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COMMENTARY

EDITORIALS

ORIGINAL PAPERS

Byrne et al investigate the implication of outpatient CT coronary angiogram (CTCA) waiting times on patient outcomes and service provision. 172 CTCAs were included. Presentation to clinic prior to scan completion highlights a need for better administration support.

O'Brien et al describe 226 patients who presented with a TIA and ABCD2 <4. This group were found to have a low risk of a subsequent stroke. At 1 year out only 1 patient had a stroke.

ORIGINAL PAPERS (Continued)

Cancer Incidence and Mortality Due to Inadequate Physical Activity

Hickey et al used the relative risks from meta-analyses to calculate the risk of cancer from inadequate levels of exercise. Inadequate exercise resulted in 1500 cancer cases in the period 2011-2015.

Improving Timeliness of Care in Ireland's Emergency Departments

Gilligan and Hetherington state that the long waiting lists for diagnostic tests and OPD appointments have led to patients being referred to the ED's. The extension of access to these services would reduce the ED pressures.

Safety of Emergency ENT Procedures During COVID-19 Pandemic

Affendi et al describe 332 patients- 226 in period 1 and 66 in period 2. No patient or staff member developed Covid-19.

The Impact of COVID-19 on Surgical Activity

Rohan et al compared their surgical activity between 2019 and 2020. Activity in 2020 decreased as follows- admissions from 534 to 408 (24%), surgical interventions from 166 to 122 (27%), outpatients from 1211 to 677 (44%).

The Viability of Telemedicine for Type 1 Diabetes

Thompson and O'Keeffe report that 72% of patients and 67% of doctors are comfortable with video consultations. Most patients (83%) preferred their home as the site of the interaction.

Concealed Pregnancy in the 21st Century

Stokes et al describe 31 cases of concealed pregnancy. Half were primiparas, the average age being 24 years. 5 mothers had a postpartum haemorrhage. 25% of the infants were admitted to the NICU. 29% of the infants were discharged to a foster home.

Clinical Characteristics and Factors Associated With Severity in Patients Admitted With Sars-Cov-2 Infection

Lapthorne et al describe 46 patients admitted with Covid-19 infection. 72% were male. The degree of neutrophilia, lymphopaenia, and raised CRP were significantly associated with death. Bilateral chest x-ray consolidation was associated with the need for respiratory support.

Born into Direct Provision - Outcomes of Infants Born to Asylum Seekers

Murphy et al describe 81 infants born to 78 asylum seeker mothers. The median gestation age at booking was late at 34 weeks. The prematurity rate was 12% and 2 infants died. The NICU admission rate was high 25%. Breast feeding rates were low.

Urological Surgery During the COVID-19 Pandemic

MacCraith et al describe their surgical activity during 6 weeks of the pandemic. 136 procedures were performed. None of the patients contracted Covid-19.

Frailty, COVID-19 Disease Severity and Outcome Among Hospitalised Older Adults

Moloney et al provide a detailed analysis of 69 patients over 70 years with Covid-19. The overall mortality was 23%. Delerium was recorded in one third of patients. 7 patients required intubation and ventilation.

INTERVIEW

Covid-19 and General Practice - Part 4 - Dr. Ray Walley, Member of the National Covid-19 GP Liaison Committee

SHORT REPORTS

Innovation and Transformation in a Time of Crisis; A National Rehabilitation Hospitals Response to COVID-19

Carroll and Carty report on the rapid introduction of a telehealth system. In a matter of 3 weeks the number of remote patient contacts increased from 0 to 222.

OCCASIONAL PIECES

The Impact of the COVID-19 Pandemic on Oncology Clinical Trials

McLaughlin et al report that in the mid-western cancer centre there has been a 60% reduction in patients entered for clinical trials during the first 6 months 2020.

CAMHS Free from Waitlists

Love of Coffee in the Time of Corona

Post Pandemic Physician Vulnerability

Impact of Covid-19 on Mental Health in Ireland Evidence to Date

Providing Medical Education in a Pandemic - A Personal Experience

RESEARCH CORRESPONDENCE

The Establishment of the Irish Trainee Emergency Research Network (ITERN)

CASE REPORTS

Adjunctive Everolimus Therapy in Tuberous Sclerosis-Associated Refractory Epilepsy

Hatmi et al report a patient with refractory epilepsy associated with Tuberous Sclerosis. The patient had a good response to Everolimus 10mgs daily. An additional benefit was a volume reduction in a subependymal giant cell astrocytoma and a renal angiomyolipoma.

Subcutaneous Emphysema and Pneumomediastinum

Kennedy et al report a case of a 23 year old male with forceful vomiting following alcohol and cocaine ingestion. A chest x-ray showed extensive subcutaneous emphysema and pneumomediastinum. He was treated with oxygen.

Baclofen Toxicity A Mimic of Brain Stem Death

Campbell et al describe a 46 year old female with a Baclofen overdose. She had signs of brain stem death. The brain stem changes are due to Baclofen action on the spinal GABAb receptors.

Self Proning in COVID-19; A Physician's Experience

MacSweeney et al describe the personal experience of a 23 year old anaesthesia trainee with Covid-19 respiratory compromise. The main benefit for the patient was a reduction in his cough. The biggest side-effect was stiffness. His physiology showed improvement in oxygenation.

BOOK REVIEWS

Book Review of Psychiatrist in the Chair - The Official Biography of Anthony Clare

LETTERS TO THE EDITOR

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Covid-19 Vaccination: The Bridge to 2021

J.F.A. Murphy - Editor of the Irish Medical Journal

Over the last 9 months the Covid-19 pandemic has progressively ground society to a halt. The global data shows that there have been 64 million cases and 1.5 million deaths. The corresponding figures for Ireland are 72, 798 cases and 2069 deaths. The infectivity and virulence of the virus has necessitated a cycle of lockdowns-lifting of restrictions-followed by further lockdowns. Most countries have now experienced both a spring and autumn wave. Ireland has done somewhat better with fewer than 300 deaths since September 1st, 2020, which is just 15% of its first wave total. The ever-changing circumstances that we live in has caused great confusion. A sense of 'going nowhere' began to creep in. Some commentators talked about the pandemic in terms of years rather than months. The future, at the very best, looked uncertain.

However, things rapidly changed with the announcements about the successful Covid-19 vaccine trials. This has generated a new sense of optimism. Using the CNN anchor-man parlance, the needle has moved. We are now in a much better place as we leave 2020 behind and head into 2021. There is new hope that the stranglehold of SARS-CoV-2 will be loosened over the coming months. The dialogue on the media has shifted. Discussions about R numbers, social distancing and lockdowns, have been replaced by the challenges we face in executing the vaccination roll-out.

The UK's medicines and healthcare products regulatory agency (MHRA) gave emergency authorisation to the Pfizer-Bio-N-Tech coronavirus vaccine on Wednesday December 2nd, 2020. The speed of its decision caught some commentators by surprise[1]. The MHRAs chief executive June Raine credited the UKs rolling review process for the rapid turnaround. The analysis of preliminary data as it came in positioned the Agency for a speedy decision. The committee analysed 1,000 pages of documentation before granting approval. The UK regulatory standards are highly regarded internationally. Its approval decision will act as a bellwether for the other regulators.

A total of 800,000 doses of the vaccine were packaged at the Pfizer Belgian manufacturing plant and shipped to the UK. The vaccine vials will be transported in dry ice. The vaccine is stored at -70C until a few days before use. The vaccine can survive 5 days in a normal refrigerator. The vials will be initially distributed across 50 hospitals. Vaccinations will commence on Tuesday December 8th, 2020. The initial plan is to vaccinate those over 80 years and healthcare staff. The recipients will include 150,000 doctors and 330,000 nurses and midwives. Each individual will require 2 doses administered 1 month apart.

EU countries are waiting for the European Medicines Agency to consider the Pfizer vaccine. It will announce its decision on December 29th, 2020. If the outcome is favourable, the Agency will seek the views of all 27 EU countries, which will take a further few days. Vaccine administration will commence in January. The FDA may take a little longer to reach a decision. The Americans employ a more cautious approach. They examine raw data again whereas the UK and Europeans rely a little more on the company's own analysis[2]. The FDA head Stephen Hahn said he was hopeful that the agency would approve a vaccine this month. He added that he realised the urgency of the situation.

The Taoiseach has said that the vaccine will be rolled out as soon as the European Medicines Agency gives the go ahead. The vaccine will be free of charge to everybody. The Government is engaged in scenario planning for the administration of the vaccine. Denis McCauley, Chairman of the GP Committee of the IMO stated that the first distribution of the vaccine will be straight forward. It will be given to those over 80 years and healthcare workers (this will be subject to further review). The next groups to receive the vaccine will require further consideration.

Ireland has a good track record when it comes to vaccines. The Dept. of Health speedily introduced the Haemophilus Influenzae B (Hib) vaccine[3] on October 1st, 1992. This was the very same month that it was launched in the UK, where it was developed. It was an important landmark for Irish Paediatrics. The vaccine provides protection against the commonest cause of bacterial meningitis in children, the exclusive cause of epiglottitis, and a frequent cause of cellulitis and bone infection. After the introduction of the vaccine the number of cases fell from 100 per year to under 10 per year by 2000. It is even less common in the current era. The subsequent vaccines that have been added are meningococcus C (2000), pneumococcus (2000), hepatitis B (2008), HPV (2010), meningococcus B (2016), rotavirus (2016), meningococcus ACWY (2019). A major influenza vaccination campaign is also launched annually.

No vaccine can be widely administered to children until it has been tested in them. Pfizer began testing its vaccine in children aged 12 and over in October. Moderna has announced on Wednesday December 2nd, 2020 that it will shortly begin vaccine trials on children aged 12-17 years. The study will include 3,000 children. Similar to adults, they will receive either the vaccine or saline in 2 doses one month apart. It is possible that children will have stronger reactions, including fever, muscle ache and fatigue. AstraZeneca has also tested its vaccine on children in the UK.

It is difficult to predict how quickly a successful vaccine will restore public confidence and a sense of normality. The New York Times surveyed the thoughts and attitudes of 700 epidemiologists this week.[4] Half said that they would not change their personal behaviour until at least 70% of the population is vaccinated. Thirty per cent said that they would make some changes to their lifestyle when they themselves had received the vaccine. The additional concerns expressed by this academic group were (1) how long the vaccine immunity would last (2) will the virus mutate (3) the challenges of vaccine distribution (4) the reluctance of some people to take the vaccine and (5) that scientists don't know whether vaccinated individuals could still spread the virus. It is likely that the views of the non-epidemiologist general public will be somewhat different. However, what everybody seeks is a return to pre-Covid-19 normality.

Vaccine hesitancy is a term that we will have to become familiar with in the coming months[5]. It is described as an expression of concern or doubt about the value or safety of a vaccine. These individuals are neither pro nor anti vaccine. Melinda Gates, the Gates Foundation, feels that social media is a major obstacle. It is easy to replicate conspiracies. Disinformation is easy to spread and this time round it has the potential to cost many lives. The combination of social media, people's high levels of anxiety, and the polarisation of society is a toxic mixture. The willingness to take the Covid-19 vaccine will be affected by what is said and who says it in the months ahead. The public health campaign needs to be clear and consistent. Corcoran[4] points out the importance of staying on the message. Listen to any concerns but don't bring up new concerns. Stating that a vaccine is 99% safe is better than stating that there is a 1% risk of side-effects. The most effective previous investment in public information on vaccines was the march of the Dimes polio vaccination efforts in the 1950s. The decision of the Government to indemnify the companies producing the Covid-19 vaccines is important. It sends out the message that it has confidence in the effectiveness and safety of the product.

In the coming month the vaccination programme will commence in many countries. It is calculated that globally 5.6 million people will need to be immune in order to eradicate the pandemic[6]. It will require a concerted effort both nationally and internationally.

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Long Term Impact of COVID-19 on General Practice Must Be Assessed

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Irish College of General Practitioners

How general practice is delivered in many countries has drastically changed due to the COVID-19 pandemic. Across Europe, new ways of working and uncertainty are putting stress on family medicine[1]. Ongoing studies, carried out by the Irish College of General Practitioners (ICGP), are keeping us informed about what is happening in practice in order to assist us to respond in terms of advocacy, representation and GP information needs.

An increase in digital consultations has been observed in Ireland and this applies also across Europe and the UK[1,2]. Concerns exist regarding the potential for missed diagnosis and the patient cohorts that these consultation modes do not suit. General practices in Ireland have shown they are adaptable and responsive. However, they have also reported reduced income, similar to reports from Australia and the USA[3,4], and long-term sustainability may be an issue for some.

GPs are motivated by altruism to work during pandemics despite the high personal risk, and they are enthusiastic about further training and information[5]. The ICGP continue to see huge numbers of GPs attending weekly webinars keeping all GPs informed and up to date on COVID-19 and non-COVID issues. The vast majority of GPs have rated these webinars as highly useful and rated the performance of the ICGP during the pandemic as excellent.

However, despite preparedness planning, implementing pandemic policies faces multiple obstacles[5]. GPs are facing rapidly changing patient flows, clinical algorithms, new care pathways, and the need for new ways of delivering high-quality care[1,6,7]. Many positives have been reported with the majority of GPs noting increased teamwork within practices and increased connectivity with pharmacists, possibly due to almost all GPs reporting use of electronic prescribing. Major changes in the way care is delivered to certain groups of patients has been documented, for example the migrant and homeless populations. This has occurred due to rapid and greatly enhanced collaboration between relevant stakeholders and agencies throughout the pandemic.

Maintaining the quality of healthcare is important in sustaining a healthy workforce, which is essential to support a healthy economy during and after the pandemic. Some of the responses to the pandemic could bring about lasting changes to the health system[8], however, we need to know that the changes are effective and to identify possible future health implications for patients[2,9].

A noted decrease in consultations for non-COVID related symptoms has been observed. Irish GPs have reported a decline in attendance among certain patient groups for non-COVID-19 related consultations. A large proportion of practices surveyed by the ICGP, noticed a decline for under 6's, over 70's, from people with chronic conditions, and from people with mental health concerns. This could have serious impacts on patient safety with calls on patients not to self-diagnose or delay seeking treatment.

Patients are also changing the way they use health services, with more emphasis on self-care. Patient feedback will be invaluable for maintaining lasting benefits and to understand how all of these changes impact on patient experience, health inequalities and patient-centred care.

Hospitals are under pressure also. GPs in some areas are reporting reduced or no access to chest x-rays, ultrasounds and hospital phlebotomy without referral to an emergency room. Pathways to access urgent gynaecology, cardiac and TIA assessment and paediatric services are also affected as are outpatient pathways for patients with diabetes, heart failure, ischaemic heart disease, COPD and asthma. We need to ensure that our entire health system continues to work together effectively with the patient at the centre.

Even before this pandemic, GPs reported being unable to take sick leave or annual leave due to the shortage of locums. GPs deal with the administrative aspects of the job after the clinical day has concluded, adding a reported average of three hours to their working day.

Our data shows that approximately one fifth of our current GP workforce is due to retire within 10 years and this pandemic may lead to more GPs deciding to retire. There is an unequal distribution of GPs across the country and this is not matched to need. The difficulties associated with single-handed practice makes it a less attractive option. All of this will have implications for the provision and delivery of services. The ICGP continues to work with the relevant stakeholders to address many of these issues including increasing the number of GP training places and providing alternative routes and recognition to provide more GPs in the system.

The COVID-19 pandemic has the potential to change general practice forever[6,8,9]. How general practice is delivered may not return to as before. Increased telemedicine is likely. However, we should not lose sight of the relationship between the GP and patient and the importance of good communication and trust[7,9,10]. It is necessary to assess the impact of this shift on patient health and to assess healthcare provider and patient experience to ensure continued high-quality care and patient safety. Furthermore, we need to understand the impact of changing work requirements and evolving consultation techniques on the general practice workload and on practice income and viability.

The ICGP will continue to advocate for general practice and to seek an increased say on policy development, greater engagement with the HSE to support general practice in deprived urban and rural areas and the expansion of quality training in addition to improved access for their patients to allied primary care professionals and services such as mental health.

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A Review of a Tertiary Referral Centre's CT Coronary Angiography Programme

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Abstract

Aims

To investigate the implication of outpatient CT coronary angiogram (CTCA) waiting times on patient outcomes and service provision.

Methods

All outpatient CTCAs requested for stable chest pain during 2017 in our catchment area were included. Rate of major adverse cardiovascular events (MACE), presentations with chest pain to the emergency department (ED), cardiology outpatient attendance, time interval in alteration of Coronary artery disease (CAD) prognostic treatment, rate of angiography and percutaneous coronary intervention (PCI) were noted.

Results

172 CTCAs were included. 11 (6.4%) presented to ED with chest pain. 38 (22.1%) attended outpatients prior to scan completion. 17 (9.9%) required alteration of prognostic treatment, taking on average 10.4 (+/-4.5) months to occur. 21 (12.2%) underwent coronary angiography and 7 (4.1%) had PCI, which took on average 9.9 (+/-6.6) months. One non-fatal MI requiring CABG was noted.

Conclusion

The low rate of MACE and revascularisation likely represents appropriately low risk patient selection for CTCA. Presentation to clinic prior to scan completion highlights a need for better administration support.

Introduction

CTCA is becoming increasingly utilised in the investigation of CAD in low to intermediate risk patients presenting with stable chest pain, predominantly due to its high sensitivity (95%) and specificity (83%) for CAD, and a negative predictive value of up to 99% for significant (>50% stenosis) CAD[1]. It allows for non-invasive imaging of the coronary arteries to identify the presence of CAD as well as providing important prognostic information such as the degree of stenosis, site of the lesion and the presence of multi-vessel disease, expediting invasive angiography in patients with high-risk lesions on CTCA [2]. Current NICE guidelines recommend CTCA as a first line investigation in patients with typical or atypical angina.[3] Recent technological advances have allowed for enhanced image quality, lower radiation dose and even CT fractional flow reserve in the target vessel predicting that its use in chest pain pathways will most likely continue to rise[4-5]. Despite recently reported benefits in CTCA incorporation into chest pain pathways its usage remains underfunded. A recent study done in the UK reported that the number of CTCA scans done would need to increase eightfold to fully implement the updated NICE guidelines[6].

The SCOT-Heart study found the addition of CTCA to standard care in low-medium risk patients allowed for a 41% relative reduction in the rate of death from coronary heart disease (CHD) or non-fatal MI versus patients who underwent standard care in a 5 year analysis on clinical outcomes.[7] There was a significant increase in the implementation of preventative therapies in the CTCA arm versus standard care and similar rates of invasive angiography and PCI across both groups. Patients in the CTCA arm had their scans completed in a 6-week period. This reduction in mortality from CHD and non-fatal MI is thought to be due to important prognostic information obtained from the scan and a more aggressive therapeutic strategy and better patient engagement[7]. **H**owever**,** despite this observed clinical benefit there remains a long outpatient waiting list for CTCA in our centre.

In our study we aimed to identify the implications of long waiting times for CTCA in terms of re-presentation to the emergency department with chest pain or attendance to outpatient clinics prior to the completion of the scan. We also aimed to identify the time interval between commencing, or up-titrating primary preventative medications, rate of coronary angiography, percutaneous coronary intervention (PCI) and major adverse cardiovascular events (MACE) while patients were waiting for their scan.

Methods

In this single centre retrospective review, a compiled list of all CTCAs booked from 1st January 2017 to the 31st December 2017 was obtained using the PACS database in our centre. Scans booked during this time period were examined to allow a 12-month period for completion at the time of initial data collection in January 2019. Only scans that occurred on an outpatient basis for the investigation of possible CAD were included in the study. Scans booked during an inpatient episode but happened as an outpatient were also included. CTCAs booked for another indication, such as pre-TAVI, were excluded.

Only patients within our catchment area were included to maximise accurate recording of attendances to the emergency department and outpatients. Patients with known CAD were also excluded. All patients who met the above criteria were selected for inclusion in the study.

All scans were vetted based on urgency by the hospital's radiology department. All CTCAs that met the inclusion criteria, including those booked and discussed as urgent to expedite scan performance, were included for analysis.

We documented the indication, date of booking, date of completion and result of the scan, including the presence of both obstructive and non-obstructive CAD. The electronic patient record was used to assess their medication list prior to ordering the CTCA and whether primary preventative medications were initiated or titrated after scan completion. The time period between ordering the scan and this modification was noted. Subsequent clinic attendances were also reviewed to see if the patient attended a cardiology clinic prior to scan completion. Individual patient episodes were studied to identify attendance to the emergency department with chest pain due to suspected CAD during the intervening period.

In patients whom invasive angiography was undertaken as a result of the scan, the rate of PCI and the waiting period from scan booking was recorded. The rate of myocardial infarction, CVD related death and stroke in our patient cohort was also documented.

Results

A total number of 398 scans were booked, of which 241 were completed, during the study period. 172 patients met the inclusion criteria. The mean (mean (+/- SD)) waiting time to CTCA completion in included scans was 8.8 (+/-4.4) months.

CTCA Outcome

54 (31.4%) studies were positive for CAD, of which 14 (8.1%) had obstructive CAD. 2 (1.2%) patients had evidence of three vessel disease, 8 (4.7%) had obstructive proximal LAD disease and 2 (1.2%) patients had left main stem disease evident on CTCA. Of these 12 patients with significant prognostic findings on CTCA, 5 (41.7%) had significant findings confirmed on invasive angiography. 4 (2.3%) underwent PCI and 1 (0.6%) underwent CABG.

17 (9.9%) patients had initiation or titration or primary preventative medications such as antiplatelet and statin therapy. The mean waiting time to have this change made was 10.4 (+/-4.5) months. The longest waiting period noted was 18.2 months.

21 (12.2%) patients underwent further invasive imaging with angiography based on their CTCA result. A total of 7 (4.1%) patients subsequently underwent PCI. 4 (2.3%) patients had PCI to proximal LAD and/or LMS. The mean waiting time noted was 9.9 (+/- 6.6) months from scan ordering to revascularisation.

Major Adverse Cardiovascular Events (MACE)

Only one MACE was documented during the study period. One patient suffered from non-fatal MI after scan completion, but before attendance at cardiology outpatients, and required an emergency inpatient coronary artery bypass grafting (CABG). This patient had their CTCA booked 10.5 months prior to their non-fatal MI. Their CTCA showed evidence of significant triple vessel disease. The patient's inpatient angiogram showed severe obstructive triple vessel disease (Figures 1,2).

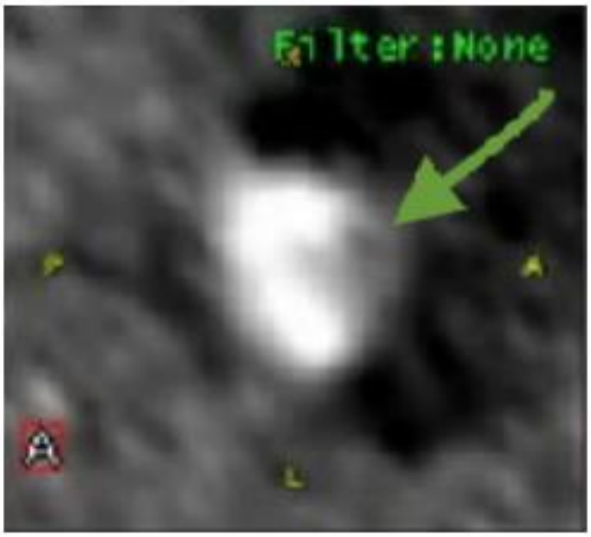

Figure 1 shows a cross-sectional view of the LAD, showing calcification of the coronary artery from 6 o'clock, through to 12 o'clock. with an area of low attenuation plaque at 2 o'clock (green arrow).

