the MD (mean age 55.7 ± 12.3 years, BMI $32.9 \pm 6.3 \text{ kg/m}^2$) and 12 to LFD (49.6 ± 15.9 years, BMI $32.4 \pm 8.0 \text{ kg/m}^2$). There were no significant differences between groups at baseline. IHL reduced in the MD; (15.0 ± 7.2 to $13.2 \pm 6.9\%$, $p=0.263$) and increased in the LFD (9.6 ± 11.9 to $9.8 \pm 14.8\%$, $p=0.241$). LSM was unchanged in the MD ($8.9 \pm 4.8 \text{ kPa}$ to $9.0 \pm 6.3 \text{ kPa}$ $p=0.656$) and decreased significantly in the LFD ($10.4 \pm 2.4 \text{ kPa}$ to $9.5 \pm 10.8 \text{ kPa}$ $p=0.022$). HOMA-IR reduced, albeit non significantly in both the LFD and MD (5.3 ± 3.5 to 4.7 ± 5.0 , $p=0.065$ and 5.3 ± 3.8 to 4.7 ± 2.6 , $p=0.760$ respectively). Body weight significantly reduced in the LFD ($89.6 \pm 26.0 \text{ kg}$ to $83.0 \pm 17.7 \text{ kg}$, $p=0.045$) with a non-significant increase in the MD ($106.5 \pm 17 \text{ kg}$ to $107.1 \pm 17.4 \text{ kg}$, $p=0.929$).

Preliminary findings indicate that a MD may reduce IHL in NAFLD. A LFD resulted in weight loss and a reduction in LSM. Both diets reduced insulin resistance. Larger cohorts are required to attain power to verify these findings.

Trust factors in healthcare technology: a healthcare professional perspective

Poster - Abstract ID: 165

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Being able to trust technology is of vital importance to its potential users. This is particularly true within the healthcare sector where lives increasingly depend on the correct application of technology to support clinical decision-making. Despite the risk posed by improper development and use of technology in the healthcare domain, there is a lack of research that examines why or how healthcare professionals (HCP) trust healthcare technology (HCT). Therefore, there is little evidence on what are the key trust facilitators and barriers.

In this research, we investigate the concept of trust within a HCT context. We conducted a systematic mapping study to address the following research question:

What is the construct of healthcare professionals' trust in healthcare technology?

Our results present a synthesis of 47 studies that describe the trust factors that HCPs associate with HCT. We found various types of technological, human, and organizational facilitators and barriers. Factors facilitating HCT trust tend to be mostly related to the perception relating to the characteristics of specific HCTs within an organizational context. Barriers are also related to HCT characteristics, and are found in each of the individual, professional, and organizational levels.

The mapping presented in this research can guide decision-makers through their implementation of HCT within healthcare settings such as hospitals and professional practices. This will support efficient and effective use of HCT within the healthcare setting.

Having established trust factors by identifying the key attributes of facilitators and barriers, our future work will develop a HCT trust model. The next stage of this research is to interview and observe HCPs in context, allowing us to extend the list of factors we have identified, and to establish key processes and metrics within the model.

WHATSAPP DOC?

Poster - Abstract ID: 47

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Introduction: Much interest has arisen around the use of smartphones, tablet devices and related apps in the healthcare context. It has been suggested that increasing numbers of healthcare professionals are using these technologies in the workplace. WhatsApp use for clinical work is ubiquitous at UHL, Ireland, UK and further afield.

Aims: To collect objective data regarding WhatsApp usage and the current handback system at UHL among the intern cohort.

Methods: We used a questionnaire to collect objective data on WhatsApp usage, patient information, physician stress and the UHL handback system. This was handed out during lunchtime teaching sessions to the intern cohort.

Results: We had a total response rate of 80% (N=41). All respondents had a WhatsApp account and used a group chat at UHL for clinical work. Nearly 20% of these groups included consultants. We found that 97% of interns send sensitive patient information and don't ask patient permission, that 68% are concerned about sharing patient information on WhatsApp at work but yet 90% feel that they cannot perform at their best without this instant messenger. We found that 95% of interns feel it is safer for patients if everyone on the team uses WhatsApp. When assessing risky phone behaviours we found that 30% have lost their phone within the last year and 5% within last week.

Regarding handbacks at UHL, 90% use WhatsApp and 73% find this stressful with 85% worried about patients getting lost to follow up on the post-take ward round because of the current handback system. We found that 90% get contacted on WhatsApp when they are on Annual leave regarding and that 50% feel this causes them stress.

Conclusion: The solution to these problems is a physician tailored, safe and secure, real-time instant messaging system with added features such as an improved handover system.

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