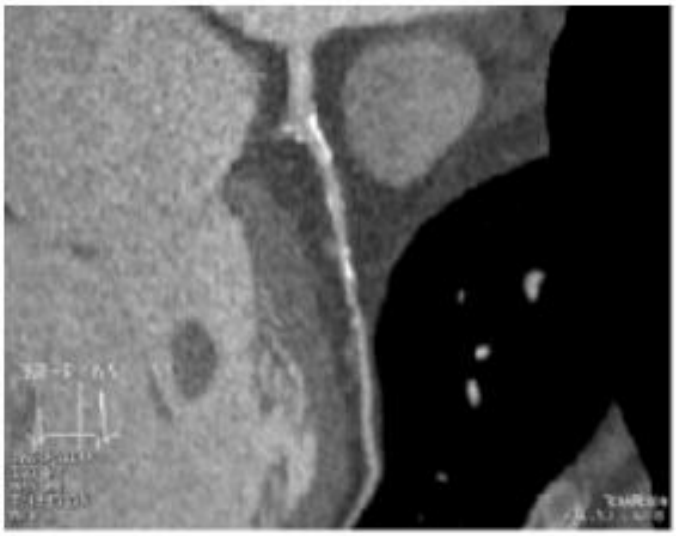

Figure 2 shows a constructed multi-planar reformatted image of the LAD, with areas of calcification at the origin of the LAD and in the mid-LAD

Figures 1 and 2 show one patient who suffered a non-fatal MI following 4 weeks following CTCA, prior to attendance at outpatient clinic. He presented to the emergency department with a NSTEMI and underwent inpatient Coronary Artery Bypass Grafting.

Impact on Service Provision

38 (22.1%) patients awaiting CTCA attended a cardiology clinic prior to the completion of their scan. 4 patients attended clinic twice and 2 patients attended clinic three times prior to scan completion. In all cases an outpatient appointment was booked prior to the average waiting time for CTCA completion in the outpatient setting. 11 (6.4%) patients attended the emergency department with chest pain while awaiting CTCA with all patients staying for one day or less. All patients were thought to have non-cardiac chest pain, and none underwent inpatient angiography based on their presentation or revascularization at any stage.

Table 1 outlines patient demographics, CTCA result, rate of invasive angiography and initiation/titration of primary preventative medications, ED/OPD presentations and MACE.

Table of Results (n=172)				
Age in Years (mean (+/- SD))	53.1 (+/-9.3)			
Sex (n, %)	Male		Female	
	81 (47.1%)		91 (52.9%)	
CTCA Waiting Time in Months (mean (+/- SD))	8.8 (+/- 4.4)			
CTCA Result (n, %)	Negative	Non-Obstructive CAD	Obstructive CAD	
	118 (68.6%)	40 (23.3%)	14 (8.1%)	
Prognostic Information (n, %)	LMS Disease	Three Vessel Disease	Obstructive Proximal LAD Disease	Significant Disease Confirmed on Angiography
	2 (1.2%)	2 (1.2%)	8 (4.7%)	5 (2.9%)
Invasive Procedure Based on CTCA Result (n,%)	Diagnostic Angiography	Proceed to PCI	Mean Waiting Time in Months to Revascularisation (mean (+/- SD))*	
	21 (12.2%)	7 (4.1%)	9.9 (+/- 6.6)	
Initiation/Titration of Preventative Medication (n,%)	Total	Mean Waiting Time in Months (mean (+/- SD))*		
	17 (9.9%)	10.4 (+/- 4.5)		
Presentations to ED with Chest Pain (n, %)	11 (6.4%)			
Number of Presentation to OPD Prior to Scan Completion (n, %)	1	2	3	
	30 (17.4%)	4 (2.3%)	2 (1.2%)	
MACE (n, %)	1 (0.6%)			

Data are presented as mean (+/- standard deviation), absolute values and percentages, as appropriate.

CTCA=Computed Tomography Cardiac Angiogram, CAD=Coronary Artery Disease, LMS=Left Main Stem, LAD=Left Anterior Descending Artery, ED=Emergency Department, OPD=Outpatient Department, MACE=Major Adverse Cardiovascular Events

**Mean waiting times refer to the time from CTCA booking to either revascularization or medication titration.*

Discussion

The most notable implication of long waiting periods for CTCA in our centre was attendance to a cardiology clinic prior to completion of the scan. All patients were considered low to intermediate risk and many underwent CTCA to out rule CAD as a cause of their chest pain. Of note 4 patients attended outpatients twice, and 2 patients attended an outpatient clinic 3 times prior to scan completion. The most notable reason for this was booking a subsequent clinic visit sooner than the average wait period for CTCA in our centre.

Implementation of safeguarding mechanisms such as advising secretaries to only book outpatient appointments after patients have undergone CTCA may help improve service efficiency and reduce waiting times in general for cardiology OPD.

11/172 (6.39%) of patients re attended the emergency department with chest pain in the intervening period. Although this is not a significantly high figure, shortening waiting times for CTCA may reduce the number of patients re attending the hospital with further episodes of chest pain. Although the mean waiting period was 10.4 (+/-4.5) months for implementation or alteration of preventative strategies and 9.94 (+/-6.6) months for revascularisation in those who underwent PCI, the rate of MACE noted in our study was very low (1, 0.6%). The most likely explanation for the low rate of MACE in our study is the appropriate selection of low to intermediate risk patients undergoing CTCA and a short period of follow up.

CTCA also has the advantage of providing important prognostic information on coronary anatomy and plaque morphology. Post hoc analysis of Scot-Heart Data showed that adverse plaque, defined by low attenuation or the presence of positive remodeling, was associated with a two to three-fold increase in death from CHD and non-fatal MI, although this finding is not independent of calcium scoring[9]. In our study CTCA also provided important prognostic information to risk stratify our patient group. 12 patients had adverse features such as obstructive left main stem lesions, proximal LAD lesions and three-vessel disease, although there wasn't routine reporting of specific adverse plaque characteristics. All of these patients went on to have invasive angiography and 4 had PCI. 1 patient presented with a non-ST segment elevation MI and required an emergency inpatient CABG.

40 (23.3%) and 14 (8.1%) patients had evidence of non-obstructive and obstructive CAD respectively on CTCA, which is lower than that previously reported in the original SCOT-Heart study (38% non-obstructive and 25% obstructive CHD). The rate of invasive angiography based on CTCA result (12.2%) is in keeping with results from SCOT-Heart, however lower rates of PCI were documented in our study (4.1% vs 8.9%). These findings may indicate that our cohort was relatively lower risk than that studied in SCOT-Heart and suggests a selection of lower risk patients undergoing CTCA[8].

Despite delays in implementation of therapeutic strategies in patients with a positive CTCA in our study, only one MACE was noted during the study period. This is most likely a result of the low risk patient cohort included in the study as noted by the low rate of revascularization in the group (4.7%). Inefficiencies in booking clinic appointments for patients undergoing CTCA into clinic were noted in this study.

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The Incidence of Subsequent Stroke After Attending the Transient Ischaemic Attack (TIA) Clinic

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Abstract

Aim

A rapid access clinic for patients with recent (1-7 days) TIA and ABCD2 scores ≤4 is run in Cork University Hospital. However, the rate of stroke after attending the clinic is currently unknown. The overall aim was to evaluate recurrent 7-day, 90-day and 1-year stroke risk among the first 250 low-risk patients attending the TIA Clinic.

Methods

Data was collected from the iSoft Clinical Manager software, neuroimaging review, chart review and postal survey.

Results

Risk for recurrent stroke was 0% (n=0266) at 7-days, 0% (n=0266) at 90-days and 0.4% (n=1/266) at 1-year. Among patients with TIA, 8.7% (n=6/69) had a carotid endarterectomy and 5.8% (n=4/69) were commenced on anticoagulation therapy.

Conclusion

It is safe to see patients with ABCD2 scores of 0-4 at the TIA clinic as they are low risk for subsequent stroke following appropriate treatment/intervention. Despite low scores, 5.6% of all patients had a high-risk aetiology (symptomatic carotid stenosis) identified and treated.

Introduction

Transient ischaemic attack (TIA) is associated with considerable morbidity and mortality because it is a harbinger for the imminent development of stroke[1-3] with the majority of strokes occurring in the first 90 days post-TIA[3-6]. The subsequent stroke risk after TIA depends largely on clinical features, vascular risk factors and the underlying pathophysiology of the TIA[7], therefore stroke risk is not uniform, with the majority of patients experiencing a benign short-term prognosis[5]. However, because symptoms of TIA typically resolve, a serendipitous opportunity to commence treatment is presented, which may ultimately forestall the possible onset of debilitating brain infarction[8].

The EXPRESS study (Effect of urgent treatment of transient ischemic attack and minor stroke on early recurrent stroke) was a landmark study fuelling the change in the approach of the management of TIA[9]. Previously, symptoms of TIA tended to be ignored or minimised by patients, or not prioritised by physicians, largely because symptoms typically last only for a few minutes with apparent complete recovery[10]. The EXPRESS study showed an 80% reduction in subsequent stroke risk at 90-days in patients treated in a specialised TIA clinic with early assessment and urgent treatment initiation[9].

A rapid access stroke prevention (RASP) TIA clinic was established in Cork University Hospital (CUH) in 2013 to reduce stroke risk in patients with TIA in addition to reducing economic burden associated with unnecessary inpatient stay. The CUH TIA clinic accepts patients referred from primary care or the emergency department (ED) presenting with suspected TIA and $ABCD_2$ scores of ≤ 4 (see ***Table 1***). Patients with $ABCD_2$ scores of 5-7 are automatically re-directed for same day admission through the ED. Patients are seen by a stroke-trained doctor within 72 hours of referral and have a standard evaluation including blood tests, ECG, carotid duplex ultrasound, and brain imaging (typically MRI brain with diffusion weighted sequences).

Since early treatment post-TIA has been shown to significantly reduce the 90-day stroke risk[9], and the question remains as to how many people experienced a stroke after attending the CUH TIA clinic, the overarching aim of this investigation was to measure the incidence of subsequent stroke among the first 250 patients who attended the TIA clinic at 7-days, 90-days and 1-year. (***Table 1 next page***).

Parameters	$ABCD_2$ Score	$ABCD_3$-I
Age ≥ 60 years	1	1
Blood Pressure ≥ 140/90 mmHg	1	1
Clinical Features:		
Unilateral weakness	2	2
Dysphasia without weakness	1	1
Duration:		
≥60 min	2	2
10 - 59 min	1	1
Diabetes mellitus present	1	1
Dual TIA (< 7 days)	-	2
Imaging: Ipsilateral ≥ 50% stenosis of internal carotid artery	-	2
Imaging: Acute diffusion-weighted imaging hyperintensity	-	2
Total	**7**	**13**

Table 1: *ABCD2 and ABCD3-I scores are prognostic scores proposed to estimate the short-term risk of stroke after TIA. The ABCD2 score allocates points based on age, blood pressure, clinical symptoms, duration and diabetes (range 0-7). The ABCD3-I score (range 0-13) was developed to enhance decision-making in secondary care setting and holds promise to significantly improve risk stratification post-TIA due to the incorporation of three additional markers of unstable vascular disease associated with stroke; dual TIA (the index TIA plus at least one other TIA in the preceding 7 days); positive diffusion-weighted brain imaging (DWI MRI); and carotid stenosis.*

Methods

Data was collected from patients who attended the TIA clinic in a retrospective cohort analysis format using the iSoft Clinical Manager (iCM) software, city-wide neuroimaging platforms (AGFA Impax 6), chart review and postal survey. $ABCD_2$ and $ABCD_3$-I scores were calculated for each patient and retrospectively applied. Subsequent stroke status was identified by electronic discharge letter review, postal survey review, chart review and neuroimaging review.

Stroke was considered the primary endpoint with secondary endpoints being myocardial infarction (MI), any vascular event, and all-cause death.

Patients eligible for inclusion were the first 250 patients who attended the TIA clinic with fully completed electronic TIA clinic discharge letters. Alternatively, if patients were admitted to hospital upon presentation, and no TIA clinic discharge letter was available, they were still considered eligible if standard electronic discharge letters or dictated letters were completed.

Exclusion criteria were incomplete or missing TIA clinic discharge letters. Some patients died in the interim, given the relatively older profile of persons with TIA, therefore patients who died were followed up electronically only.

Ethical approval was granted by the Clinical Research Ethics Committee (CREC) on 13th March 2017.

Statistical analysis was performed using the SPSS statistical package (version 23). Using a time to event approach, Kaplan-Meier estimator was used to calculate the cumulative probability of any subsequent event and the log-rank and Breslow tests were used to compare event-free survival between groups.

Results

The first 250 patients referred to the TIA clinic who met both inclusion and exclusion criteria received surveys, of which 77 were returned fully completed (equating to a 30.8% overall response rate for the follow-up survey). An additional 16 patients were included in the study but excluded from the postal survey as they had died prior to commencing the study.

Baseline Population Characteristics

Mean age was 62.2 years (± 15.3 years; n=266), 139 (52.3%) patients were female and 127 were male (47.7%). TIA was diagnosed in 69 (25.9%) patients, stroke in 15 (5.6%), and non-TIA events in 182 (68.5%) (see ***Figure 1***).

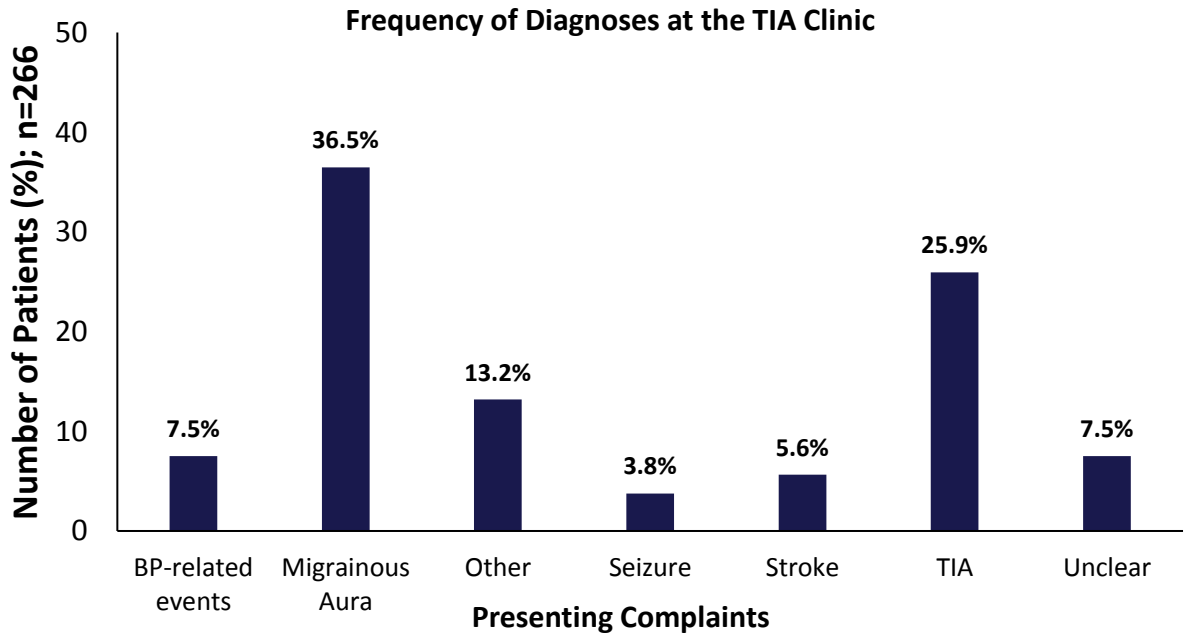

Figure 1: *Frequency of Events Presenting at the TIA Clinic. Non-specific or "other" symptoms included altered levels of consciousness, amnesic episodes, syncopal events and musculoskeletal symptoms.*

Cardiovascular Risk Factors for Stroke

The prevalence of cardiovascular risk factors for stroke among this cohort is highlighted in ***Table 2***. The most prevalent risk factor for stroke was hypercholesterolaemia with 82.1% (n=55/67) of TIA patients, 73.3% (n=11/15) of stroke patients and 53.9% (n=98/182) of non-TIA patients afflicted.

Cardiovascular Risk Factors	TIA Status					
	TIA		Stroke		Non-TIA	
	%	N = 69	%	N = 15	%	N = 182
Hypercholesterolaemia	82.09	55/67	73.33	11/15	53.85	98/112
Hypertension	63.24	43/68	60	9/15	50	91/182
Coronary Artery Disease	19.12	13/68	6.67	1/15	10.44	19/182
Diabetes Mellitus	11.94	8/67	40	6/15	6.04	11/182
Atrial Fibrillation	11.76	8/68	14.29	2/14	4.42	8/182
Coagulopathy	0	0/67	7.14	1/14	0.55	1/182
Aneurysm	0	0/67	0	0/14	2.75	5/182
Cardiomyopathy	4.47	3/67	0	0/14	1.1	2/182
Smoker	8.87	6/69	33.33	5/15	12.64	23/182
Ex-Smoker	42.03	29/69	33.33	5/15	41.21	75/182
Previous TIA (>7 days)	16.18	11/68	6.67	1/15	4.95	9/182
Previous Stroke	5.88	4/68	7.14	1/14	9.89	18/182
Previous MI	4.41	3/68	0	0/15	1.65	3/182
Peripheral Vascular Disease	2.99	2/67	0	0/14	1.65	3/182
Valvular Heart Disease	8.95	6/67	0	0/14	2.75	5/182

Table 2: *Cardiovascular risk factors for stroke among all three cohorts. Patients with missing data were excluded from the analysis.*

Average ABCD2 and ABCD3-I Score by TIA Status

Each individual was awarded a score between 0-7 and 0-13 according to the $ABCD_2$ and $ABCD_3$ –I score respectively. Overall, 92.8% (n=64/69) of TIA patients had a low-risk $ABCD_2$ score of ≤4 and 82.6% (n=57/69) of TIA patients had a low-risk score when re-stratified with the $ABCD_3$-I score.

Medication Changes at the TIA Clinic

After attending the clinic, 33.3% (n=23/69) of TIA patients were commenced on aspirin therapy and 23.2% (n=16/69) were commenced on clopidogrel and 5.8% (n=4/69) were commenced on a direct oral anticoagulant (DOAC). Additionally, 29% (n=20/69) of this cohort were started on either a statin or a fibrate.

Rate of Neuroimaging and Carotid Endarterectomy

We found that 85% of all patients received neuroimaging, 89% of all patients received carotid imaging, 7.5% were discussed for CEA with 5.6% of all patients having a CEA carried out within one month. Despite being referred to the "low-risk" clinic, 8.8% (n=6/68) of TIA patients had a CEA carried out within one month.

Subsequent Events

Kaplan–Meier plots of all-cause morbidity and mortality stratified by diagnosis are shown in ***Figure 2***. Two patients from the TIA group had a subsequent stroke; one at 22-months; and one at 23-months. Additionally, ten patients died; one from MI (5-weeks), three from cancer. The cause of death for the remaining six is unknown.

For the stroke group, one patient died of a subsequent stroke at 35-months, one had a further TIA within 3-months, and one had an MI at 22-months.

For the non-TIA group, three patients had a subsequent stroke; two were fatal (9-months and 15-months) and one non-fatal (14-months), one patient had a TIA at 4-months, and one had an acute MI at 19-months. Additionally, four patients died of cancer.

Overall, for any subsequent event, survival curves were not significantly different when compared using both the log-rank test=2.743 (p=0.254) and the Breslow test=1.213 (p=0.545).

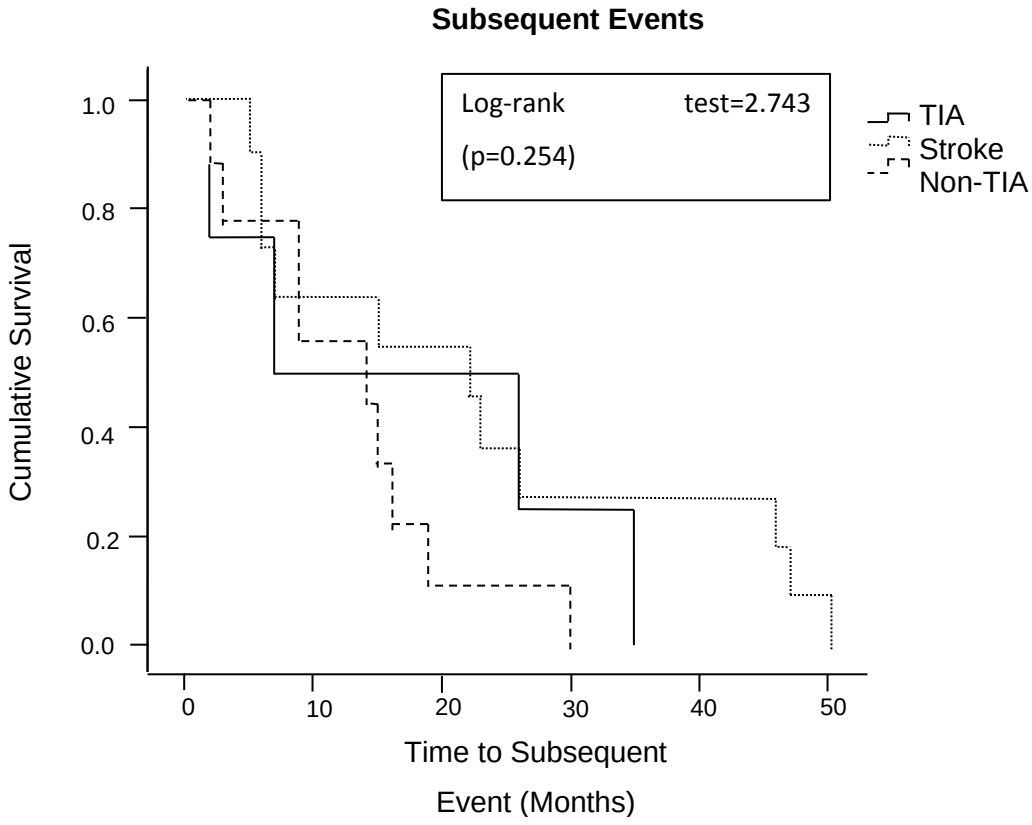

Figure 2: *Kaplan-Meier Survival Curve stratified according to TIA status.*

7-Day /90-Day /1-Year/2-Year Stroke Recurrence

The overall risk for recurrent stroke was 0% at 7 days and 90 days, 0.4% at 1 year and 2.3% at 2 years. Broken down into their respective groups, this equated to a 0% risk of stroke at 7-days/90-days/1-year and 2.9% at 2 years for the TIA group. For the stroke group, there was a 0% at 7-days/90-days/1-year/2-years stroke recurrence rate. Finally, for the non-TIA group, the subsequent stroke risk was 0% at 7-days and 90-days, 0.6% at 1-year and 1.7% at 2-years.

Discussion

There was a low incidence (25.9%) of TIA at presentation to the clinic. This figure is considerably lower than the 32-65% incidence reported in previous studies[11-15]. One possible explanation may be that, previously, studies reported poor public understanding and awareness of the symptoms of both TIA and stroke, and implementation of public health campaigns to promote education was desperately needed[10, 12, 15-17].

Consequently, in 2010, the Irish Heart Foundation launched the mass-media public health campaign "Act F.A.S.T.", an acronym designed to help people remember the major symptoms of stroke (facial weakness, arm weakness, speech impairment, "time" to call the emergency response)[16]. Even after reports revealed success in increasing public awareness in Ireland[16], there remained a lower than expected incidence of TIA at presentation to the clinic, compared to previous studies[11-15]. Several non-TIA events often mimic stroke, therefore, it is likely that misdiagnosis by the referring physician is why so many non-TIA events and so few TIA/stroke events were observed[6, 11-15].

Thus, it remains an unanswered question whether this low incidence of TIA combined with high incidence of non-TIA events is because most patients were referred by non-neurologists who frequently misdiagnose TIA[11, 18] or if it is due to the inherent flaw of the "Act FAST" campaign whereby posterior circulation strokes, visual disturbance, dysphagia *etc.* are potentially missed by patients/referring physicians because these symptoms do not fall into the criteria defined by "Act FAST".

Prevention of acute stroke takes a multipronged approach starting with recognising the risk factors and establishing effective primary and secondary treatment strategies[19]. Several studies have advocated for the use of aspirin, anti-hypertensive agents, statins, anticoagulation for atrial fibrillation, and carotid endarterectomy for $\geq$70% symptomatic carotid stenosis[9, 20-22] in the approach to long-term prevention of stroke after TIA. Early initiation of a combination of these interventions in suitable patients have shown reductions in long-term risk of recurrent stroke by 80-90%[9].

Since 2003, the risk of subsequent stroke after TIA has been persistently decreasing[1-5, 14] primarily due to major advancements in patient care, including, urgent care in specialised units[9, 11-13]; immediate investigations[9, 11, 12]; and rapid initiation of treatment with anti-platelet and other stroke preventing agents.

The low rate of subsequent stroke in this study is likely also explained by the successful implementation of these superior secondary stroke prevention strategies in contemporary TIA clinics compared to the classical evaluation of TIA patients that often resulted in treatment delays because of lack of access to immediate care facilities[9, 12, 14, 23].

Current guidelines for TIA management recommend triage of patients based on stroke risk as defined by the $ABCD_2$ score[22, 24]. $ABCD_2$ scores of ≥4 indicates urgent care within 24 hours of symptom onset[17, 22, 24]. However, scores of ≤4 don't necessarily identify all patients needing immediate treatment[25]. Results from our study support this finding as, despite low scores, almost 10% of TIA patients had ≥70% carotid stenosis, a well-established risk factor for stroke, identified and subsequently treated. Thus, early detection of medical conditions with a high risk of early stroke occurrence likely contributes to the low subsequent stroke occurrences in our study.

This study was limited by design and the its performance in a single centre with a small sample size. Failure to identify all outcomes was a considerable confounding factor in this study, as follow-up was only possible for those patients who re-attended at CUH or Mercy University Hospital (MUH). The postal survey was distributed in an attempt to overcome this predicament and capture the health status of all patients who attended the clinic but response rates from postal surveys are generally low. Despite a moderate response (30.8%), our stroke recurrence rate may still be falsely low.

Thus, our results may represent a true effect of improved awareness in conjunction with urgent evaluation and treatment or perhaps all outcomes were not ascertained due to limitations in our methodology or, a combination of both factors.

In conclusion, this study helps to shed light on the growing evidence that management of patients with TIA is safe in an outpatient clinic but is largely dependent upon swift referral, rapid assessment and timely diagnosis[9, 11-13]. However, the caveat must be inserted that $ABCD_2$/$ABCD_3$-I scores ≤4 does not necessarily exclude all high-risk cases as 8.8% of apparent low-risk TIA clinic patients had a high-risk aetiology (symptomatic carotid stenosis or AF) identified and, successfully, treated.

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Cancer Incidence and Mortality Due to Inadequate Physical Activity

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Abstract

Aim
Inadequate physical activity increases risk of specific cancers. This study aimed to calculate the Population Attributable Fraction (PAF) of inadequate physical activity and estimate cancer burden due to this exposure among adults in Ireland from 2011-2015.

Methods
A literature review identified relative risks for inadequate physical activity and cancer. Prevalence of this exposure in Ireland was estimated using a nationally representative survey. The PAF was calculated and applied to Irish cancer incidence and mortality data (2011-2015).

Results
Inadequate physical activity in Ireland resulted in approximately 1,500 cancer cases (5% of total) and 500 deaths (6% of total) in specific cancer sites (colorectal, breast, and endometrial) from 2011-2015. Women were disproportionately affected.

Conclusion
Given the harm due to inadequate physical activity, urgent actions are needed to inform the public and to strengthen policy and strategy in Ireland to address this problem.

Introduction

There are almost 24,000 incident invasive cancers (excluding non-melanoma skin cancer) and over 9,000 cancer deaths per year in Ireland[1]. The number of new cases annually is estimated to double by 2045[2]. Changing demographics, including an ageing population, are principal drivers of the increase.

It is estimated that 30% to 50% of all cancers are preventable[3]. There is significant evidence that physical activity (PA) protects against several cancers[4]. Biological mechanisms by which PA may reduce cancer risk include promotion of endogenous steroid hormone metabolism, decreasing circulation of oestrogens and androgens, reduction of insulin resistance and long-term inflammation, and improved immune function.

At a cellular level these processes encourage beneficial effects such as increased apoptosis, reduced proliferation (including in oestrogen sensitive tissues), and less genome instability. As body weight and PA are related, PA may also reduce cancer risk through lowering adiposity.

The National Cancer Strategy 2017-2026 highlights cancer prevention as a key priority in Ireland[5]. Inadequate PA is a known exposure associated with risk of developing specific cancers. This is the first study to calculate the Population Attributable Fraction (PAF) of inadequate PA on cancer incidence and mortality in Ireland. The PAF is an epidemiological measure commonly used to assess the impact of exposures at a population level. Findings will improve understanding of the cancer burden in Ireland due to inadequate PA.

Methods

The PAF for inadequate PA was calculated using relative risks (RRs) from meta-analyses identified in a literature review, data on prevalence of inadequate PA in the population in Ireland, and cancer incidence and mortality data in Ireland from 2011-2015.

A comprehensive literature search was performed in PubMed and the Cochrane library to identify studies examining inadequate PA as a cancer risk. This was conducted using a structured approach based on the 2009 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines[6]. Systematic reviews and meta-analyses of epidemiological studies were used as the source of RRs. The Critical Appraisal Skills Programme (CASP) tool for systematic reviews was employed to guide the literature appraisal[7].

The literature review included meta-analyses and systematic reviews on physical activity and incidence of cancer. It excluded primary research articles, reviews on non-Caucasian populations, articles on paediatric cancer, articles where the exposure measured was sedentary time independent of physical activity and articles that did not include a RR based on appropriate dose-response thresholds/categories. Medical Subject Heading (MeSH) terms neoplasm, physical exertion, and exercise were included and the key words breast, colorectal, endometrial, tumour, physical exercise, physical activity, and physical exertion.

Full search terms are detailed as follows: ((Neoplasm[MeSH Terms] OR cancer*[Title/Abstract] OR neoplasm*[Title/Abstract] OR neoplasia?[Title/Abstract] OR tumour?[Title/Abstract] OR tumor?[Title/Abstract] OR malignanc*[Title/Abstract])) AND (((physical exertion[MeSH Terms] OR exercise[MeSH Terms] OR physical activ*[Title/Abstract] OR physical inactiv*[Title/Abstract] OR physical exercise[Title/Abstract] OR physical movement[Title/Abstract] OR physical exertion[Title/Abstract] OR physical fitness[Title/Abstract] OR sedentary[Title/Abstract])))

The following limits were applied: publication in English, studies on humans, studies published between 2008 and 2018, and study types which were meta-analyses and systematic reviews.

The key measure extracted from the literature review was the RR per cancer, per PA category (Table 1).

Table 1: Summary of selected relative risks for cancers associated with inadequate physical activity

Cancer type	ICD-10 Code	Article source/ year	Measurement of exposure	Category of exposure	Adequate PA RR (95%CI)
Colorectal (both sexes)	C18-C20	Kyu (2016)[8]	Total PA in MET minutes/week	600-3999 Reference category: <600	0.90 (0.85-0.95)
Breast (female)	C50	Kyu (2016)[8]	Total PA in MET minutes/week	600-3999 Reference category: <600	0.97 (0.94-1.00)
Endometrial	C54.1	Schmid (2015)[9]	MET-*hours* per week of recreational PA	9-20 Reference category: <3	0.79 (0.64-0.98)

ICD-10=International Classification of Disease-10; PA=physical activity; RR=Relative Risk; 95%CI=95% Confidence Interval; MET=Metabolic Equivalent

Data on inadequate PA prevalence in the Irish population was determined from the Survey of Lifestyle, Attitudes and Nutrition (SLÁN) 2007, a robust nationally representative dataset[10]. Previous literature identified seven to ten years as an appropriate latency period[11,12] between time of exposure and development of an attributable cancer. The use of SLÁN 2007 data allows a lag time of four to eight years. However, exposure to inadequate PA is relatively stable over time and was likely similar over preceding years.

A summary continuous variable of total PA across all domains in life (including leisure time, domestic activities, occupational, and transport-related) in Metabolic Equivalents (MET)-minutes per week (moderate- and vigorous-intensity) was produced, enabling calculation of the population proportions that were adequately (>=600 MET-minutes/week) and inadequately physically active (<600 MET-minutes/week) in line with World Health Organization (WHO)[13]/Irish PA recommendations[14] and the colorectal and breast cancer RR categories (Table 1). METs express intensity of PA. A MET is the ratio of a person's working metabolic rate relative to their resting metabolic rate. One MET is defined as the energy expenditure of sitting quietly, equating to a caloric consumption of 1 kilocalorie/kilogram/hour[15]. The RR for endometrial cancer identified from the literature used 9-20 MET-hours/week of recreational PA as its adequate PA threshold. As it was not possible to calculate recreational PA alone using SLÁN 2007 data the higher threshold of 20 MET-hours (1,200 MET-minutes) of total PA (all domains) was used as a proxy in estimates relevant to endometrial cancer.

Cancer incidence and mortality data were requested from the National Cancer Registry Ireland (NCRI) and the Central Statistics Office (CSO), respectively[16,17]. The most recent data available (2011-2015) were requested by sex and five-year age groups for the identified cancers using International Statistical Classification of Diseases and Related Health Problems codes[18]. Age groups less than 20-years-old were not included as the PAF calculation comprised only adults.

The following standard formula, used in international literature and appropriate to the available RR data in this study, was employed to estimate the PAF[19]:

$$\mathrm{PAF} = \frac{\Sigma(p_x \times \mathrm{ERR}_x)}{1 + \Sigma(p_x \times \mathrm{ERR}_x)}$$

Figure 1: Standard PAF formula

Where p_x is the proportion of the population who are inadequately physically active and ERR is the excess relative risk associated with being inadequately physically active. The ERR of being inadequately physically active was calculated as (1/RR) – 1.

The fractions of incident cancer cases and deaths due to insufficient PA for each relevant cancer type were then calculated by applying the PAF to the incidence and mortality data for 2011-2015, for both sexes where appropriate, in five-yearly age groups.

Sensitivity analysis was conducted by applying 95% confidence intervals for the RRs for the cancers selected from the literature review.

Results

The PAF for inadequate PA on cancer incidence and mortality in Ireland over a five-year period (2011-2015) was calculated by sex, five-year age grouping, and cancer type. Results of attributable incident cancer burden stratified by cancer type and sex are presented in Table 2. Results of attributable mortality burden stratified by cancer type and sex are presented in Table 3. All data below apply to persons aged 20 years and older.

Cancer incidence attributable to inadequate PA, 2011-2015

In total, 1,556 incident cancers (95%CI 479-2,619) from 2011-2015 were estimated to be attributable to inadequate PA. This corresponded to 5% (95%CI 2%-9%) of new diagnoses in relevant cancer types in the study period.

From 2011-2015, 500 (95%CI 243-783) and 379 (95%CI 185-592) incident colorectal cancers were estimated to be preventable in men and women, respectively. This equated to 7% of all colorectal cancers in both sexes.

Of 14,710 breast cancer cases, 321 (95%CI 19-619) were estimated to be preventable with adequate PA. This equated to 2% (95%CI 0.1%-4%) of all breast cancers. Of 1,953 endometrial cancers, 356 (95%CI 32-625) were estimated to be preventable with adequate PA. This corresponded to 18% (95%CI 2%-32%) of the total number of incident endometrial cancers.

Table 2: Incident cancers attributable to inadequate physical activity, 2011-2015

Cancer type	Number of incident cancers, per cancer type, 2011-2015	Number of incident cancers attributable to inadequate PA, 2011-2015 (95%CI)	Proportion (%) of incident cancers attributable to inadequate PA, 2011-2015 (95%CI)
Male			
Colorectal	7,417	500 (243-783)	6.7 (3.3-10.6)
Total male	7,417	500 (243-783)	6.7 (3.3-10.6)
Female			
Colorectal	5,148	379 (185-592)	7.4 (3.6-11.5)
Breast	14,710	321 (19-619)	2.2 (0.1-4.2)
Endometrial	1,953	356 (32-625)	18.2 (1.6-32.0)
Total female	21,811	1,056 (236-1,836)	4.8 (1.1-8.4)
Total (both sexes)	29,228	1,556 (479-2,619)	5.3 (1.6-9.0)

PA=physical activity; 95%CI=95% Confidence Interval
Source: Incidence data - NCRI

Cancer mortality attributable to inadequate PA, 2011-2015

In total, 534 (95%CI 193-876) deaths occurred due to cancers attributable to inadequate PA, equating to 6% (95%CI 2%-10%) of all deaths in relevant cancer types.

In 2011-2015, 210 (95%CI 102-328) and 162 (95%CI 79-251) colorectal cancer deaths were estimated to be preventable in men and women, respectively. This equated to 7% (95%CI 4%-11%) and 8% (95%CI 4%-12%) of all colorectal cancers in men and women, respectively. Of 3,496 female breast cancer deaths, 85 (95%CI 5-163) were estimated to be preventable with adequate PA. This corresponded to 2% (95%CI 0.1%-5%) of all breast cancer mortality. Of 407 endometrial cancer deaths, 77 (95%CI 7-134) were estimated to be preventable with adequate PA, equating to 19% (95%CI 2%-33%) of total endometrial cancer mortality.

Table 3: Cancer mortality attributable to inadequate PA, 2011-2015

Cancer type	Number of cancer deaths, per cancer type, 2011-2015	Number of cancer deaths attributable to inadequate PA, 2011-2015 (95%CI)	Proportion (%) of cancer deaths attributable to inadequate PA, 2011-2015 (95%CI)
Male			
Colorectal	2,934	210 (102-328)	7.2 (3.5-11.2)
Total male	2,934	210 (102-328)	7.2 (3.5-11.2)
Female			
Colorectal	2,070	162 (79-251)	7.8 (3.8-12.1)
Breast	3,496	85 (5-163)	2.4 (0.1-4.7)
Endometrial	407	77 (7-134)	18.9 (1.7-32.9)
Total female	5,973	324 (91-548)	5.4 (1.5-9.2)
Total (both sexes)	8,907	534 (193-876)	6.0 (2.2-9.8)

PA=physical activity; 95%CI=95% Confidence Interval
Source: Mortality data - CSO

Discussion

The key study findings were that in the five-year period, 2011-2015, over 1,500 cancer cases and 500 deaths in Ireland can be attributed to inadequate PA. This equated to approximately six new diagnoses and two deaths from cancer every week. Women were disproportionately affected. Amongst women it was estimated over 1,000 incident cases and 300 deaths were potentially preventable, compared with 500 incident cases and more than 200 deaths in men.

It is predicted, based on demographic changes, that annual breast cancer incidence will increase by over 60% by 2045[2]. In total, this study found that 2% of both incident cases and deaths from female breast cancer in 2011-2015 were potentially attributable to inadequate PA. This equated to over 300 potentially preventable incident cancers and 80 deaths in the relevant time period which underscores the importance of this avoidable exposure in the female population.

The RRs for colorectal and breast cancer identified in the literature review were measured against the WHO/national recommendations on PA (i.e. individuals should complete at least 600 MET-minutes per week of moderate and/or vigorous PA). This study found that the majority of cancer burden attributable to lack of PA was related to these cancers. The results also indicated that more than 350 endometrial cancer diagnoses and 70 deaths were potentially due to lack of PA.

This equated to an attributable incident cancer burden of 18% for endometrial cancer, compared with 2% for female breast cancer and 7% for colorectal cancer in both sexes. The higher burden for endometrial cancer should, however, be interpreted with a degree of caution. The estimates for endometrial cancer were calculated using a RR that was based on the female population achieving between 9-20 MET-hours per week of recreational PA, a higher threshold than recommended in WHO/national guidance. As it was not possible to calculate recreational PA using SLÁN 2007 data, the upper threshold of 20 MET-hours (1,200 MET-minutes) of total PA (all domains) per week was used instead, as a proxy to produce the estimate. This higher threshold was selected on the assumption that those who completed this higher level of total PA would also have reached 9-20 MET-hours of weekly recreational PA.

PAF calculations are subject to certain assumptions and limitations, and these therefore apply to this study too. The PAF calculation depends on the accuracy of the RRs from the literature and the population exposure data. As the primary study exposure data were predominantly self-reported this could have led to the introduction of bias through misclassification of PA domains or inaccuracy in recall of estimated frequency, duration or intensity by respondents potentially underestimating the role of physical activity in reducing cancer risk. There was also some variability in the types and categories of PA measurement across the primary studies included in the meta-analyses. Despite this variation, heterogeneity of the study outcomes in the meta-analyses included in the PAF was moderate, or lower, indicating consistency across study results. Although the selected meta-analyses included primary papers which adjusted for the most important covariates, such as age and Body Mass Index, there is potential for some residual confounding effect. Specifically, it is acknowledged that body weight and PA are related. Although excess body weight (as a risk factor for similar cancer types) was adjusted for in many of the primary studies it is possible there may be some overlap in attributable cancer burden with lack of PA.

Population surveys indicate levels of adequate PA have increased in Ireland over the last decade (e.g. 24% in SLÁN 2007 to 32% in Healthy Ireland 2015)[10,20]. If this increase in PA represents a sustained trend, the attributable cancer burden (as a proportion) may slightly reduce in the future. However, given two-thirds of the population remain inadequately physically active it is expected that the attributable cancer burden in Ireland will remain substantial. In addition, the growing and ageing population is likely to contribute considerably to actual case numbers (even if the attributable proportion reduces) – therefore from both an individual and a service delivery perspective it remains crucial that all appropriate preventive measures are implemented to further reduce this burden.

Inadequate PA is a modifiable risk factor. It is important that the general public are made fully aware of this risk and are appropriately supported in achieving higher levels of PA. Increasing PA is a whole of society issue and is best addressed through a cross-sectoral approach enshrined within the national framework on health and wellbeing, Healthy Ireland[21]. Effective implementation of healthy living initiatives such as the National Physical Activity Plan[22], the National Obesity Policy and Action Plan[23] and the Healthy Eating and Active Living Programme[24] will support individuals to achieve higher levels of PA in their daily lives.

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The authors have declared that they have no conflicts of interest in this work.

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Improving Timeliness of Care in Ireland's Emergency Departments

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Abstract

Background

The National Emergency Medicine Programme in Ireland in 2012 recommended that a six-hour limit to the time patients spend in an Emergency Department (ED) from ED arrival to admission to a ward, transfer or discharge home should be achieved 95% of the time. This research was performed to establish what Consultants in Emergency Medicine in Ireland felt was required to consistently achieve the delivery of emergency medical care within a six-hour limit.

Methods

This prospective qualitative research involved a questionnaire based on Asplin et al's conceptual model of Emergency Department crowding and a review of the literature as to proposed causes and solutions to crowding.

Results

Long waiting lists for diagnostic tests and outpatient appointments are leading to patients being referred to ED. It was proposed to increase access to diagnostics and outpatient appointments and to facilitate appropriate direct referrals to specialist services. Solutions proposed to address throughput challenges were increasing staffing levels in the ED, improving patient flow and extending the hours of access to diagnostics and imaging.

Discussion

Inadequate hospital capacity was noted as the major cause of ED crowding and an urgent need for an increase in hospital bed numbers was identified.

Introduction

Emergency Department (ED) crowding is a manifestation of failure to address the healthcare needs of a population in a timely manner.[1] There is significant frustration with this failure of health systems to deliver on solutions to this ongoing compromise to patient safety and cause of increased preventable deaths.[2-7] A number of countries have now introduced limits on the length of time patients should spend in the ED. [8-10].

Ireland is particularly challenged with respect to the accessibility and timeliness of hospital based care.[11] The National Emergency Medicine Programme in Ireland in 2012 noted that a six hour limit to the time patients spend in an Emergency Department from arrival to the ED to admission to a ward, transfer or discharge home should be achieved 95% of the time.[12] This six hour Limit is still frequently not delivered on as evidenced by the numbers of patients awaiting a ward bed in Irish EDs each day.[13] This research was performed to establish what Consultants in Emergency Medicine in Ireland felt was required to consistently achieve the delivery of emergency medical care within a six hour limit.

Methods

This prospective qualitative questionnaire research involved collaboration between the Irish Medical Organisation (IMO) and the Irish Association for Emergency Medicine (IAEM). Approval for the study was obtained from the research committee of the IAEM. An online Survey Monkey questionnaire was developed based on Asplin et al's conceptual model of Emergency Department crowding and a review of the literature as to proposed causes and solutions to Emergency Department crowding.[14] The twenty question questionnaire addressed the potential causes and solutions relating to input challenges i.e. the numbers of patients arriving to EDs. The throughput challenges and solutions addressed things that might impact on the timely delivery of care relating to internal processes in the ED. The output element examined the potential causes and solutions to delays in admitting patients to wards, transferring patients or discharging patients from the ED.

The questionnaire was circulated by e-mail to the Consultant members of the Irish Association for Emergency Medicine with a link to the questions embedded in the e-mail. A reminder e-mail was sent to prompt further responses. The data was analysed using Survey Monkey and Excel software and descriptive statistics are used to present the data. The responses were ranked on the basis of the level of priority given by the respondents which was converted to a score for each cause or solution. Those answering the survey were asked to prioritise the factors with 1 being the highest priority and the lowest priority being given the number dependent on the number of options given e.g. 4 were there were 4 factors. The priority level for each factor was averaged and subtracted from the average for the maximal score which was dependent on the number of factors identified and the number of respondents ranking that factor.

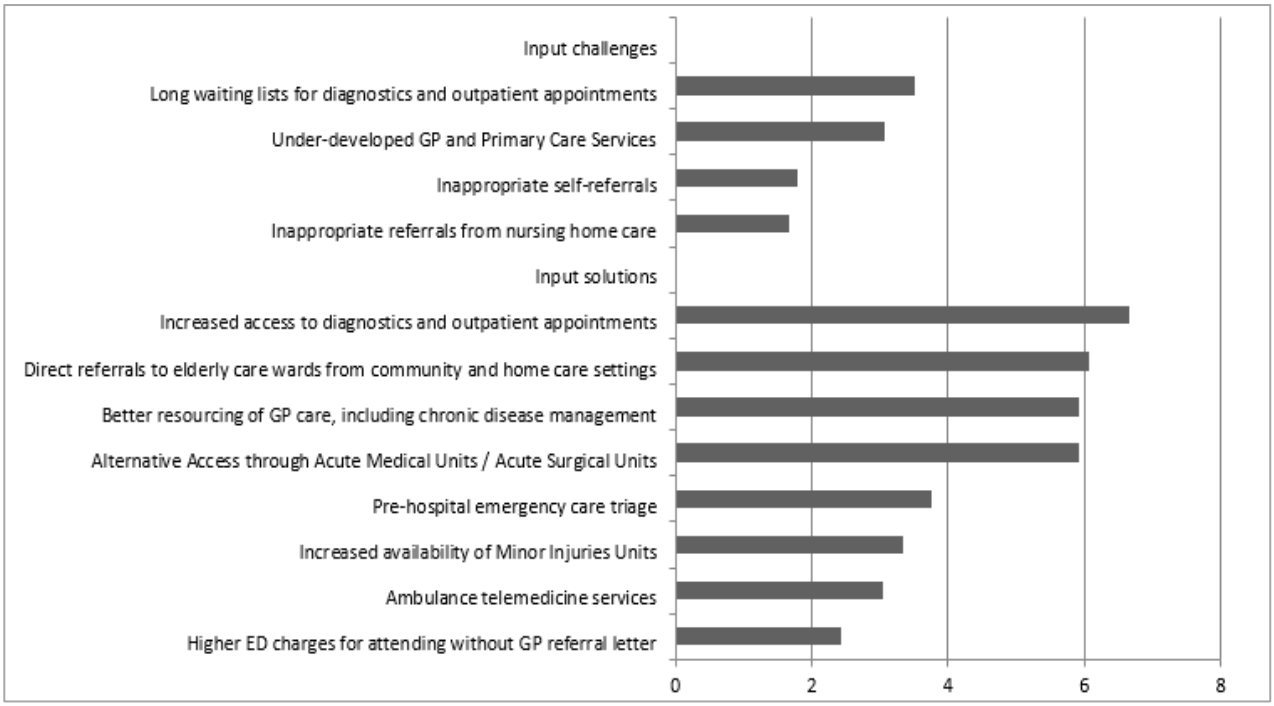
Results

Completed questionnaires were returned by 31 respondents who spent a mean time of 50 minutes (Range 6 minutes to 469 minutes) completing it. All but one of the Hospital groups in Ireland were represented. 26 (83.9%) of the respondents were in full time Consultant practice. Eighteen (58%) worked in mixed adult and pediatric EDs and 12 (39%) were in Adult EDs and 1 (3%) worked in a Paediatric ED.

Input factors

When asked about the main input factors i.e. the numbers of patient attendances contributing to ED overcrowding and delayed admissions and discharges, the senior Doctors prioritised the issue of long waiting lists for diagnostic tests and outpatient appointments which led to patients being referred to ED to potentially access these in a more timely manner (Fig. 1).

Figure 1: Ranking of input challenges and solutions.



Y axis: Causes and solutions, X axis mean priority score

The Respondents wrote

"GP referrals for what could and should be outpatient department referrals."

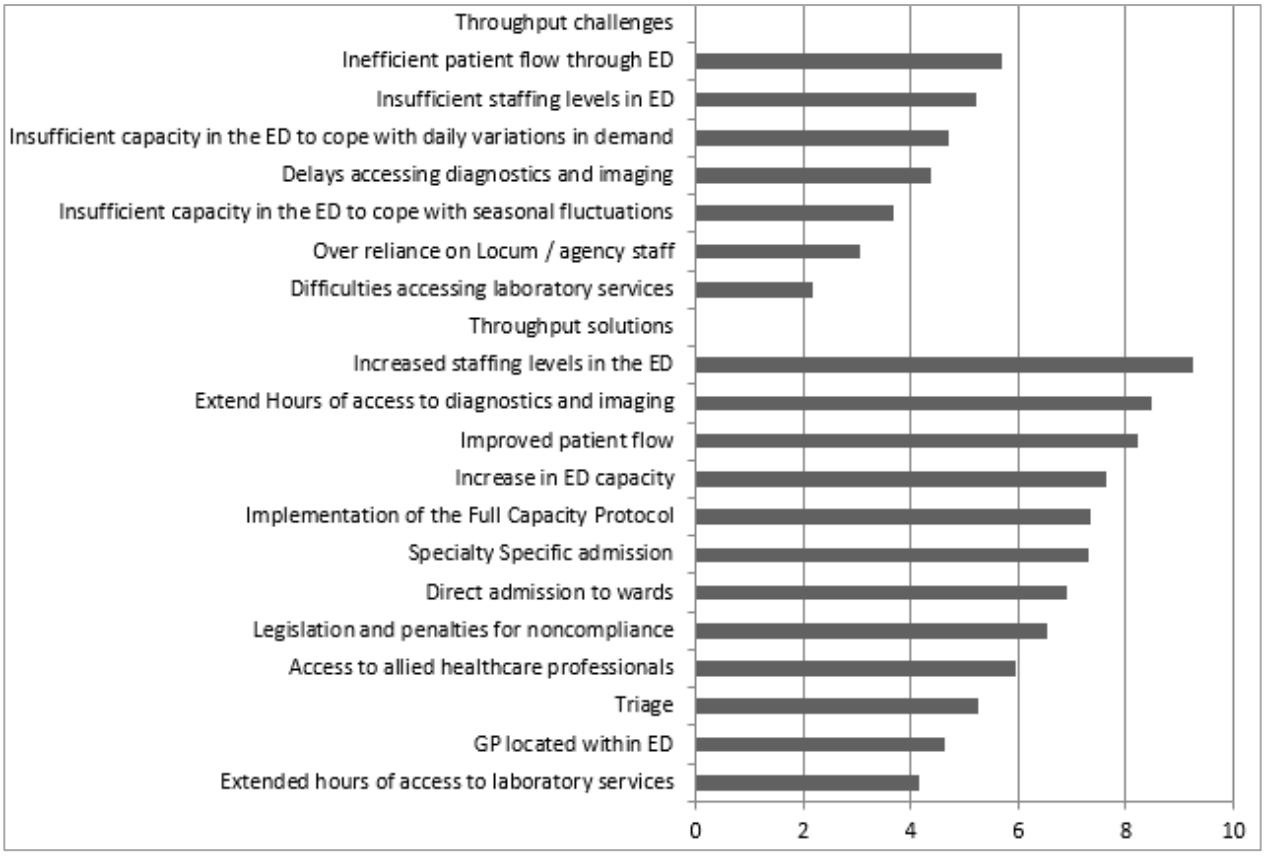
"In patient (and impatient!) specialties using ED as the default urgent (as opposed to emergent) admission pathway for urgent admissions or inter hospital transfers. No attempt to contact bed management. Symptomatic of how embedded the tolerance and expectation of lack of bed capacity has become."

Other reasons proposed for increased attendances to EDs included demographic change, lack of alternative access to healthcare, changing societal expectations, increased complexity of patients' conditions, lack of access to support services such as home care providers, nursing home care, detoxification centres, increased referrals from private hospitals and ambulance service protocols.

The priorities in relation to solutions proposed to address the input challenges were to increase access to diagnostics and outpatient appointments, to facilitate direct referrals to elderly care wards from the community and home care settings, to provide resources to General Practice (GP) including resourcing of chronic disease management and to provide alternative access through Acute Medical Units (AMUS)/ Acute Surgical Units (ASUs) (Fig 1.)

With respect to the issues within the Emergency Department i.e throughput factors contributing to ED overcrowding and delayed admissions/discharges, inefficient patient flow through the Emergency Department and inadequate staffing were seen to be of major importance (Fig.2). The highest priority solutions proposed were increasing staffing levels in the ED and extending the hours of access to diagnostics and imaging and improving patient flow (Fig. 2).

Figure 2: Ranking of throughput challenges and solutions



Y axis: Causes and solutions, X axis mean priority score

Throughput factors

In relation to the main throughput factors contributing to ED overcrowding and delayed admissions/discharges the respondents wrote:

"No free ED spaces at 8 am. Playing catch up all day. Remove boarders and Ed will flow."

"ED cubicles taken over by in-house teams to lodge isolation patients or other admitted patients. We have to provide our ED care on corridors in a department with 22 bays in our non-resuscitation areas."

"Unavailability of on call teams due to scheduled commitments."

"Because of lack of bed capacity - inpatient teams routinely see their referrals in ED - often major time lag between referral and inpatient team completing the admission with delays therefore in patient being listed for bed."

The majority of the Consultants felt they would require significant increases in all staff groups to provide more timely care. The sort of staffing level increases proposed for each ED were a mean increase of 5 more EM Consultants (range 2 to 12), 5 more Registrars (range 1 to 15), 4 more Senior House Officers (range 0 to 15), 3 more Advanced Nurse Practitioners (range 0 to 10) and 15 more Nurses (range 0 to 40).

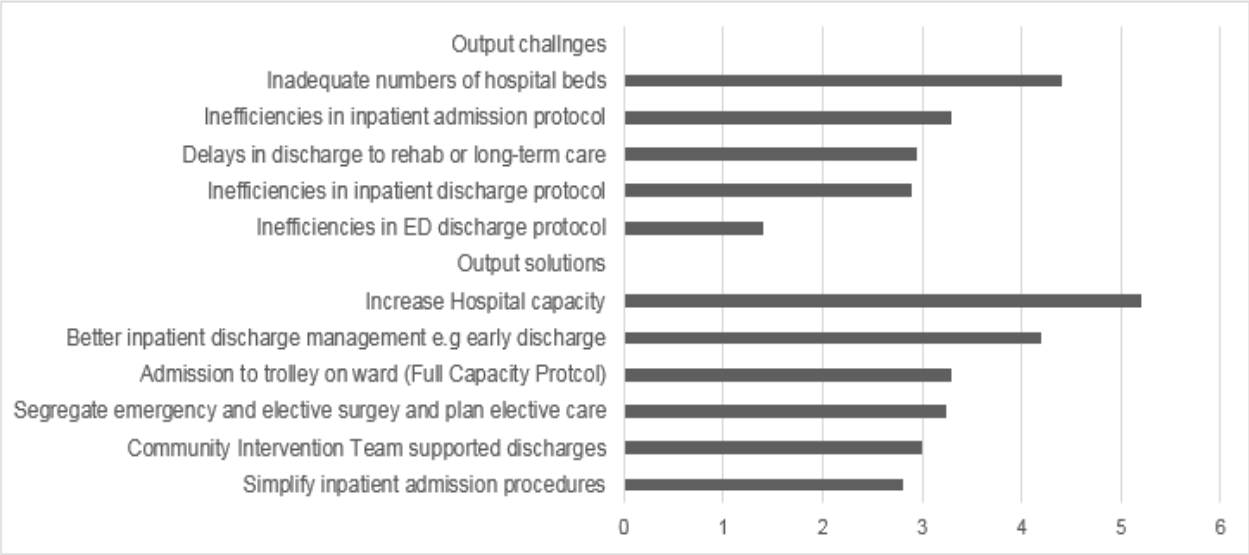
For those requiring expansion of their EDs the following additional capacity would be required to assist them in achieving the six-hour limit:

A mean increase of 11 assessment cubicles (range 0 to 37), 7 more observation cubicles (range 0 to 20), 4 more critical care spaces (range 0 to 10)

Output factors

In relation to the main output factors which contribute to ED overcrowding and delayed admissions and discharges the lack of available hospital beds was noted to be the most significant issue (Fig 3).

Figure 3. Ranking of output challenges and solutions



Y axis: Causes and solutions, X axis mean priority score

The suggested solutions were to Increase hospital capacity both in terms of inpatient and critical care beds and to try to improve inpatient discharge management with more early morning discharges and quicker turnaround times for ward beds to become available.

When asked about the additional hospital capacity required to consistently achieve the six hour target the mean requirement per hospital for hospital beds was 76 additional ward beds (range 16 to 250), 8 additional intensive care beds (range 1 to 30), 6 Coronary care beds (range 0 to 20) and 11 discharge lounge beds (range 0 to 40). This gives a mean proposed additional bed requirement of 106 beds per acute hospital in Ireland according to the Emergency Medicine Consultant respondents.

When asked about what are the main output factors which contribute to ED overcrowding and delayed admissions and discharges, they wrote:

“The in-house teams are often not aware of the extent of the overcrowding and how bad the conditions are for patients and staff in the ED and therefore may not feel under pressure to discharge patients”.

"This requires a change in culture and a hospital wide approach. It requires a zero-tolerance approach by hospital management to allowing patients to wait for protracted periods on trolleys for in house beds. This situation is now unfortunately deemed acceptable by hospital management and hospital staff."

Discussion

The frustration of the senior EM specialists with regard to failure to deliver timely care and the ensuing crowding of EDs was particularly evident from the free text responses in this study. Khanna et al have argued that "the complexity of hospital operations ensures that one-size-fits-all solutions seldom work and that as hospitals turn to evidence based strategies to redesign flow, it is critical that they tailor the strategies to suit their individual service".[15] This study clarified that the senior EM specialists in Ireland felt there were multi-factorial reasons for crowding and hence they emphasized different potential solutions. There did appear to be consensus relating to the fact that insufficient hospital bed numbers was a significant contributor to ED delays and crowding. The number of hospital beds per capita has decreased over the past decade in most OECD countries, falling on average from 5.6 per 1 000 population in 2000 to 4.7 per 1000 in 2015 at which time Ireland had 3 per 1000 .[16] When compared with other OECD countries, Ireland not only has a low supply of hospital beds but it records the highest rate of patient bed occupancy at 95 per cent.[16] The National Audit Office in the United Kingdom has suggested that hospitals with average bed occupancy levels above 85% can expect to have regular bed shortages, periodic bed crises and increased numbers of health care-acquired infections.[17] Derlet and Richards in their ten suggestions to address crowding of Emergency Departments placed expansion of Hospital capacity as the first suggested solution.[18] In this research the Emergency Medicine Consultants of Ireland strongly identified the need to increase hospital bed numbers nationally if they are to deliver timely care to patients. Over one hundred additional beds per acute hospital would be even more than the 2590 beds suggested by the Health Service Capacity Review.[19] The increase in acute hospital bed numbers suggested by the EM Consultants is closer to that noted by the Economic and Social Research institute which was that between 3,200 and 5,600 additional beds are projected to be required in Ireland's public hospitals between 2015 and 2030.[20]

Limitations of this study include the fact that the number of respondents was 31 out of a possible 88 Consultants but as all EDs in Ireland are multi-Consultant Departments and given the nature of the questionnaire it was unnecessary for all Consultants in each Department to complete the questionnaire to achieve thematic saturation. We were pleased that all but one Hospital group were represented by the respondents. The closed question format pertaining to the ranking of causes and solutions may have inadvertently omitted themes but the free text sections attempted to compensate for this and few other themes were identified by the participants. The study only sought the insight of senior specialists in Emergency Medicine as they are vicariously responsible for the delivery of clinical care in the EDs in which they work but we accept that other professionals would certainly have relevant and useful insights to offer.

Crowding of Emergency Departments is significantly contributed to by patients waiting for a ward bed to become available.[21] Setting and resourcing a limit to the time patients should spend in an Emergency Department has been achieved in a number of countries.[9,22-24] It has been associated with reduction in Emergency Department length of stay in the United Kingdom, Australia and New Zealand.[22-24]. It is clear from our research that the ability to deliver timely care in Emergency Departments requires a whole system approach and a well-resourced health service. Consultants in emergency medicine are clear that inadequate acute hospital capacity in terms of staffing and bed numbers is the key challenge to achieving the 6-hour target. They have identified a clear need to expand hospital bed numbers and increase staffing in ED if the six-hour patient care limit is to be achieved in Ireland.

Declaration of Conflicts of Interest:
The authors have no conflicts of interest to declare.

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Safety of Emergency ENT Procedures During COVID-19 Pandemic

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Abstract

Aims

The aim of this study is to assess the safety of performing various emergency ENT procedures in a single institution during the COVID-19 pandemic and the impacts on patients and healthcare workers that potentially would have risen from aerosol generating procedures.

Methods

We retrospectively reviewed patients that underwent any ENT procedure in the ENT Casualty department of South Infirmary University Hospital Cork, from the month of December 2019 until April 2020. Patients were contacted via telephone call and symptoms of COVID-19 were enquire as per standard questionnaire. Two time periods were defined; Period 1 from 1st December 2019 to 28th February 2020 and Period 2 from 29th February to 23rd April 2020.

Results

332 patients were included in this study. 226 (80.1%) patients attended in Period 1 and 66 (19.9%) attended in Period 2. In Period 1, 12 (4.5%) patients reported COVID-19 symptoms within 2 weeks of attending and 5 (7.6%) patients reported symptoms in Period 2 of which, 2 of those underwent swabs. Both swabs were negative. None of the clinical staff developed COVID-19 during the study.

Conclusion

With appropriate PPE and social distancing measures, ENT Casualty services were safe to proceed during the COVID-19 pandemic.

Introduction

In December 2019, a novel coronavirus was reported in a cohort of patients with pneumonia in Wuhan, China (1). This novel disease would eventually be named as COVID-19 caused by the virus SARS-CoV-2 (2). COVID-19 spreads through respiratory droplets with patients presenting with symptoms such as fever, cough, dyspnoea and anosmia (3–5). However, patients may be asymptomatic (6). The risk of disease transmission from asymptomatic patients has been a particular concern for Otorhinolaryngologists (Ear, Nose and Throat (ENT) Surgeons), due to the need to perform examinations and procedures on the upper aerodigestive tracts and airway-connected cavities, which theoretically exposes them to a higher risk of contracting COVID-19, due to the maximum viral load residing in these areas (7).

The first case of COVID-19 in Republic of Ireland was reported on 29th February 2020. Since then, widespread postponement of non-emergency hospital appointments has taken place, and recommendations issued by numerous professional bodies advising deferral of non-time-critical encounters, to protect both patients and staff from infection (8).

Our ENT Casualty Clinics provide rapid access for patients with acute ENT presentations, covering both emergency and non-emergency cases. Our casualty department provides a wide variety of treatments and procedures to a vast number of the population. We included patients with fractured nasal bones, acutely discharging ears, nosebleeds, foreign bodies, and peritonsillar abscesses (quinsy) for this study, as these procedures were deemed aerosol generating procedures (AGP) (9). Attenders at ENT Casualty frequently require a side-room procedure for diagnosis or treatment of their symptoms. Due to Public Health advice and HSE guidelines it was recommended to defer appointments and avoid non-essential procedures, which impacted ENT casualty referrals.

In this study, we retrospectively reviewed patients that underwent emergency ENT procedures in a single institution during COVID-19 pandemic and patients were followed up to two weeks for any COVID-19 symptoms. Our aim was to assess the safety of these procedures for the patient and healthcare workers in the ENT casualty department and any impact on their health.

Methods

Patients who underwent any side room procedure or treatment in our ENT casualty department from the 1st of December 2019 up to May 2020 were included in this study. Two time periods within the study were defined. Period 1 was from 1st December 2019 to 28th February 2020 (prior to the first COVID-19 case in Ireland) and Period 2, from 29th February to 23rd of April 2020 (after the first COVID-19 case in Ireland). For patients seen before 30th March 2020, patient data were obtained by retrospective review of ENT Casualty records. Retrospective patients were identified by review of the ENT Casualty room log. For patients seen after 30th March, data were prospectively recorded. Patients were then followed up to two weeks after having a procedure in the ENT Casualty and were contacted via telephone call.

After obtaining informed verbal consent, a series of questions were asked as per questionnaire (Figure 1). Questions included if they had developed symptoms of COVID 19 within two weeks, whether they were tested for COVID-19, and if they needed to be self-isolated.

Figure 1: Questionnaire regarding COVID-19 symptoms post-procedure

Justifying ENT Procedures during COVID-19 Pandemic – Questionnaire

Verbal consent obtained

1. Type of referral

   GP referral

   Self-referral

   Others, please state ……

2. Any type of local anaesthetics (LA) used? Eg. Injections, spray Yes No
3. Type of local anaesthetics (LA) used

   ……..
4. After seen in SIVUH, did you have any COVID symptoms within 2 wks (Eg. Cough, shortness of breath, fever) Yes No
5. Any presenting symptoms

   …….
6. If yes, were you swabbed? Yes No
7. If not, did you need to self-isolate? Yes No

Data on community burden of COVID-19 in Cork was obtained from daily Department of Public Health press release on COVID-19 from GOV.ie website.

Personal protective equipment (PPE) in the ENT casualty was used as per local hospital and HSE guidelines. Standard personal protective equipment was used up to 16th of March. After 16th of March, full personal protective equipment including gown, visor, FFP2/3 mask, goggles and long gloves were used for all procedures.

Approval to carry out the audit was approved by the Hospital Data Protection Office. Verbal informed consent to participate in the study was obtained via the telephone call. As this was an audit, ethical approval was not required.

Results

Demographics

700 people underwent a procedure at the ENT Casualty Department during the study period. 332 (47%) were successfully contacted, consented to participate and were subsequently included in this analysis. 266 (80.1%) of participants attended the service during Period 1 and 66 (19.9%) during Period 2. 190 patients were female (57.2%), and median age was 49 (range 2-91 years old). Majority of the patients were referred by GP or other hospital emergency departments. There was a significantly greater proportion of patients referred by other hospital emergency departments in Period 2 than Period 1 (Table 1).

The most common procedures performed were microsuction of ears, flexible nasopharyngoscopy, and nasal cautery. There was a significant reduction in numbers of patients undergoing microsuction between period 1 and period 2, but no change in numbers of patients undergoing flexible nasopharyngoscopy (Table 2). 149 patients received local anaesthetic, by means of local topical anaesthesia in 138 patients. In Period 1, 109 (41%) patients received local topical anaesthesia and 27 (10.2%) patients received local infiltrative anaesthesia, including 30 (11.3%) patients who received both forms of local anaesthetics. In Period 2, 29 (44%) patients received local topical anaesthesia and 12 (18.2%) patients received local infiltrative anaesthesia with 6 (9.1%) patients receiving both forms. Local infiltrative anaesthesia was used in patients undergoing manipulation of nasal bone fracture and drainage of peritonsillar abscess (quinsy).

Demographics	**Period 1 (% within group)**	**Period 2 (% within group)**	**P-value**
Age	Median = 30	Median = 14	
Sex	Male = 155 (58.2%) Female = 112 (42.1%)	Male = 36 (54.5%) Female = 30 (45.5%)	0.59 0.62
Referrals source			
GP	142 (53.4%)	33 (50.0%)	0.68
Hospital	33 (12.4%)	16 (24.2%)	0.02
Others	91 (34.2%)	17 (25.8%)	0.19
Local anaesthetics	111 (41.6%)	38 (57%)	0.02

Table 1. Patient demographics

Procedures	Period 1 (% within group)	Period 2 (% within group)	P-value
Microsuction	110 (41.4%)	11 (16.7%)	0.0002
Flexible nasopharyngoscopy	59 (22.2%)	15 (22.7%)	>0.99
Nasal cautery	40 (15.0%)	16 (24.2%)	0.10
Foreign body removal	29 (10.9%)	9 (13.6%)	0.52
Manipulation of nasal bone fracture	19 (7.1%)	11 (16.7%)	0.03
Others	9 (3.4%)	4 (6.1%)	0.31

Table 2. Procedures performed between the two periods

COVID-19 Symptoms

In Period 1 (before COVID-19 first appeared in Ireland), 12 patients (4.5%) had COVID-19 symptoms within 2 weeks of attending the casualty department. 6 (50%) patients reported fever, 4 (33%) patients complained of having dry cough and 2 (16%) patients reported some fatigue symptoms. None of these patients with their symptoms self-isolated.

Among the cohort presenting Period 2, five (5) patients (7.6%) of the participants reported COVID-19 symptoms within 2 weeks of attending the Casualty department (p=0.34). 4 (80%) patients in this period reported having cough and dyspnoea and 1 (20%) patient complaint of nasal congestion. Out of 5 patients, 2 underwent swab testing. Both of these tests were reported as negative. Only 2 patients had to self-isolate for 2 weeks.

During the period of our study no medical, nursing, or care assistant staff working in the ENT casualty department contracted COVID-19 disease.

Community Cases

Figure 2 shows the daily number of cases in Cork during the Study period. The maximum daily number of cases occurred on 16th of April (87).

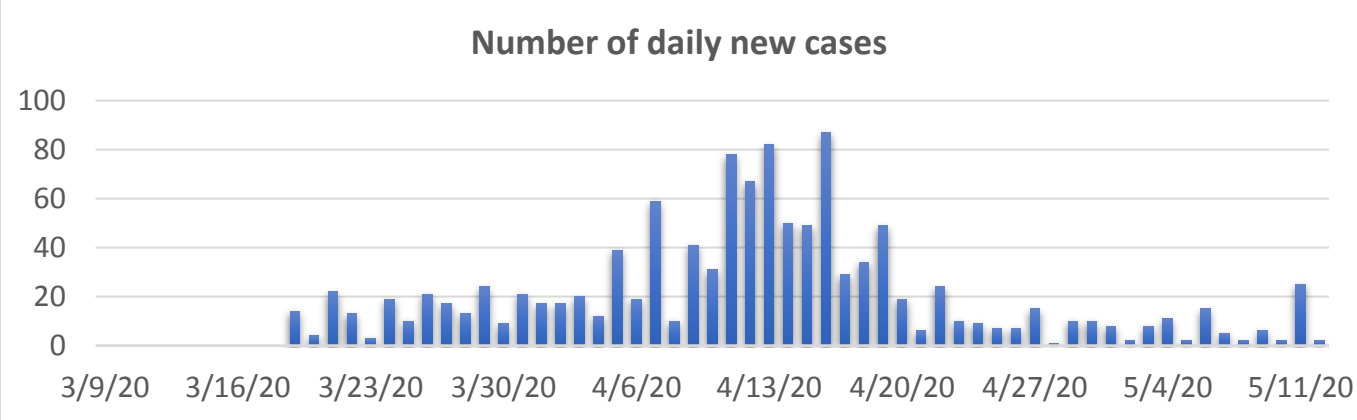

Figure 2. Number of daily reported cases Cork from 19th March 2020 till 12th May 2020.

Adapted from Department of Public Health press release on gov.ie. (10)

Discussion

The findings of this study are that in the cohort presenting after COVID-19's documented arrival in Ireland, only 5 (7.6%, p=0.34) of the participants reported COVID-19 symptoms within 2 weeks of attending. Of the 2 that underwent swabbing, both were negative. Of note, the symptoms in all five (5) patients were non-specific and may have been due to non-COVID-19 related illness. The percentage of patients with symptoms within 2 weeks of ENT Casualty attendance was not statistically significantly different in the time periods before and after the first confirmed cases of COVID-19 in Ireland. No staff member working in the ENT Casualty contracted COVID-19. This suggests that continuation of ENT Casualty services during the pandemic is safe with appropriate PPE available to staff, patient awareness and social distancing measures in place as per HSE and hospital guidelines.

There is a difference in the median age between these periods; with Period 1 being 30 years and 14 in Period 2. This is largely due to the majority of the older patients that needed ears microsuction were postponed during the height of the pandemic. A systematic review concluded that COVID-19 were uncommon in children and children with COVID-19 showed a milder course compared to adults. They hypothesize that repeated viral infections in children could boost their immune system in response to COVID-19 (11) .

The institution's protocol regarding COVID-19 guidelines were observed from Period 2. These included a screening area for COVID-19 symptoms prior to attending the department, facemasks for all attending patients, social distancing in waiting areas, hand sanitizers and a minimum of 15 minutes gap between appointments and allowing only one parent to attend with a child. For healthcare workers, it was mandatory to wear full personal protective equipment (PPE) including FFP2/3 mask, goggles during procedures that involves examining upper aerodigestive tract, strict hand hygiene was practiced and flexible nasopharyngoscopy was performed via video-stack system. A separate side room was designated in the event of more than one acutely ill patient arriving together.

There are some limitations to this paper. The possibility that Sars-CoV-2 was present in Ireland before the first documented Irish case cannot be confidently excluded due to free global travel. There was a difference in the number of patients between Period 1 (n=266) and Period 2 (n=66). Finally, 3 out of 5 patients who developed symptoms in Period 2 did not undergo swabbing, and so we cannot confidently exclude that they did not contract COVID-19.

On the other hand, strengths of this study is the relatively large number of patients undergoing procedures in Period 2, after the arrival of COVID-19 in Ireland, and during the height of the pandemic in Cork.

Our study advocates that with appropriate PPE, patient screening tools, public awareness, social distancing measures and adhering to HSE guidelines provision, ENT emergency procedures and treatment can be delivered safely during this COVID-19 pandemic. As a frontline health care delivery worker, it is imperative to observe health care guidelines in order to protect the vulnerable and our own families. These results will help to formulate our department strategic planning for possible future waves of the pandemic.

Declaration of Conflicts of Interest:
The authors have no conflicts of interest to declare.

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The Impact of COVID-19 on Surgical Activity

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Abstract

Aim

This study aims to examine the impact of COVID-19 on surgical activity in a Model 3 Hospital.

Methods

A retrospective, observational study assessing data collected over a 3-month period (February to April) in 2019 and 2020.

Results

There was an overall reduction in surgical activity between 2019 and 2020. This impact was felt most acutely in the month of April where elective theatre and endoscopy procedures fell from 131 to 9 (93%) and 399 to 102 (74%) respectively. The number of emergency department admissions reduced from 534 to 408 (24%) and the number requiring surgical intervention fell from 166 to 122 (27%). Attendance at surgical outpatients fell from 1,211 to 677 (44%) between the 2019 and 2020. In April, attendance reduced from 456 to 52 (86%).

Discussion

This study has quantified the reduction in surgical department activity in our Model 3 Hospital. This reduction in scheduled and non-scheduled care could be extrapolated nationally to inform service planning, which will become increasingly challenged unless action to address the service deficit is taken soon.

Introduction

The severe acute respiratory syndrome – coronavirus 2 (SARS-CoV-2) and subsequent Covid-19 illness have a resulted in a pandemic presenting unprecedented challenges for health care services worldwide [1]. This has impacted on scheduled surgical services in particular and surgical bodies globally have been proactive in providing up to date resources and clinical guidance for surgeons in their jurisdictions [2,3]. The PanSurg collaborative project was created as a global hub for surgeons sharing experience and research [4].

The first confirmed case of Covid-19 in Ireland was on February 29th and the first death from the illness occurred on March 11th [5]. In most hospitals in Ireland, all non-urgent outpatient appointments and elective procedures have been postponed indefinitely [6]. The operating theatre environment presents high risk of transmission of SARS-CoV-2 due to aerosol generation from anaesthesia and intubation and the actual surgical procedure. Complex procedures also necessitate a large number of staff who require a large volume of personal protective equipment (PPE) which poses logistical and procurement challenges. Intercollegiate guidance on patient and staff safety as well as surgical prioritisation has attempted to address some of these issues [7].

Most operating theatres have developed protocols regarding testing of patients/staff, reducing numbers of people at intubation/extubation and prolonged periods between cases. These factors have combined to reduce capacity within the operating theatre [1]. Coupled with this, patients are concerned regarding presenting to hospital due to the risk of contracting COVID-19. It is still unclear how the risk of delayed presentations and delayed intervention will impact patients [8].

The aim of this study was to examine the impact of COVID-19 on surgical activity in a Model 3 Hospital. We compared surgical department activity over the same 3-month period in 2019 and 2020.

Methods

This was a retrospective, observational study assessing administrative data in a model 3 hospital in Ireland. Data was collected for 3 months, February to April (inclusive), in 2019 and 2020. In this hospital surgical outpatient clinics were running as normal up to the week beginning March 16th.

Data pertaining to outpatient clinics and inpatient admissions was retrieved from the i.Patient Manager System (iPMS) (Version 4.0.0) and data pertaining to elective and emergency operations was retrieved from the Surgical Audit Department in Wexford General Hospital (WGH). Data regarding elective endoscopy was retrieved from Endoraad Diver. Non-elective endoscopy was included in theatre procedures.

WGH is located in the south-east of Ireland. As a model 3 hospital it provides care for undifferentiated surgical patients [9]. It is a 280 bed hospital providing services to the people of Wexford, with a population of 149,722, as well as to people in the surrounding counties of Carlow, Kilkenny, Waterford and Wicklow [10]. There are 4 full time surgeons practising in WGH.

The latest available statistics from the Health Protection Surveillance Centre (HPSC) note 179 confirmed cases of Covid-19 in Wexford. The region has the lowest incidence rate nationally [11].

Results

Elective Activity

Elective theatre procedures fell from 376 in 2019 to 216 (43%) in the same time period in 2020. Elective endoscopy procedures fell from 1,140 to 743 (35%) in 2020. A breakdown with month-by-month figures is provided in table 1.

In terms of the waiting list for scheduled endoscopy, on March 12th, 2020 there were 3 urgent colonoscopies and 1 urgent OGD waiting to be assigned procedure dates. By May 5th, 2020 these had increased to 17 urgent colonoscopies and 17 urgent OGDs waiting to be assigned dates.

Table 1 – Elective activity

		2019	2020	% Change
February	Theatre Procedures	120	138	15%
	Endoscopy	356	365	3%
March	Theatre Procedures	125	69	-45%
	Endoscopy	385	276	-28%
April	Theatre Procedures	131	9	-93%
	Endoscopy	399	102	-74%
Total	Theatre Procedures	376	216	-43%
	Endoscopy	1,140	743	-35%

Elective major abdominal surgery (which includes all colectomies, small bowel resections and laparotomies) reduced from 15 to 9 (40%) in the study period between 2019 and 2020. The number of elective cholecystectomies and hernia operations reduced by 15 (29%) and 25 (60%) in respectively. Table 2 breaks down the 5 most common elective procedures.

Table 2 - Elective procedures

	Feb-19	Mar-19	Apr-19	Total	Feb-20	Mar-20	Apr-20	Total	% Change
Major abdominal surgery	5	3	7	15	4	5	0	9	-40%
Cholecystectomy	17	19	16	52	25	12	0	37	-29%
Hernia operations	12	10	20	42	11	6	0	17	-60%
Minor excision/biopsy	41	44	51	136	53	20	2	75	-45%
Ingrowing toenail operations	11	12	13	36	13	6	1	20	-44%

Emergency Activity

Emergency admissions fell from 534 over the 2019 study period to 408 in 2020 (24%). The number of emergency cases requiring operative intervention fell from 166 in 2019 to 122 in 2020 (27%). A breakdown is provided in table 3.

Table 3 – Emergency activity

		2019	2020	% Change
February	Admissions	151	161	7%
	Procedures	49	42	-14%
March	Admissions	209	131	-37%
	Procedures	57	39	-32%
April	Admissions	174	116	-33%
	Procedures	60	41	-32%
Total	Admissions	534	408	-24%
	Procedures	166	122	-27%

The number of emergency oesophagogastroduodenoscopies (OGDs) performed emergently fell from 32 to 12 in 2020, (63%). The number of major abdominal surgeries increased from 18 cases in 2019 to 24 in 2020 (33%). A breakdown of the most common emergency procedures is provided in table 4.

Table 4 - Emergency procedures

	Feb-19	Mar-19	Apr-19	Total	Feb-20	Mar-20	Apr-20	Total	% Change
Appendicectomy	7	9	17	33	12	4	13	29	-12%
Abscess incision & drainage	6	12	3	21	6	10	4	20	-5%
OGD	9	12	11	32	4	4	4	12	-63%
Major abdominal surgery	5	4	9	18	8	6	10	24	33%
Hernia operations	1	2	1	4	2	1	0	3	-25%

Outpatients Activity

1,211 patients attended for surgical outpatient appointments in 2019. In the same time period in 2020 this figure fell to 677 attendees (44%). In April the attendance fell from 456 to 62 (86%).

On March 12th, 2020 there were 591 patients awaiting a new outpatient clinic appointment. This figure increased to 609 (3%) by May 5th.

Discussion

This study has quantified a significant reduction in surgical activity in WGH as a consequence of the COVID-19 pandemic. WGH represents the typical Model 3 hospital and the findings from this study can reasonably be extrapolated across all Model 3 Hospitals nationally.

The study period was 3 months but the full impact of COVID-19 was only experienced for six weeks within this period and was most acutely felt during the month of April where theatre activity fell 93% and endoscopy activity 74%. There with no elective major abdominal surgeries, cholecystectomies or hernia operations carried out in April 2020. Overall, during the study period elective theatre procedures fell from 43% and endoscopy procedures fell 35%. The most common elective procedures fell by 29-60%.

The reduction in elective activity is largely accounted for by the cancellation of all non-urgent elective surgery and endoscopy. Consequently, there have been large increases in the numbers awaiting these procedures. Elective surgery and endoscopy for urgent cases are still proceeding, but not at a rate that can meet demand. While certain 'urgent' cases, such as the provision of some cancer services may be delayed, others cannot. Professional bodies and specialty organisations including the Royal College of Surgeons in Ireland and the National Cancer Control Programme have produced guidelines on these issues [12]. Nevertheless, patients understandably remain anxious regarding their ongoing treatment.

Surgical admissions via the emergency department fell 24% in the study period, which is consistent with media reports [8,13]. This worrying trend suggests patients are delaying presenting to emergency departments, a pattern comparable to the reduction in acute myocardial infarction and stroke presentations internationally [14,15]. However, there is little research assessing surgical admissions during the Covid-19 pandemic to "normal" operational periods.

The number of cases requiring surgical intervention, including endoscopic intervention fell 27%. The majority of this reduction is due to lower numbers of OGDs being carried out which are considered aerosol generating procedures and are high risk for Covid-19 transmission[16]. It is not clear whether the reduction is due to fewer admissions or a hesitancy of the surgical staff to perform these procedures.

Conversely, there was an increase in major intra-abdominal procedures carried out. Blanket restrictions on elective surgical activity were effectively implemented overnight resulting in an almost complete cessation of elective operating activity. As a result, a number of patients awaiting time sensitive operations were admitted emergently and their operations were thus carried out in an emergency setting leading to the overall increase in the number of emergency major abdominal procedures undertaken. If these cases were excluded we would likely have seen a reduction in these figures correlating to data from other jurisdictions [17,18]. As the pandemic has progressed measures have been put in place to allow the return of elective surgical activity [19].

During the study period, surgical clinic attendance in 2020 declined 44%, with an 88% fall in April. The number of patients waiting to be seen in outpatients between March and May 2020 increased from 591 to 609 (3%).

At the end of the study period the national surgical outpatient waiting list numbers had little changed as a consequence of the Covid-19 pandemic. Numbers waiting for hospital outpatient appointments in Ireland reached record highs in 2019. In April 2019 the National Treatment Purchase Fund (NTPF) identified 33,386 patients awaiting general surgical outpatients' appointments [20]. In April 2020, this figure increased to 33,525 (0.4%) awaiting general surgery appointments, probably reflecting the dramatic decrease in general practitioner (GP) referrals. The most recent waiting list data from the NTPF identifies 40,670 awaiting general surgical outpatients' appointments.

Surgical activity continued apace during February and well into March 2020, with the starkest reductions in activity seen in April 2020. Almost overnight, all non-urgent scheduled activity was cancelled, coinciding with rapidly evolving government enforced social restrictions.

The reduction in surgical activity as a result of Covid-19 along with the existing backlog of patients waiting for elective surgery and unmet demand in outpatients' appointments will all put future health services under further stress. Reinstating surgical services will be complex and will require a cohesive, multidisciplinary approach [21]. The "new normal" will require attention to patient and staff safety. Issues such as Covid-19 testing prior to surgery and endoscopy, staff Covid-19 testing, social distancing within hospitals and theatre and endoscopy suite sterilisation all require active consideration [16,21]. The implementation of agreed care pathways and increased access to diagnostics for GPs may reduce the number of patients needing outpatient review and increase the numbers suitable for see and treat style clinics [22,23].

Our study provides clear data regarding the reduction in scheduled and non-scheduled surgical activity compared to normal and the data from this study could be extrapolated nationally to inform service planning in the future. Clearly, capacity planning will become increasingly challenged unless action to address the service deficit is taken soon [24].

This data suggests that there will be a sharp rise in waiting lists by the end of the Covid-19 pandemic. It is unclear how long before we can reopen outpatients but a more substantial use of virtual clinics and patient reviews will be required [21].

The limitations of this study are those inherent to the use of administrative data. The accuracy of the data is dependent on information technology (IT) systems and secretarial/administrative staff. Furthermore, this data does not present any findings pertaining to outcomes for patients.

The Covid-19 pandemic has evolved rapidly with focus on limiting the spread of the disease. This has had a major impact on the provision of surgical services in Ireland and globally. Surgical care is a major element of a functioning health service and we must be proactive in creating solutions to manage the increased numbers of patients waiting for access to our services [25].

Declaration of Conflicts of Interest:
There are no conflicts of interest.

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The Viability of Telemedicine for Type 1 Diabetes

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Abstract

Introduction

Our aim was to gauge the interest of potential stakeholders in a Telemedicine service that assists in managing Type 1 Diabetes(T1DM).

Methods

A cross-sectional questionnaire was conducted on a sample of 88 T1DM patients and 9 endocrinologists recruited in the Diabetes Clinic, UHG. Microsoft Excel was used to analyse results, tests included Pearson's chi-square. Level of significance: $p<0.05$.

Results

Awareness of Telemedicine differed amongst stakeholders with only 21%(18) of patients aware compared to 100%(9) of doctors. Seventy-seven percent(68) of patients experienced barriers in accessing healthcare. Seventy-two percent(63) of patients and 67%(6) of doctors felt comfortable with video consultations. The patient's home was determined as the most mutually preferred site of Telemedicine consultation with 83%(73) of patients and 89%(8) doctors in favour. Asked how beneficial Telemedicine would be for managing their condition, 58%(50) of patients stated Yes, 10%(9) stated No and 32%(28) were Unsure.

Conclusions

This study finds that a Telemedicine model would not only be feasible for this population but could lessen the barriers many patients experience. A sizable cohort of the population are unsure/would not find Telemedicine beneficial to managing their condition. We recommend Telemedicine as an optional service alongside annual face-to-face visits.

Introduction

Type 1 Diabetes is an auto immune condition often diagnosed in childhood requiring continuous monitoring throughout a patient's life. While there is currently no national surveillance programme, or national population-based survey of diabetes in Ireland the population of people living with Type 1 Diabetes is approximately 14,000 – 16,000 (i.e. 10-15% of the population of people living with diabetes).

Despite the lack of concrete figures thus far, like the world over incidences of Diabetes have been increasing in Ireland[1]. The West of Ireland has long been recognised as a predominantly rural and low socioeconomic area of Ireland. The rural population (% of total population) in Ireland was reported at 36.83% in 2018, according to the World Bank collection of development indicators. Living with a chronic condition in rural areas presents a considerable challenge to patients' access to their healthcare providers.

Telemedicine allows health care professionals to evaluate, diagnose and treat patients in remote locations using two-way video, email, smart phones, wireless tools and other forms of telecommunications technology. Telemedicine in this way can be used in virtual consultations, patient education tools and mobile health messaging systems[2]. In conclusion, Bashshur et al[3] aptly summarises the potential of telemedicine in diabetic healthcare as giving patients "appropriate care at the appropriate time and place in the most appropriate manner".

Growing literature supports the use of a telemedical model in managing Type 1 Diabetes[4,5]. The chronic nature of Type 1 Diabetes requires management and monitoring throughout the patient's life. The routine check-ups involved can present a challenge to many patients from rural areas like the West of Ireland. Telemedicine could provide patients who live in rural and remote areas increased access to medical services. Telemedicine has long been postulated as a useful tool to assist patient self-management of long-term conditions and Hanlon et al[6] reported no negative effects of Telemedicine delivered self-management support. Moreover, the classic high-risk group of young adults living with Type 1 Diabetes could stand to benefit from the technological, less demanding nature of a Telemedicine service[7].

The implementation of telemedicine in the management of this condition offers an accessible, flexible, and feasible alternative which could lead to better patient outcomes. Yaron M[8] showed telemedicine to be effective in a Type 1 Diabetes population by slightly reducing HbA1c, significantly reducing costs of care and increasing satisfaction. While the majority of studies[9] focus on the clinical outcomes from a telemedicine intervention, the appetite amongst the stakeholders is relatively unexamined. The degree of acceptability and usability of Telemedicine[10] is paramount to the success of a Telemedicine programme regardless of its effectiveness.

To our knowledge, this is the first study of Diabetes Telemedicine in Ireland. A study of Irish Telemedical services in 2007[11] found most telemedicine services to be in Dublin as opposed to the more acute, less densely populated West of Ireland. Additionally, that study mentioned no presence of a Tele-endocrinology service in Ireland at the time. The sustainability of a Telemedicine service will rely on increased public acceptance and less dependence on enthusiasts' flexibility[12]. We aimed to assess the feasibility and possible structure of a Telemedicine service in Ireland. Our primary research question was to ascertain the interest of diabetes care stakeholders in telemedicine as an additional way to manage the condition.

Methods

This study was designed as a cross sectional clinical research project comprising of a survey distributed to T1DM patients and healthcare providers. The study took place in the University Hospital Galway(UHG) Diabetes centre between the months of June and July 2019.

STROBE guidelines for cross-sectional studies were followed. The study was ethically approved by the UHG Ethics board. Participants for the study were approached for consent and participation on days while a T1DM clinic was in place. Eligibility criteria for participants were T1DM patients over the age of 18.

The first key hypothesis asked do healthcare providers and people living with diabetes show interest in Telemedicine as an additional way to manage the condition. To test this, we developed a questionnaire (figure 1) influenced by existing validated surveys in the telemedical field. Existing survey questions in the literature were examined under the framework provide by Langbecker et al[13]. As per (Langbecker) guidelines, we constructed our Telemedicine questionnaire with the mindset of avoiding overly long surveys to improve data quality and avoiding an online survey as we felt this would show bias towards a population more likely to be in favour of telemedicine.

A sample size of 88 patients (approx. 10% of the Galway Type 1 Diabetes population) and 9 doctors in the Diabetes clinic were assessed. Participants were provided with an information leaflet explaining the project and defining Telemedicine before completing the survey. The main outcomes for the survey were awareness of Telemedicine, patients' barriers to healthcare, estimating commuting/waiting times, investigating stakeholders' technical and blood glucose management ability, preferences of telemedicine location, comparing Telemedicine and face to face consultations and whether Telemedicine would be beneficial to managing T1DM. Statistical analysis was carried out using IBM's SPSS 25 software and Microsoft Excel. Descriptive frequencies were carried out on all survey questions and tests included Pearson's chi-square and Likelihood Ratio, relevant frequencies were reported. Missing data was omitted from the calculations as it was usually an insignificant number (eg.1) or absent.

Figure 1 (Telemedicine Patient Survey)

Telemedicine Patient Survey

For the following questions tick the box which most applies to you. Try to avoid neutral options where possible.

1. Were you aware of Telemedicine before now? **Yes** ☐ **No** ☐

2. Do you experience any of the following barriers in accessing your healthcare clinic

Commuting times ☐ **Availability for appointments** ☐ **Personal Health issues** ☐

Means of transport ☐ **Other** ☐

If you ticked Other please specify?_____

3. The commute to your healthcare clinic takes approximately-

1-15mins ☐ **16-30mins** ☐ **31mins-59mins** ☐ **1hr-2hr** ☐ **>2hr** ☐

4. Are waiting times while in the hospital a problem for you during your check-ups? **Yes** ☐ **No** ☐

5. The average waiting time at the clinic for your check-ups lasts

1-15mins ☐ **16-30mins** ☐ **31mins-59mins** ☐ **1hr-2hr** ☐ **>2hr** ☐

6. Would you be comfortable discussing your health with your doctor over the phone?
Yes ☐ **No** ☐ **Not sure** ☐

7. Would you be comfortable discussing your health with your doctor over a Skype call?
Yes ☐ **No** ☐ **Not sure** ☐

8. Do you feel your blood glucose levels are managed appropriately? **Yes** ☐ **No** ☐

9. Do you feel using Telemedicine would improve your management of your blood glucose?
Yes ☐ **No** ☐ **Not sure** ☐

10. Do you think you have the technical skills to make a video call to your doctor?
Yes ☐ **No** ☐ **Not sure** ☐

11. Would you be comfortable having a video consultation with your doctor at home?
Yes ☐ **No** ☐ **Not sure** ☐

12. Would you be comfortable having a video consultation with your doctor at a purpose-built room for Telemedicine in your local town? **Yes** ☐ **No** ☐ **Not sure** ☐

13. Would you be comfortable getting your insulin from a local drop off point delivered by drone to your nearest town? **Yes** ☐ **No** ☐ **Not sure** ☐

14. Do you think Telemedicine would be beneficial in managing your condition? **Yes** ☐ **No** ☐ **Not sure** ☐

15. Do you think a check-up with your doctor would be as satisfactory through Telemedicine as opposed to face-to-face? **Yes** ☐ **No** ☐

16. If you have any additional comments about Telemedicine and how you would you like to see it in practice please use the space provided below

_____

_____

Results

Demographic characteristics

The mean age of T1DM patients at the UHG diabetes clinic is 42.9 years. Of these patients, 49.2% are male and 50.8% are female. The average duration of T1DM for these patients is 20 years. Of the 9 doctors making up the medical team, their grade and age were as follows: 1 x Consultant – age 50, 1 x Specialist Registrar – age 30, 2 x Registrars – average age 27, 5 x Senior House Officers – average age 24.

Awareness & Barriers

Of the 88 patients who consented to participate their awareness of Telemedicine was low at 21%(18). While of the 9 doctors who took part, 89%(8) of them agreed that Telemedicine would reduce the burden placed on Irish hospitals. A statistically significant relationship (p= 0.034) existed between how many barriers patients' experienced and whether they felt Telemedicine would be beneficial to their condition. The participants' average commuting and waiting times were 54 and 47 minutes respectively. Thirty-two percent(28) of patients waited more than an hour at the clinic while 34%(30) of patients had commutes longer than an hour to their clinic. The participants' average commuting and waiting times were 54 and 47 minutes respectively. Fifty-four percent(46) of participants had no problem with waiting times at their clinic

Seventy-seven percent(68) of patients experienced barriers in accessing their healthcare (figure 2); the most prominent being commuting times 32%(38) followed by availability for appointments 24%(28), means of transport 13%(16), personal health issues 9%(11) and other 5%(6). While 89%(8) of doctors agreed that Telemedicine would reduce the burden placed on Irish hospitals.

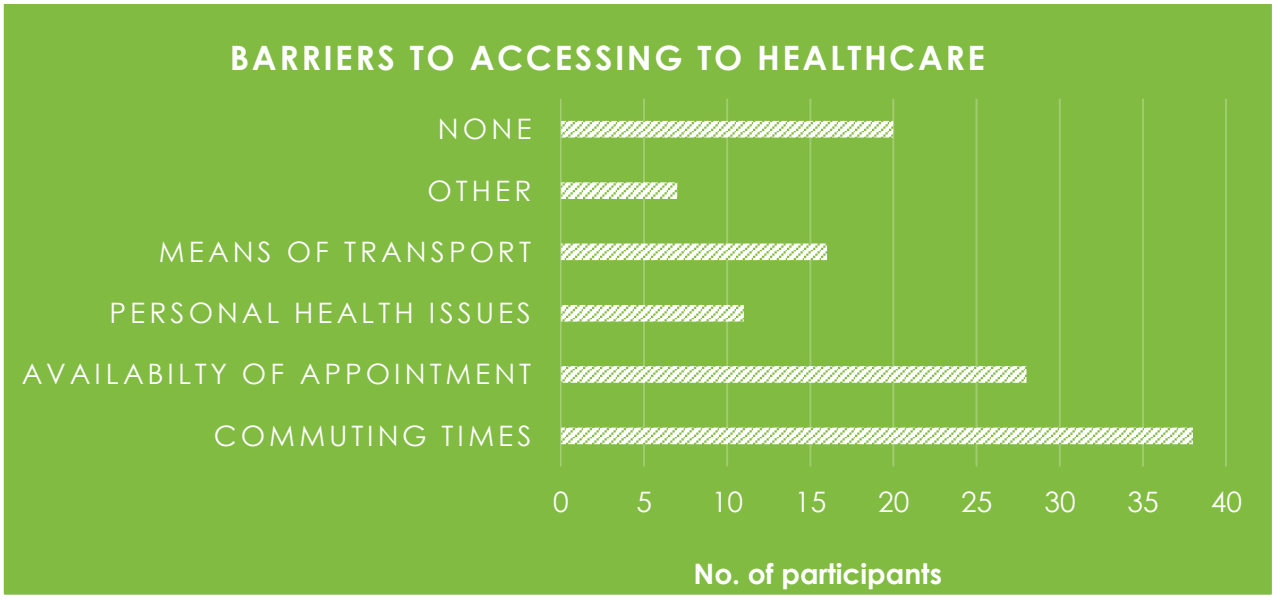

Figure 2 (Barriers faced by patients while attending their Diabetic Clinic)

Feasibility of Telemedicine

80%(70) of patients and 67%(6) of doctors felt comfortable having a video consultation. The patient's home was determined as the most mutually preferred site of Telemedicine consultation with 83%(73) and 89%(9) of patients and providers respectively in favour of it. Contrarily regarding a purpose-built Telemedicine centre while 100%(9) of doctors were for it, only approximately half of patients would have been comfortable in that setting. Technical skills of both groups were high with 80%(70) of patients and 78%(7) of doctors. 24%(20) felt their blood glucose levels were currently not managed appropriately. 89%(9) of doctors stated they would like to see patient/doctor training implemented in a Telemedicine service.

	Patient	vs	Provider
Aware of TM	21%		100%
Comfortable with Phone Calls	80%		78%
Comfortable with Video Calls	72%		67%
Consultation at home	83%		89%
Consultation at Purpose-built centre	54%		100%
Would use drone medical delivery	38%		67%

Table 1 (Comparing Patient versus Doctor preferences)

Benefit of Telemedicine

Patients were overall more likely to find Telemedicine beneficial, although a significant proportion were unsure with 10%(9) feeling Telemedicine wouldn't be beneficial in managing their condition while 57.5%(50) felt it would be beneficial and 32.2%(28) were unsure.

Doctors were more emphatic in their response to Telemedicine's benefit with 89%(8) thinking Telemedicine would be beneficial in managing their patient's condition however only 44%(4) thought that a check-up video consultation with their patients would be as satisfactory as a face to face check-up. The more barriers a patient experienced the more likely ($p=0.034$) they were to find Telemedicine more beneficial.

Discussion

Most of the Type 1 Diabetes population in the West of Ireland experience barriers in accessing their healthcare and would stand to benefit from a Telemedicine service. Technical acumen and comfort in bringing their healthcare to the home suggests this service would be feasible to implement. While patients and doctors differ in some areas regarding Telemedicine such as awareness and in its comparability to face to face consultation, they both agree in its ability to bypass the barriers in accessing healthcare and the majority would see its inclusion in Diabetes care as a beneficial one.

Telemedicine provides a novel way to increase patient interaction with their healthcare team, however a significant number of patients remain unfamiliar and unsure about adopting it. Lack of awareness of Telemedicine and preference to face to face consultations account for significant neutrality (32%) in patients' interest in the benefit of Telemedicine. These results place Telemedicine preferentially as an additional service in the treatment of Diabetes. An optional Telemedicine service alongside regular consultations or shared medical appointments[15] could be of acute interest in the management of young adults desiring freedom from the rigmarole of Diabetes management.

The application of Telemedicine extends beyond the virtual consultation. Increasingly patient and carer education is seen as an effective way to improve disease management; a recent study conducted in Irish primary schools[16] identified the lack of education in this setting as a key issue. The increased communication offered by a dedicated Telemedicine service in Ireland could assist primary schools, of which the majority lack even a single school nurse[16] to better care for younger Diabetes patients. This study's population of mixed city and rural dwellers in the West of Ireland can be extrapolated to a reasonable extent, certainly across Ireland but also other areas of Western Europe. Moreover, there is significant potential for a Telemedicine clinic with time to help manage other chronic conditions especially Type 2 Diabetes and in so the results of this study could be of wider use to the field of Telemedicine beyond Type 1 Diabetes.

Studies have demonstrated that the cost and time saved from a Telemedicine service[5] finance the initial costs taken to implement it. McFarlane et al's[17] pioneering study into the state of Telemedicine in Ireland back in 2006 painted a picture of Telemedicine being championed by enthusiasts with no large-scale services and little uptake amongst healthcare providers. While Telemedicine remains a novel concept within the Irish healthcare system, this study shows how evolving culture has changed patient and provider attitudes to Telemedicine and furthermore that the tools and landscape for a Telemedicine service have changed dramatically since 2006. With appropriate patient education and structures in the health service to accommodate a Telemedicine clinic we believe Telemedicine is not only a feasible but beneficial additional way for patients to access and interact with their healthcare.

This study chose to focus on the video-conferencing aspect of Telemedicine, however other approaches such as real-time patient monitoring, store-transmission methods and mobile health applications are other ways to implement Telemedicine. Sample size was limited by the Type 1 Diabetes patient population, expanding the questionnaire to Type 2 Diabetes patients (which has shown more compatibility to Telemedicine in some studies[5]) would significantly increase statistical power. A significant limitation of Telemedicine opposed to face to face consultations is the inability to check patient blood pressure, injection sites, feet, and overall wellness, as such Telemedicine is best seen as an adjunct to in-person consultations than as a replacement.

In conclusion, this study supports the use of Telemedicine as a means to help manage patients attending Type 1 Diabetes clinics, finding that sufficient interest is held by both patients and clinicians and that the inclusion of such a service could positively impact upon patient access to healthcare.

Declaration of Conflicts of Interest:
No competing financial interests exist.

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Concealed Pregnancy in the 21st Century

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Abstract

Aims

Concealed pregnancies occur in Western society with no definitive Irish rates. Concealed pregnancy appears to encompass cases of babies born before arrival to hospital or 'unbooked' pregnancies. [1,2] The aim was to gain understanding of concealed pregnancies presenting to the Rotunda Hospital. The objectives included identifying the number of concealed pregnancies between 2007 and 2018, identifying patient demographics, quantification of delivery modes and identifying maternal and neonatal outcomes.

Methods

This was a retrospective paper and electronic chart review of 31 cases of concealed pregnancy.

Results

The average age was 24 years. Twenty cases (64.5%) involved Irish women. Over half the mothers were primiparous. There were five cases (16%) of postpartum haemorrhage. There was one stillbirth (3.2%) at 36 weeks' gestation. The gestational ages at delivery ranged from 23+5 to greater than 42 weeks. Twenty-five percent of babies (n=8) were admitted to NICU. Twenty-nine percent of babies (n=9) were discharged to foster homes.

Conclusion

As our population becomes more dynamic and multicultural, it is important to identify concealment and the associated morbidity. By shining a light on this medical and social issue, it may help to reduce prevalence and improve management.

Introduction

There is limited research regarding concealment of pregnancy, both nationally and internationally. Concealment of pregnancy triggers a historical image for most individuals[1] however a brief review shows that concealed pregnancies are still very much occurring in modern western society.

International studies are small in number and only one dedicated study regarding concealed pregnancy in Ireland has been conducted.[1] Concealed pregnancy as a phenomenon 'in the absence of neonaticide and psychiatric disorders' has barely been examined.[1] There are limited sources of information in Ireland with most information previously garnered from annual reports of individual maternity units and their figures for 'concealed pregnancy'. This term appears to encompass either babies born before or on arrival to hospital or 'unbooked' pregnancies.[1, 2]

The importance of an accurate definition of concealed pregnancy should not be underestimated in both clinical practice and research. The varying degrees of concealment and denial need to be assessed and examined in order to understand trends. This will allow better detection of pregnancy concealment as well as management and the reduction of poor maternal and neonatal outcomes.

There are various types of concealment reported in the literature. Conlon cites three typologies to aid definitions regarding concealment. The first is 'unconscious denial' whereby a woman has no conscious awareness of the pregnancy for the majority of or even up to a sudden unexpected delivery. 'Conscious denial' refers to recognition of the pregnancy by the woman but continued denial to herself and others. In essence she is cognitively aware of the pregnancy but refusing to engage with it on an emotional level. Finally 'concealment of pregnancy' refers to a woman acknowledging the pregnancy but hiding it from others and not presenting for antenatal care until at least twenty weeks gestation, sometimes up to the time of delivery and sometimes not presenting at all.[1] Given the limited information regarding reasons for and levels of concealment in the cohort of cases assessed in this study, the third typology was adapted as a broad definition.

Given the limited evidence and research we have regarding concealed pregnancy in Ireland it is difficult to identify the prevalence of it. Conlon cited annual reports from 1995 to 2003 and found that the National Maternity Hospital (NMH) was the only maternity unit regularly reporting figures for concealed pregnancy as an aspect of their Medical Social Work report.[1] In 1995, 7 concealed pregnancies were reported in NMH (1/946 births), this number rose to 18 in 1997 (1/420), 24 in 1998 (1/326). These figures are in line with the idea that concealed pregnancy is very much still happening. From an international perspective, German authors Wessel, Endrikat and Buscher (2003) have produced the only comprehensive study regarding concealed pregnancy with an estimation that one in every 475 German births are concealed.[3, 4,5] In terms of the United States, there appears to be no data regarding the prevalence of concealed pregnancy.[6]

Alongside the perception that concealment of pregnancy is a thing of the past, the presumption that those who conceal their pregnancies are young teenagers often on the fringes of society is wrong. Women who conceal their pregnancies come from all walks of life, social and educational classes regardless of age or marital status.[7,8,9,10,11] There is significant and complicated emotional distress and trauma associated with concealment of pregnancy.[1, 12] The repeated action of pregnancy concealment appears to be a common trend with Thynne et al. (2012) reporting that seven of nine women concealed their pregnancy more than once.[12]

The reasons for concealment are varied and not limited to domestic violence, poverty, rape, psychiatric illness and incest.[7, 8,13,14] Conlon (2006) reported that combined efforts between family and friends to conceal pregnancy do exist. Two Irish studies by Conlon (2006) and Thynne et al. (2012) highlight common themes including fear of reactions from parents and pre-marital pregnancy stigma. [1, 12,7]

It can be reasonably deduced that maternal and neonatal outcomes from concealed pregnancies are poorer than those involved in antenatal care. Given the lack of research regarding these it is hard to quantify or place any value on how poor these outcomes truly are. Risks and outcomes of concealed pregnancy include little or no antenatal care, precipitous deliveries, incorrect approximation of gestational age, maternal death, psychological distress, post-partum issues including poor bonding, lack of detection of fetal anomalies, increased risk of prematurity and lower birth weight, neonatal unit admission, birth injuries and increased rates of perinatal mortality and adoption.[7] This study looked at various aspects of maternal and neonatal outcomes including post-partum haemorrhage, sepsis, postnatal depression, NICU admission, length of hospital stay and place of discharge.

The aim of this project was to gain better understanding and knowledge of concealed pregnancies presenting to a tertiary maternity unit. The objectives included identifying the number of concealed pregnancies attending the Rotunda Hospital between 2007 and 2018, identifying the demographics of these patients, assessment of the hospital's management of concealed pregnancies and quantification of modes of delivery of concealed pregnancies. In addition, the identification of adverse maternal and neonatal outcomes in concealed pregnancies was an important objective for this study.

Methods

Study Design

This was a retrospective chart review of concealed pregnancies presenting to the Rotunda Hospital between 2007 and 2018.

Study Participants

Cases of concealed pregnancy identified by the hospital Social Work department between 2007 and 2018 were included. HIPE recording of 'concealed pregnancy' was inaccurate and was not employed as a tool.

Study Protocol

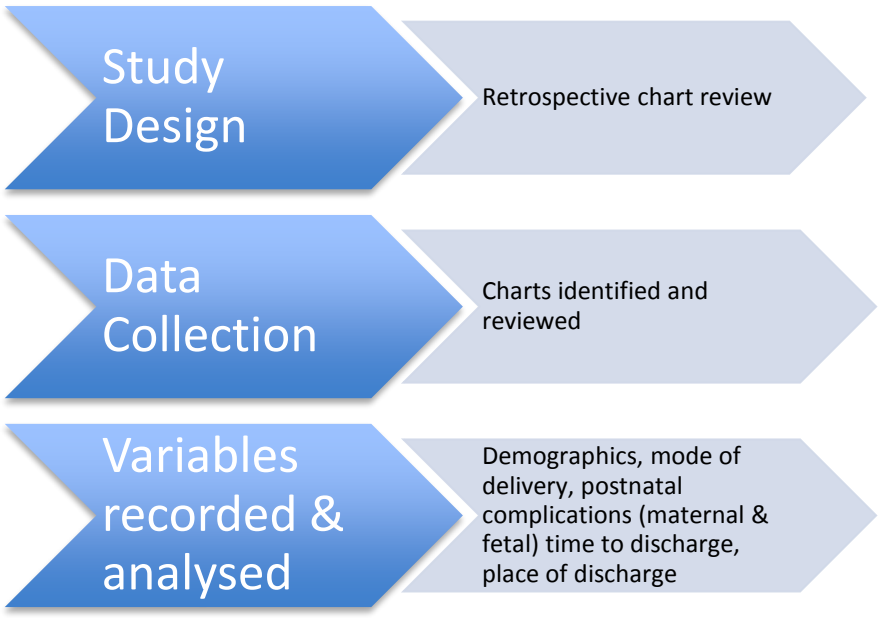

Figure 1. Study design

Procedures

Paper and electronic charts (year dependent) were reviewed for data collection.

Study Measures

Variables examined included demographic information, mode of delivery, postnatal complications e.g. postpartum hemorrhage, neonatal complications e.g. NICU admission, length of stay (maternal and neonatal), place of discharge (maternal and neonatal).

Data analysis

All data was collected and compiled into a Microsoft Excel spreadsheet. SPSS statistical package was then utilised to extract demographic information and basic statistical information.

Results

Thirty-one cases of concealed pregnancy were examined.

Demographics

The average age was 24 years, with an age range of 15-38. Twenty cases (64.5%) involved Irish women with Poland, Nigeria and Georgia represented amongst the non- Irish cases. There was one case of homelessness reported and one case involving a mother with a significant learning disability. Documentation of marital status was poor, however over a third reported either a stable relationship or marriage. Over half the mothers were primiparous. Among the multiparous group the highest parity was 8.

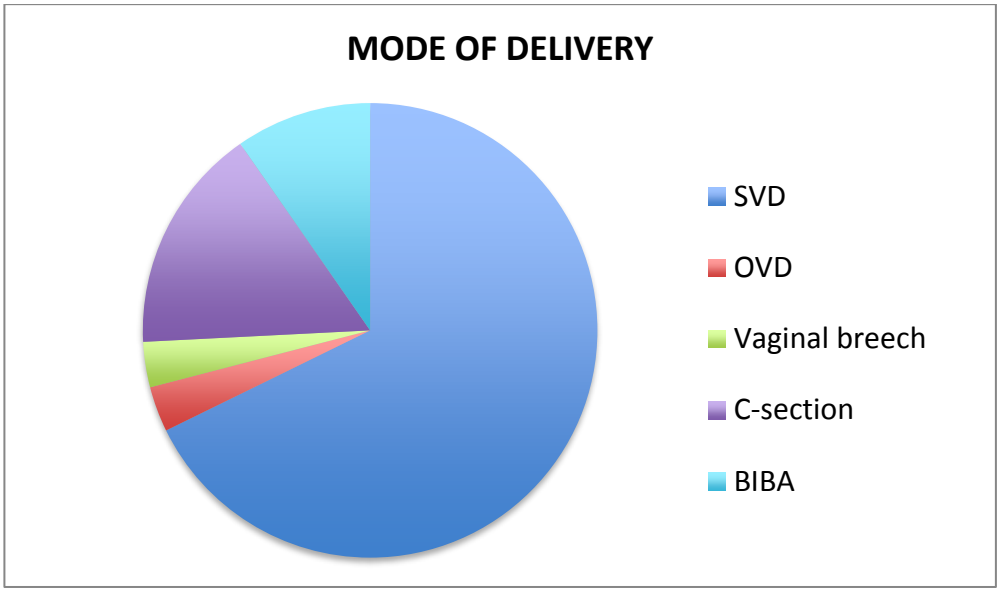

Figure 2. Mode of delivery

Postnatal outcomes

There were five cases of postpartum haemorrhage and no case of sepsis or reported postnatal psychosis. The Edinburgh Postnatal Depression Scale scores ranged from -3 to 13. There was evidence of poor documentation of these scores in the earlier years of the cases reviewed. The range of results was reassuring, with only one mother giving a score of thirteen which would warrant further management.

Discharge outcomes

Time to discharge for mothers ranged between one and five days. Over half of mothers were discharged home to either their own home or that of a family member. Two women were discharged to a women's refuge.

There was one stillbirth reported at 36 weeks' gestation. The gestational ages at delivery ranged from 23+5 to greater than 42 weeks however in some cases this was an estimation, as there was poor documentation around menstrual dates or lack of ultrasound confirmation.

There were 8 pre-term deliveries between 30 and 36+5 weeks' gestation with the rest classed as term deliveries. A further two pre-term deliveries occurred before 30 weeks' gestation, 24 and 23+5 weeks respectively.

Twenty-five percent of babies were admitted to the NICU with the length of stay ranging between 1 day and 13 weeks. Twenty-nine percent of babies were discharged to foster homes with the remainder discharged to their mother's home, some with extra family and social supports.

Discussion

The demographics of these cases reveal that women who conceal their pregnancies may be older than the media and historical experience would lead us to believe. Interestingly 64.5% of the mothers were Irish, highlighting the social issues faced by both Irish women and foreign nationals.

Mode of delivery was in line with trends for pregnancies with full antenatal care with the majority as spontaneous vaginal delivery. Most deliveries occurred after 37 weeks' gestation; however these were often approximations rather than definite confirmed gestations. There were ten pre-term deliveries in total, two under 30 weeks' gestation, and eight between 30 and 36+5 weeks' gestation. This is a high number of preterm deliveries, further consolidated by the length of time some babies spent in the neonatal unit. The remainder were classed as term deliveries.

The adverse maternal outcomes were fewer than expected but were still significant with 16% of mothers experiencing postpartum haemorrhage. Reassuringly there were no cases of sepsis. Although there were no documented cases of postnatal psychosis, often psychiatric issues either do not re-present to maternity units or they are under-reported. The Edinburgh Postnatal Scale was used but poor documentation in earlier years was evident. The range of results was reassuring with only one mother giving a score of thirteen, which would warrant further management.

Neonatal outcomes were generally good with 75% not requiring NICU admission. However, of those admitted to NICU, protracted length of stay was evident and would warrant further investigation. Although specific neonatal morbidities were not assessed, the duration of time spent would suggest some babies experienced a more difficult medical course than others. Twenty-nine percent of babies were discharged to care that was not that of their mother's. However, it is important to note that this may have been temporary in some scenarios or even a safer, better choice for them.

The strengths of this study included the thorough collection of various aspects of obstetric, postnatal and neonatal outcomes. A broad overview of concealed pregnancy and its impact on both mother and baby was achieved. The study involved a multi-disciplinary approach with input from the social work department being integral to the collection of data. The study provides a good platform for further work in an area that remains under-researched and poorly understood from medical, public health and social perspectives.

The limitations of the study are reflected in the numbers of cases examined. By obtaining greater numbers of cases we can understand concealment of pregnancy in a much more comprehensive way. There were aspects of the study that were omitted; some of the data collection was scant due to poor record-keeping and documentation in medical records. However, as was evident in the more recent cases on electronic charts, the electronic health record should allow for more thorough examination of more variables in future work.

By understanding concealment of pregnancy better, both clinical work and research can be improved to serve these women. In terms of future research, this study provides important general information about concealed pregnancy. It provides a stepping-stone for work in various aspects of concealed pregnancy including identifying reasons why it happens, maternal and neonatal outcomes, as well service provision and clinical training for staff members. Crisis pregnancy services can be enhanced based on improved demographic information as well as trends in behaviour amongst cases of concealed pregnancies. From a clinical perspective all healthcare staff can benefit from understanding concealed pregnancy. Gaining an appreciation of staff opinions and experiences of caring for women during concealed pregnancy would allow better staff training and more informed clinical care to be delivered by Irish hospitals. By doing so, clinical care and maternal and paediatric outcomes can be improved. Examples of this include 'understanding the attributes of concealed pregnancy' in order to help clinicians risk identify women who may conceal a pregnancy. [7]

Concealed pregnancy is both a medical and a social issue, with our patient populations becoming more dynamic and multicultural. It is important to identify concealed pregnancy, its trends and the associated significant morbidity. By shining a light on this issue, it may help to reduce the prevalence and improve management of these cases.

Declaration of Conflicts of Interest:
The authors declare that there are no conflicts of interest.

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Clinical Characteristics and Factors Associated with Severity in Patients Admitted with SARS-CoV-2 Infection

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Abstract

Aims

The aim of this study was to provide an early interval evaluation of laboratory characteristics and clinical outcomes of adult patients with qRT-PCR-confirmed SARS-CoV-2 infection.

Methods

We performed a single-centre retrospective cohort study. All patients with qRT-PCR-confirmed SARS-CoV-2 infection admitted from March 6th to April 2nd were included. Daily laboratory, radiological and clinical parameters were manually collected on every patient.

Results

Forty-six patients were included in the analysis. Thirty-three (72%) of patients were male. The majority of patients (n=33, 89%) had at least one baseline comorbidity. Bilateral consolidation on chest x-ray (n=24, 52%) correlated with level of respiratory support required but not with mortality. Documented fever (n=33, 48%) and hypotension (n=4, 9%) correlated with highest level of respiratory support required. Older age, obesity and more than one baseline comorbid condition were associated with mortality. Regarding laboratory markers, degree of neutrophilia, lymphopenia (n=33, 73%) and raised CRP were significantly associated with death. Raised LDH, ferritin and D-dimer concentrations correlated with degree of oxygen requirement. There was no association between an early PCR cycle quantification (C_q) value (used as a proxy for viral load) and patient outcome.

Conclusions

We found multiple characteristics that correlated with outcome. These findings give an indication as to those patients that are at risk of a poor clinical outcome.

Introduction

Coronavirus disease 2019 (COVID-19), caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was first identified in Wuhan, China in late 2019 (Huang et al., 2020). In the following months, multiple countries began to report local epidemics (World Health Organisation, 2020). On the 5th March 2020, a patient was diagnosed with SARS-CoV-2 infection who had been ventilated in the intensive care unit with atypical pneumonia despite having no epidemiological link to a known case or area of high prevalence. This was the first documented community acquisition of SARS-CoV-2 in the Republic of Ireland and was an indication of potential widespread community transmission (Faller et al., 2020).

The aim of this study was to provide an early interval evaluation of laboratory characteristics and clinical outcomes of adult patients admitted with quantitative reverse-transcriptase polymerase-chain-reaction (qRT-PCR) confirmed SARS-CoV-2 infection.

Methods

We performed a single-centre retrospective cohort study. All patients with qRT-PCR confirmed SARS-CoV-2 infection admitted to Cork University Hospital, a large regional teaching hospital in Ireland, from March 6th to April 2nd (twenty-eight days following identification of the first case) were included. Ethics approval was granted by the Clinical Research Ethics Committee of the Cork Teaching Hospitals (CREC).

Laboratory confirmation of SARS-CoV-2 infection was performed using the MagNA Pure 24/MagNA Pure LC (Roche diagnostics) extraction system and Realstar® (Altona Diagnostics, Hamburg, Germany) or EURORealTime (EUROIMMUN, Lübeck, Germany) SARS-CoV-2 qRT-PCR kits, as per the manufacturer's instructions. Target detection was reported on a LightCycler® 480 Instrument II (Roche) if the quantification cycle (C_q) value was <40. In the absence of assay standardisation with RNA copy number controls, the C_q value was used as a semi-quantitative indication of viral load.

Daily laboratory, radiological and clinical parameters were manually collected on every patient using the data collection tool included in the appendix. Collected data was anonymised and stored on password encrypted files.

Characteristics including age, gender, comorbidities, level of oxygen support, radiological findings, lymphocyte count, neutrophil count, as well as D-Dimer, ferritin, C-reactive protein (CRP), and lactate dehydrogenase (LDH) concentrations were recorded. Patients were followed until discharge or death.

Radiological assessments were either plain x-rays or computed tomography (CT) scans. All findings were reviewed by a consultant radiologist.

Patient characteristics were correlated with clinical outcomes. The primary outcome measured was death. The maximum level of respiratory support required during inpatient stay was documented as a secondary outcome. This was classified as ventilated, requiring non-invasive ventilation (NIV), oxygen-requiring or stable on room air.

Data were analysed using SPSS 26.0. Continuous variables were described as median with the interquartile range, and categorical data were described using frequencies and percentages. Means for continuous variables were compared using the Mann-Whitney or Kruskall-Wallis tests and Bonferroni correction was applied for multiple comparison. The Chi-square test was used to compared categorical data. Univariate analysis was used to evaluate the risk factors associated with death. Values were considered significant if $P<0.05$.

Results

Patient Characteristics

Fifty-one patients who tested positive by qRT-PCR for SARS-CoV-2 were admitted between the 6th March and 2nd April 2020 (28-day period). There were eight patients who tested positive in the community and were referred to hospital by Public Health or Primary Care. Of the fifty-one patients that were positive for SARS-CoV-2, forty-three (84%) were community-acquired cases and the remainder were nosocomial.

Five patients (two male) were admitted with SARS-CoV-2 infection for isolation purposes during the containment phase in-line with public health guidance at the time. All had mild SARS-CoV-2 infection. Observations were stable for all throughout admission with none requiring oxygen support. Laboratory parameters were within normal limits with no lymphopenia (median lymphocyte count 2 $x10^9$/L), or elevation in inflammatory markers observed (median CRP 2 mg/L). All were discharged once the public health strategy transitioned from the containment to the delay phase.

Baseline demographic and clinical data for the remaining forty-six patients are described in Table 1. (Next Page) Laboratory findings are reported in Table 2. Age of patients ranged from 21 to 92 years with a median age of 63 years. Thirty-three patients were male (72%).

Characteristic	Total n = 46	Survived n = 34	Died n = 12	*P* value
Gender				0.299
Male	33 (71.7)	23 (50.0)	10 (21.7)	
Female	13 (28.3)	11 (23.9)	2 (4.3)	
Median age, years (IQR)	63 (51-77)	60 (50-70)	76 (67-82)	0.017
Age Category				0.072
21-30 years	1 (2.2)	1 (2.2)	0 (0)	
31-40 years	2 (4.3)	2 (4.3)	0 (0)	
41-50 years	8 (17.4)	7 (15.2)	1 (2.2)	
51-60 years	8 (17.4)	7 (15.2)	1 (2.2)	
61-70 years	10 (21.7)	9 (19.6)	1 (2.2)	
71-80 years	9 (19.6)	3 (6.5)	6 (13.0)	
81-90 years	7 (15.2)	4 (8.7)	3 (6.5)	
91-100 years	1 (2.2)	1 (2.2)	0 (0)	
Comorbidities	41 (89.1)	30 (65.2)	11 (23.9)	0.743
Hypertension	21 (45.6)	18 (39.1)	3 (6.5)	0.095
Ischaemic heart disease	12 (26.1)	7 (15.2)	5 (10.9)	0.153
Atrial fibrillation	6 (13.0)	2 (4.3)	4 (8.7)	0.015
Other cardiac	10 (21.7)	7 (15.2)	3 (6.5)	0.750
Diabetes mellitus	5 (10.9)	3 (6.5)	2 (4.3)	0.453
Obesity	3 (6.5)	2 (4.3)	1 (2.2)	0.768
Other endocrine	2 (4.3)	2 (4.3)	0 (0)	0.390
Chronic obstructive pulmonary	7 (15.2)	4 (8.7)	3 (6.5)	0.272
disease	9 (19.6)	9 (19.6)	0 (0)	0.047
Asthma	4 (8.7)	2 (4.3)	2 (4.3)	0.254
Other respiratory	2 (4.3)	1 (2.2)	1 (2.2)	0.431
Chronic kidney disease	2 (4.3)	0 (0)	2 (4.3)	0.015
History of stroke	1 (2.2)	0 (0)	1 (2.2)	0.089
Malignancy				

Table 1: Patient demographics and comorbidities. Data are presented as median (interquartile range) and n (% of total). *P*<0.05 was considered significant.

Characteristic	Total n = 46	Survived n = 34	Died n = 12	*P* value
Laboratory values				
Maximum Neutrophils (x10^9/L)	6.1 (4.4-10.3)	5.3 (4.1-7.6)	10.3 (6.5-16.1)	0.007
Not measured	1	1	0	
Minimum Lymphocytes (x10^9/L)	1.50 (0.99-1.76)	0.75 (0.49-1.03)	0.51 (0.33-0.66)	0.038
Not measured	1	1	0	
Lymphopenia (<0.9x10^9/L)	33 (73.3%)	22 (48.9%)	11 (24.4%)	0.094
Not measured	1	1	0	
Maximum CRP (mg/L)	138 (66-209)	115 (47-204)	189 (119-292)	0.049
Not measured	1	1	0	
Maximum LDH (units/L)	659 (502-954)	510 (412-643)	508 (388-746)	0.656
Not measured	6	4	2	
Maximum Ferritin (mcg/L)	661 (327-500)	591 (212-591)	931 (402-1647)	0.524
Not measured	8	6	2	
Maximum D-dimer (mcg/L)	1.02 (0.63-5.39)	0.88 (0.44-2.53)	5.1 (0.71-6.8)	0.071
Not measured	8	7	1	
Raised D-dimer (>0.5 mcg/L)	31 (81.6)	20 (52.6)	11 (28.9)	0.062
Not measured	8	7	1	
Crossing point 1st swab (cycle no.)	23.7 (18.9-28.9)	24.2 (20.5-30.0)	21.9 (17.1-27.5)	0.146
Not available	6	6	0	
Vital Signs on day of admission				
Oxygen saturation (%)	96 (95-98)	96 (95-98)	96 (93-98)	0.291
Respiratory rate (breath/min)	20 (18-24)	20 (18-24)	18 (16-26)	0.575
Systolic BP (mmHg)	123 (113-136)	124 (116-143)	117 (92-132)	0.062
Heart rate (beats/min)	82 (74-89)	84 (75-91)	78 (62-86)	0.124
Temperature (▫C)	36.8 (36.4-37.5)	36.7 (36.4-37.5)	36.9 (36.1-37.4)	0.783
Maximum ventilatory support				0.318
None (room air)	12 (26.1)	11 (23.9)	1 (2.2)	
Nasal prongs or face mask	14 (30.4)	10 (23.9)	4 (8.7)	
High-flow oxygen	8 (17.4)	6 (13.0)	2 (4.3)	
Ventilation	12 (26.1)	7 (15.2)	5 (10.9)	
Radiological findings				0.315
Normal chest x-ray	11 (24.4)	8 (17.4)	3 (6.5)	
Unilateral infiltrate	11 (24.4)	10 (21.7)	1 (2.2)	
Bilateral infiltrates	24 (52.2)	16 (34.8)	8 (17.4)	

Table 2: Patient laboratory data, vital signs, respiratory support and radiological findings. Data are presented as median (interquartile range) and n (% of total). *P*<0.05 was considered significant.

The majority of patients (89.1%, n=41) were classified as having one or more comorbidity. In patients who had a documented comorbidity, hypertension was the most common (45.6%, n=21), followed by ischaemic heart disease (26.1%, n=12). The remaining comorbidities and their associated percentages were as follows: atrial fibrillation (13%), other cardiac (including hypercholesterolaemia and pacemaker in situ) (21%), diabetes (10.9%), obesity (6.5%), chronic obstructive pulmonary disease (15.2%), asthma (19.6%), other respiratory (8.7%), chronic kidney disease (4.3%), history of stroke (4.3%) and current malignancy (2.2%).

Clinical Course and Outcomes

The admission chest x-ray was reported normal in eleven patients (24.4%), unilateral consolidation was reported in eleven patients (24.4%) and bilateral consolidation in twenty-four patients (52.2%). Six patients (13%) underwent CT thorax or CT pulmonary angiogram. Bilateral multifocal ground glass consolidation were reported in five of the six patients (83.3%) who had CT imaging with bilateral nonspecific nodularity reported in the other. One revealed a pulmonary embolism and one had findings consistent with acute respiratory distress syndrome.

Of the patients for whom a lymphocyte count was measured (n=45; 97.8%), thirty-three patients (73.3%) were lymphopenic (lymphocyte count $<0.9 \times 10^9$/L) at some point during their clinical course.

A D-dimer concentration was measured in thirty-eight patients (82.6%) and was raised (>0.5 mg/L) in thirty-one of these patients (81.6%).

Twelve patients (26.1%) did not require any form of oxygen support. Fourteen patients (30.4%) required oxygen therapy via nasal prongs or a venturi mask. Eight patients (17.4%) required NIV with oxygen concentrations ranging from 30-80%. A total of twelve patients (26.1%) required invasive ventilatory support. Of the patients who were ventilated, seven were discharged (58.3%) and five died (41.7%).

Overall mortality was 26.1% (n=12). Amongst the patients with nosocomial-acquired infection, the mortality rate was 50% (n=3). The mortality rate was 23% (n=9)amongst patients with community-acquired infection.

Features associated with severity

Age

Older age significantly correlated with risk of death ($P<0.01$).

Gender

There was no statistically significant correlation between gender and outcome or maximum oxygen or ventilatory support required. Of the twelve deaths that occurred in our patient cohort, ten (83.3%) were male.

Clinical Characteristics

Twenty-two (47.8%) of our cohort had a documented fever (temperature >37.4°C). Presence of a fever correlated with the maximum level of oxygen support required, although this wasn't statistically significant (*P*=0.056).

Four patients (8.7%) had documented hypotension (systolic blood pressure <90 mm Hg). There was a significant correlation between hypotension and maximum level of support required, with one patient requiring high-flow oxygen therapy and three patients requiring mechanical ventilation (*P* <0.05).

Comorbidities

Obesity (defined as BMI >30) was associated with maximum level of ventilatory support required (*P*<0.05) but was not associated with mortality. However, overall number of obese patients in our cohort was low.

There was no association between the presence of hypertension and level of ventilatory support required or outcome.

There was a significant correlation between presence of asthma and survival (*P*<0.05). There was no association between the presence of COPD and level of support required or outcome.

There was a significant correlation between presence of atrial fibrillation and a history of stroke and mortality (*P*<0.05).

Radiological findings

There was a significant correlation between the maximum level of ventilatory support required and a chest x-ray finding of bilateral consolidation (*P*<0.001). Chest x-rays were more likely to have been normal in patients that did not require any oxygen support.

Laboratory parameters

Lower minimum lymphocyte count was associated with greater mortality (*P*<0.05). There was no difference in minimum lymphocyte count between patients that were maintained on room air or those that required any level of oxygen support.

Higher maximum neutrophil was observed in count between who died (*P*<0.01). There was no correlation between neutrophil count and the maximum level of oxygen support required.

The maximum CRP concentration was significantly higher in patients who died (*P*<0.05). It was also higher in patients who required ventilation (*P*<0.001) compared to those that did not require any oxygen support. There was no significant difference between any of the oxygen-requiring groups.

Patients who were ventilated had a significantly higher maximum LDH concentration than patients who did not require oxygen support (P<0.01), patients who required oxygen via nasal prongs or Venturi (P<0.05) and patients who required high flow oxygen therapy (P<0.05). However, maximum LDH did not correlate with death.

Patients who were ventilated had a significantly higher D-dimer concentration compared to patient on room air (P<0.05), on oxygen via nasal prongs or Venturi (P<0.01) or on high-flow oxygen (P<0.01). However, there was no correlation between a raised D-dimer and patient survival.

There was no association between an early C_q value (as a proxy for viral load) and the level of oxygen support required or patient outcome. There was also no association between the C_q value and minimum lymphocyte count.

Discussion

This paper provides an overview of adult patients with SARS-CoV-2 infection admitted during the early stages of the pandemic in the Republic of Ireland.

Overall mortality was high at 26%. This mirrors mortality reported in a large prospective observational study of hospitalised patients (n= 20,133) undertaken in the United Kingdom (Docherty et al., 2020).

A significant proportion of patients in this study required ventilator support (26.1%). This was greater than the proportion who required ventilator support in cohorts reported from the UK (17%;(Docherty et al., 2020), Italy (17%;(Grasselli et al., 2020), New York (14%;(Richardson et al., 2020) and China (Guan et al., 2020; Huang et al., 2020).

Critical care capacity in our centre was not exceeded during the study period. Despite this, over half (58%) of patients who died were not admitted to intensive care, indicating advanced care planning occurred.

Our hospitalised cohort were generally older and predominantly male with high rates of comorbidity consistent with reports from the wider literature (Garg et al., 2020; Myers, Parodi, Escobar, & Liu, 2020).

We found a number of clinical characteristics correlated with outcome. Bilateral infective consolidation on chest x-ray strongly correlated with level of respiratory support required. Fever and hypotension correlated with highest level of support required. Age, obesity and more than one baseline comorbid condition were all associated with mortality. We did not find hypertension to be associated with mortality, however the proportion of patients with diagnosed hypertension in our cohort (45.6%) was high compared with estimated prevalence in the general population (Balanda, Barron, Fahy, & McLaughlin, 2010).

No patients in our cohort with asthma died. Elsewhere in Ireland a 6% (1/17) mortality rate has been reported in patients with asthma admitted with COVID-19 (Butler et al., 2020), also considerably lower than our overall mortality rate. It has been hypothesised that reduced expression of the SARS-CoV-2 receptor ACE2 found in respiratory epithelial cells from children and adults with allergic asthma (Jackson et al., 2020) may be protective against severe disease. It has also been speculated that inhaled corticosteroid therapy may play a role (Halpin, Faner, Sibila, Badia, & Agusti, 2020).

Regarding laboratory characteristics, we found degree of neutrophilia, lymphopenia and raised CRP concentration to be significantly associated with death. Raised LDH, ferritin and D-dimer concentrations were significantly correlated with degree of oxygen requirement. Again this supports findings in the wider literature (Sun et al., 2020).

The lack of correlation between qRT-PCR Cq value and outcome or highest level of oxygen support in our study suggests that degree of viral replication does not relate to disease severity. This is in contrast to a study by Pujadas et al. (2020), in which viral load was found to be an independent predictor of SARS-CoV-2 related mortality(Pujadas et al., 2020)**.** Possible confounders in our study include quality and timing of sampling, as replication in the nasopharynx is thought to peak during the first week of illness, and decline thereafter (Wölfel et al., 2020). In addition, it has been shown that the highest level of morbidity and mortality related to SARS-CoV-2 occurs in the inflammatory phase, which occurs approximately eight days after peak infectivity (Torres Acosta & Singer, 2020; Yang et al., 2020). More detailed quantitative PCR studies would be required to further investigate this hypothesis.

This study has several limitations. It was a retrospective study. The study period was relatively short, and thus overall study number is small, however it was felt that short interval review of cases would be important in informing future assessment and management of cases. Data was collected from a single centre and findings may not be generalizable to all other centres.

Data informing assessment, management and therapeutics for patients with SARS-Co-V-2 infection is emerging and evolving rapidly as the pandemic progresses worldwide. The findings presented may serve as a means to stratify higher risk individuals and give an indication as to those patients that may require a higher level of care. While findings from this study largely reflect those reported in international cohorts, local data will improve our understanding of the clinical characteristics and outcomes of patients with SARS-CoV-2 infection in the Irish context.

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Born into Direct Provision: Outcomes of Infants Born to Asylum Seekers

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Abstract

Aim

Asylum seekers in Ireland have free access to antenatal care. Our aim was to review the outcomes of liveborn infants to mothers living in direct provision centres and the antenatal care their mothers accessed.

Methods

This was a retrospective review of infants born to asylum seekers, between November 2017 and February 2020, in a tertiary neonatal unit. The results were compared to the 2018 general hospital outcomes.

Results

During this period, 81 neonates were born to 78 asylum seekers. The median booking gestation was 30+4 weeks and only 9 (12%) had an early dating scan and 30 (42%) had a complete anatomy scan. Fifteen (20%) mothers had positive serology. Ten (12%) neonates were born prematurely, 20 (25%) were admitted to NICU and there were two (2%) neonatal deaths. At discharge, only 19 (23%) were exclusively breast fed. Fifty-six (71%) infants were followed in clinic and 10 (18%) had at least one “non-attendance”. Sixteen (20%) patients used an interpreter and language barriers lead to several miscommunications.

Conclusion

Infants born to asylum seekers had significantly higher rates of NICU admission (25% v 13%), maternal blood borne infections (20% v 1.5%) and lower rates of exclusive breastfeeding (23% v 45%) compared with the general hospital population.

Introduction

There has been a sharp increase in the number of migrants seeking asylum in Europe since 2014[1]. Asylum seekers arriving in Ireland are housed in "direct provision", pending assessment of their asylum application. Direct provision (DP) is the system by which the State receives asylum seekers in Ireland and directly provides for their essential needs; including accommodation, food, education to children and a small weekly allowance. Asylum seekers are provided with a medical card during this time and have access to free antenatal care. In 2019, there were 6,497 people living in DP in Ireland[2].

There are several reviews of the perinatal outcomes of asylum seekers, with contradictory results. While one found a significantly increased risk of preterm birth (OR 1.24), low birth weight (1.43), perinatal mortality (1.5) and congenital anomalies (1.61) among infants born to migrant mothers[3], others describe a "healthy migrant effect" with better pregnancy outcomes compared with local women[4]. A study in 2001 assessed pregnancy outcomes of persons with refugee status in Ireland and found an increased risk of perinatal mortality in the refugee cohort and that 79% booked late in pregnancy[5]. However, this study included a different population (those who had already been granted international protection), at a time when infants acquired automatic Irish citizenship and pre-dated the national introduction of the Direct Provision system.

The neonatal and pregnancy outcomes of asylum seekers have not been described in this country or in the era of DP. Our aim was to review the neonatal outcomes of liveborn infants in a tertiary neonatal unit, to mothers living in DP centres and the antenatal care they accessed.

Methods

This was a retrospective review from November 2017 to February 2020. Infants were identified by a discharge address to one of three known DP centres (one reception and two accommodation centres) in our area. Ethical approval was obtained. The outcomes were compared to hospital data from 2018[6]. Data was collected from the electronic patient record and analysed using Stata, Version 16.0. Mean and standard deviation were used for normally distributed data, while median and interquartile ranges were used for non-normal distribution. Statistical analysis of categorical data was performed using the Chi-squared test.

Results

Eighty-one neonates (born to 78 women) were identified during this period.

Maternal Demographics

The mean maternal age was 31 years (25-36 years) and 36% were nulliparous. Most of the mothers were from the African continent (77%) with Nigeria and Zimbabwe the most common country of origin. There were small numbers of mothers from Europe, Western Asia and Asia.

Antenatal care

The median GA at booking was 30+4 weeks (19+0 - 35+5). Nine (12%) had a dating scan performed in our hospital before 15 weeks gestation and only 42% had a documented complete anatomy scan, due to the late gestation at booking. Hospital guidelines require the performance of a fetal anomaly scan routinely to all women between 20- and 22-weeks' gestation.

All mothers had serology results available before delivery and 20% were positive. This is thirteen-fold higher than the general hospital population, in which 1.5% of antenatal patients had positive serology in 2018 ($p< 0.01$). With respect to antenatal complications, 5% had gestational hypertension / pre-eclampsia requiring treatment and 11% had gestational diabetes (GDM) requiring insulin.

Labour and delivery

Nineteen (26%) of women living in DP travelled to the hospital by ambulance at the time of delivery. The three DP centres included were 9km, 11km and 38km respectively from the hospital. Two were accessible by a direct bus route and one had no direct means of public transport to the hospital. This may result in difficulties for asylum seekers accessing the hospital at night or at weekends. The presence of a companion of choice throughout labour is recommended by the 2018 WHO recommendations[7] but only 18% were documented to have a support person present.

The onset of labour was spontaneous in 55% and induced in 29%. This compares with a general hospital induction rate of 31% during the same epoch ($p=0.62$). The rates of normal vaginal delivery and caesarean section were not significantly different to the 2018 hospital outcomes.

Neonatal outcomes

Eighty-one liveborn neonates were delivered with a median GA of 39+1 weeks (38+3 - 40+1 weeks) and birth weight of 3.21kg (2.76 – 3.56kg). Ten (12%) were born prematurely, although this was not significantly different to the hospital incidence of 8% in 2018 ($p=0.15$). Significantly more infants delivered to asylum seekers required admission to the neonatal unit (25%) than the general hospital population ($p<0.01$). There were two early neonatal deaths (2%), both due to major congenital anomalies (Edwards syndrome and Potters syndrome). Seven infants had a congenital anomaly, 3 of which were major and some of the features had been detected antenatally in all three cases.

Hospital policy dictates that hemoglobinopathy screens are performed on infants at risk of sickle cell disease or thalassemia. However, only 87% of this group had a hemoglobinopathy screen performed, despite all infants meeting the criteria for testing. All infants identified as having sickle cell trait or alpha thalassaemia trait were referred to the National Hemoglobinopathy Clinic.

Post-discharge care

At the time of discharge from hospital there were significantly lower rates of exclusive breast feeding and significantly higher rates of combined feeding than the general population (p<0.01).

In Ireland, neonates only return to the paediatric outpatient department (POPD) in a maternity hospital if there is a specific medical concern. In this group, the number of infants followed up in POPD was similar to the hospital rate in 2018 (69% v 60%) (p=0.09). The most common reasons for attendance were for monitoring of jaundice, attendance at the infectious disease clinic or follow-up due to prematurity or underlying anomaly. Twenty-two (28%) of infants were followed for jaundice in POPD and each was seen between one and four times for this issue. Two infants (2%) were seen for a six-week check-up because they did not have an identified GP. Of infants requiring follow-up, 18% had at least one "non-attendance".

Communication

English was not the first language of many of the asylum seekers. There was documented use of an interpreter during the antenatal or postnatal course in 20% of cases. However, even where a need for an interpreter had been identified, they were not consistently used at each appointment and there was evidence of inconsistent recording of previous maternal or obstetric history and the delivery of bad news which may represent miscommunication in some consultations.

Table 1: Maternal and intrapartum outcomes

	Direct Provision N=78*(%)	2018 Hospital N=8359 (%)	p
Nulliparous	28 (36)	3612 (43)	0.22
GDM on insulin	8 (11)	289 (3.5)	**<0.01**
Positive Serology	15 (20)	128 (1.5)	**<0.01**
HIV	11 (15)	30 (0.36)	**<0.01**
Hepatitis B	5 (7)	48 (0.57)	**<0.01**
Hepatitis C	0 (0)	41 (0.49)	0.55
Syphilis	2 (3)	16 (0.19)	**<0.01**
IOL	22 (29)	2610 (31)	0.62
SVD	40 (51)	4202 (50)	0.37
OVD	5 (6)	1337 (16)	**0.02**
LSCS	33 (42)	2820 (34)	0.11

*not all data was available for each outcome

Table 2: Neonatal outcomes

	Direct Provision N=81* (%)	2018 Hospital N =8514* (%)	p
Preterm (<37 weeks)	10 (12)	676 (8)	0.15
NICU Admission	20 (25)	1116 (13)	**<0.01**
Exclusive breast feeding	19 (23)	3792 (45)	**<0.01**
Exclusive formula feeding	25 (31)	3024 (36)	0.38
Combined feeding	35 (43)	1575 (18)	**<0.01**
POPD Follow up	56 (69)	5103 (60)	0.09
Non-attendance in POPD	10 (18)	1316 (15)	0.49

*not all data was available for each outcome

Discussion

Similar to the 2001 study, a majority of the women originated in Africa (77% v 67%)[5]. However, the origin of the remainder differed and this is reflected in the profiles of asylum seekers coming to Ireland in 2018 where Syria, Georgia, Albania, Zimbabwe and Nigeria are the five most common countries of origin[8].

The mean GA at booking was late in both studies (27+ 4 weeks and 33 weeks)[5]. It may be that gestation at booking reflects recent arrival in the country rather than intrinsic system delay, however this is outside the scope of this study. It is possible that further delays in accessing antenatal care occurs in this population because these patients may not be aware of how to utilise a new healthcare system or may be reluctant to engage with what they may perceive to be bureaucracy. Where late booking is unavoidable, care should be optimised after booking.

Seventy-two (97%) asylum seekers attended the hospital for a booking visit prior to delivery. This represents an opportunity to identify background medical issues and assess the mother's communication skills - including identifying any need for an interpreter. Ensuring adequate communication is particularly important when taking consent for a procedure, giving medication or discharge advice and breaking bad news. Both telephone and on-site interpreters are readily available to the hospital. These issues, (language barriers and gaining informed consent), were also described in a 2014 qualitative study of midwives' experience of providing maternity care to asylum seekers in Ireland [9].

The detection of antenatal complications may be adversely affected by late gestation at booking, and in particular the short interval between booking and delivery in some instances. The relatively high rate of GDM requiring insulin (11%), three times higher than the hospital incidence of 3.5% ($p<0.01$), may be due to the ethnicity of the mothers, as a recent systematic review shows a 13% prevalence of GDM in Africa [10].

Of importance was the universal availability of maternal serology testing for infectious diseases prior to delivery in this group, given the high incidence of HIV, hepatitis B, and syphilis. The antenatal detection of these diseases minimised the risk of vertical transmission through the optimisation of antenatal treatment, appropriate management of neonates in the postnatal period and follow up in the neonatal Infectious Disease clinic.

We did note a significant increase in the admission to NICU in this group, and 13% had an Apgar score less than seven at five minutes. As paediatricians caring for infants of asylum seekers, it is important we are aware of the possibility of an as yet undiagnosed congenital fetal malformation in this sub-group given the low rate of anatomy scans performed (42%). Improved antenatal screening leads to an expectation that many serious neonatal conditions will have been identified before delivery.

There may be cultural reasons to explain the high incidence of combined feeding in the asylum seeker group. There is some evidence to suggest that African women choose to top-up with artificial formula, particularly in the early days before breast milk supply is established, to ensure their infant is receiving adequate nutrition [11].

While robust systems are in place to ensure that all infants receive neonatal screening, it is important that the subgroup of infants requiring a hemoglobinopathy screen are identified. However, this did not occur in 13% of infants. There was a high rate of follow-up appointments for infants in this group, particularly for neonatal jaundice. Families living in DP may have difficulties attending follow-up clinics and financial barriers, access to transport and childcare for other children all contribute to this. While the non-attendance rates were high, they did not differ significantly from our hospital rate during this time ($p=0.49$). On analysis of reasons for non-attendance, many missed appointments were due to patients being moved to a different part of the country.

Most asylum seekers accessed support from social workers during their pregnancy. The supports provided included the provision of emotional support, arranging foster care of other children during the perinatal period, transport to the DP centre at discharge, with provision of a car seat for the journey, and often providing clothing and basic infant supplies.

The DP system is often subjected to criticism as an unsuitable system for caring for asylum seekers. In this study, all pregnant women were seen by a GP in the DP centre and immediately referred for antenatal care once a pregnancy was identified. Our data highlights the clinical importance of keeping a woman and her infant, where possible, in the same geographical area for the duration of both pregnancy and postnatal care. Issues may arise with the continuity of care when patients are transferred between maternity hospitals during a pregnancy (outside of clinical need).

The limitations of this study include its retrospective nature. It was only possible to identify patients living in major DP centres, and it is likely that some infants discharged to DP in small hotels and guesthouses were not identified. The data was incomplete in a small number of patients, owing to the transition from paper records to electronic charts at the start of this study period. Other limitations include the need to utilise historical control data from 2018 for comparison. In view of the paediatric focus of this study, we did not include miscarriages or stillbirths in this review, although there is some evidence to suggest that asylum seekers have a higher incidence of stillbirth [12].

In summary, infants born to asylum seekers had higher rates of NICU admission, maternal blood borne infections and lower rates of exclusive breastfeeding compared with the general hospital population. These infants and their mothers have unique medical and social needs and it is essential that we adapt our maternity services to accommodate these. A 2018 WHO report outlines key areas to improve pregnancy and neonatal outcomes in this group, including the provision of interpretation services to ensure good communication, information on entitlements for healthcare users and providers, awareness of a patient's background and ultimately the provision of person-centred, culturally sensitive and preventive care[13]. From a practical perspective, hospitals should assess maternal understanding of the English language at the booking visit and at each patient-interaction, with the use of interpreters where required. In addition, it is essential that maternal serology is sent promptly and acted upon both antenatally and postnatally to mitigate the risk of vertical transmission of infectious diseases. Paediatricians should pay particular attention to the risk of undiagnosed congenital anomalies and ensure that all relevant screening is performed. Progress in this regard can be achieved through heightened awareness amongst healthcare professionals of the social and logistical barriers encountered by this population in accessing care.

Declaration of Conflicts of Interest:
The authors have no conflicts of interest to declare.

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Urological Surgery During the COVID-19 Pandemic

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Abstract

Aims

Peri-operative SARS-CoV-2 infection is of particular concern for surgeons and their patients due to the high morbidity and mortality. In this study, we investigate the effectiveness of pre-operative SARS-CoV-2 screening in preventing peri-operative infections in a region with a low incidence of infection.

Methods

Data was collected prospectively on all patients who underwent urological surgery after the exponential phase of the pandemic. The primary outcome was the development of SARS-CoV-2 infection in patients. The secondary outcome was SARS-CoV-2 infections in healthcare workers.

Results

During the 6-week period following the exponential phase of the pandemic 136 procedures were performed. Ninety-nine (73%) patients had pre-operative SARS-CoV-2 swabs. Forty (29%) had a pre-operative CT Thorax. No patient was found to have SARS-CoV-2 infection pre-operatively. Five (3.6%) of patients developed symptoms that required a second SARS-CoV-2 swab in the post-operative period, all 5 (100%) were negative. No patient developed SARS-CoV-2 infection in the follow-up period, and no member of the urology team developed SARS-CoV-2 infection.

Conclusion

Our findings demonstrate that elective urological surgery can be safely performed in a region with a low incidence of SARS-CoV-2 with pre-operative screening. We report no cases of symptomatic SARS-CoV-2 infection or deaths among 136 patients undergoing urological surgery.

Keywords

SARS-CoV-2, COVID, COVID-19, Coronavirus, Pandemic

Introduction

The coronavirus (SARS-CoV-2) pandemic reached Ireland on 29th of February 2020, and within three weeks the virus had spread to all counties in the country[1]. On the 12th of March, the government of Ireland shut all schools, colleges, childcare facilities, cultural institutions, and advised cancelling large gatherings. On the 24th of March, almost all businesses, venues, facilities, and amenities were closed. Three days later, the government banned all non-essential travel and contact with people outside their home. Simultaneously, the Irish public health system, the Health Service Executive (HSE), were making preparations for an anticipated exponential phase of the SARS-CoV-2 pandemic.

SARS-CoV-2 is of concern for surgeons, and their patients, peri-operative SARS-CoV-2 infection is associated with increased morbidity and mortality[2,3]. To reduce the risk of peri-operative SARS-CoV-2 infection, pre-operative screening was introduced. In this study, we report the effectiveness of pre-operative SARS-CoV-2 screening in preventing peri-operative SARS-CoV-2 infection in a region of low SARS-CoV-2 infection incidence.

Methods

A prospective study of patients who underwent urological surgery from the 17th of April to the 25th of May was performed. The procedures were performed in three hospitals; Cork University Hospital (CUH) and The Mercy University Hospital (MUH) - both tertiary referral Urological centres, and The Mater Private Hospital Cork, a private hospital acquired by the HSE for the immediate phase of the pandemic. Data collected included; age, sex, American Society of Anaesthesiologists (ASA) grade, indication for surgery (cancer/non-cancer), type of surgery (minor, intermediate, major), operation and urgency (emergency, time-sensitive, semi-urgent and elective). Emergency surgery was defined as surgery for an acute threat to life. Time-sensitive surgery was defined that should be performed by a specific date. Semi-urgent surgery is defined as surgery for a non-cancerous disorder that was symptomatic and elective surgery is a surgery that could be scheduled for a later date. Procedures deemed time-sensitive included radical cystectomy, transurethral resection of a bladder tumour (TURBT), radical nephroureterectomy, radical nephrectomy, partial nephrectomy, radical prostatectomy, radical orchiectomy, retroperitoneal lymph node dissection, obstruction ureteric stone, renal stones/ureteric stones with stents or symptomatic urolithiasis.

Pre-operative SARS-CoV-2 screening developed and progressed during this study. Initially, all patients had a telephone assessment; this was conducted by a nurse prior to consideration of surgery. Patients were asked a series of questions on SARS-CoV-2 related symptoms and risk factors. Pre-operative nasopharyngeal swabbing and real-time polymerase chain reaction (PCR) for SARS-CoV-2 RNA was not available initially due to a worldwide shortage of reagents. During this phase, full personal protection equipment was worn for each procedure. When accessible, a swab was taken 24 hours pre-operatively on all patients and sent for real-time reverse transcription PCR testing using Altona Diagnostics RealStar SARS-CoV-2 RT-PCR to detect BßCoV (target E gene) and SARS-CoV-2 (target S gene) specific RNA. Later the GeneXpert Xpress SARS-CoV-2 test was utilised. This targets multiple regions of the viral genome for diagnosis. Patients undergoing major surgery had computerised tomography (CT) imaging of their thorax in addition to PCR testing.

All patients were required to cocoon (avoid all contact) for two weeks pre-operative and two weeks post-operative. In addition to these measures, aerosol reduction methods were practised in theatre. All patients were followed up for a minimum of 28 days for the development of SARS-CoV-2 infection. This follow up review was conducted at the subsequent outpatient clinic appointment or by telephone assessment in cases where patients did not require an outpatient clinic appointment.

The number of cases of SARS-CoV-2 in our region was determined from data published by the Health Protection Surveillance Centre (HPSC) for the National Public Health Emergency Team in Ireland. The HPSC produces epidemiological reports covering all areas of infectious and communicable disease surveillance carried out in Ireland. Data presented refers to the number and the cumulative number of confirmed COVID-19 cases notified in Ireland by notification date and represented at cumulative incidence per 100,000 people[1].

Data are presented as the median and interquartile range (IQR) for continuous variables, and the number and percentage for categorical variables. Analysis were performed using IBM SPSS for Windows, version 22.

Results

Patient demographics

During the six weeks of this study, 136 urological operations were performed in the three institutions by six surgeons. Eighty-three patients (61%) were male, and 53 (39%) were female. The median age is 60 years, IQR (43-70). The median ASA grade is 2, IQR (2-2). Forty-nine patient (36%) had surgery for malignancy, and 87 (64%) had surgery for a benign condition. Fifty-two (38%) of performed surgeries were considered time-sensitive, 68 (50%) semi-urgent, 15 (11%) were emergency surgeries and one (1%) surgery was elective. Fifty major surgeries (37%) were performed, 66 (49%) were intermediate, and 20 (14%) were minor. The anaesthetic type was general in 93% of cases; spinal anaesthesia accounted for 6% and local anaesthetic in 1%. Data is shown in **table 1**. (Next page)

Table 1: Patient demographics

	Total, N (%)
Total	136
Sex	
Male	83 (61%)
Female	53 (39%)
Age, median IQR	60 (43-70)
ASA, median IQR	2 (2-2)
Indication for surgery	
Malignant	49 (36%)
Benign	87 (64%)
Urgency	
Emergency	15 (11%)
Time-sensitive	52 (38%)
Semi-urgent	68 (50%)
Elective	1 (1%)
Grade	
Minor	20 (14%)
Intermediate	66 (49%)
Major	50 (37%)
Anaesthetic	
GA	127 (93%)
Spinal	8 (6%)
LA	1 (1%)

N; number. IQR; interquartile range. GA; general anaesthetic. LA; local anaesthetic.

Surgical procedures

Forty-nine (36%) of cases were for patients with malignancy. Urothelial cancer (bladder and upper tract) was the commonest cancer treated, followed by renal cancer and prostate. Two testicular cancer procedures (RPNLD and orchiectomy) and one penile cancer procedure were performed. Eighty-seven non-cancer surgeries were performed. Fifty-five (63%) of these were for symptomatic urolithiasis. Ten (11%) cases were stent exchanges, and eight cases (9%) were emergency stent insertions. Data is shown in **table 2**.

Table 2: Surgical procedures

	Total, N
Uro-oncology	49 (36%)
TURBT	21
Partial nephrectomy	9
Radical prostatectomy (robotic assisted)	8
Radical nephrectomy	4
Radical orchidectomy	1
Radical prostatectomy (open)	1
Radical cystectomy	2
Laparoscopic radical nephroureterectomy	1
Partial penectomy	1
Retroperitoneal lymph node dissection	1
Endourology	84 (62%)
FURS	35
PCNL	11
GA cystoscopy and exchange of jj stent	10
Rigid ureteroscopy	9
GA cystoscopy and jj stent insertion	8
Rigid cystoscopy and cystolitholapaxy	2
Rigid cystoscopy	4
Rigid cystoscopy urethral dilatation	2
Rigid cystoscopy and optical urethrotomy	1
Bladder Neck incision	1
Rigid cystoscopy and cystodistension	1
General emergency urology	3 (2%)
Scrotal exploration	2
Change of SPC	1
Laparoscopic repair of bladder rupture	1

N; number. TURBT; transurethral resection of bladder tumour. FURS; flexible ureteroscopy. PCNL; percutaneous nephrolithotomy. SPC; suprapubic catheter.

SARS-CoV-2 screening and outcome

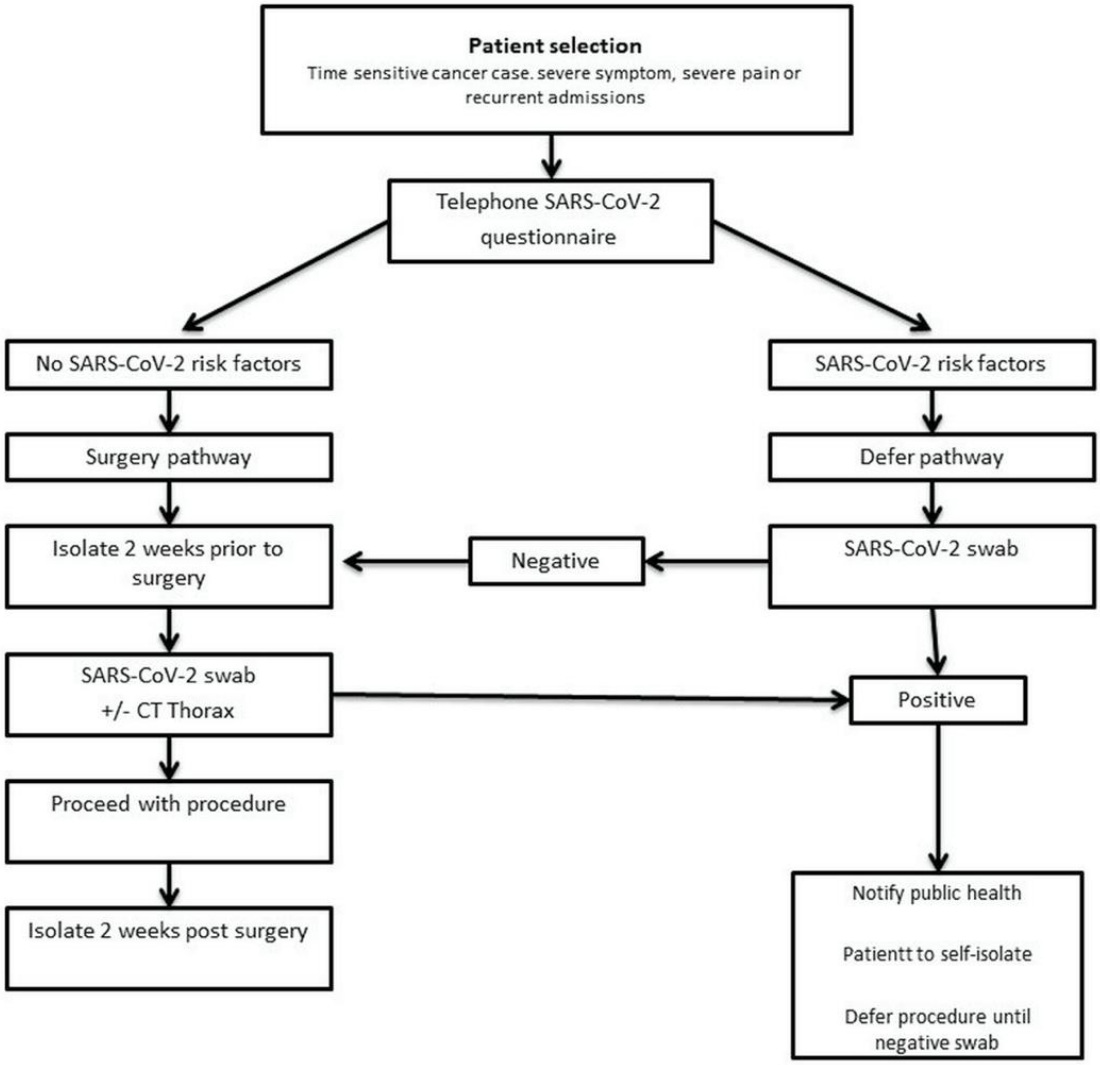
One hundred per cent of patients had had a SARS-CoV-2 questionnaire administered to determine their risk factors for SARS-CoV-2 exposure, and one hundred per cent of patients were cocooning prior to their surgery. Nighty-nine patients (72%) had pre-operative SARS-CoV-2 swabs. No patient (0%) was found to be positive. Forty patients (29%) had a pre-operative CT Thorax; all were negative. Pre- and post-intubation stoppages were utilised to reduce airborne aerosols in 100% of cases. In the post-operative period, five patients (3.6%) developed symptoms that required a second SARS-CoV-2 swab. The symptoms were pyrexia (n=3) and shortness of breath (n=2). All 5 (100%) were negative for SARS-CoV-2 infection and a diagnosis of post-operative atelectasis was made. No patient developed a clinical SARS-CoV-2 infection in the follow-up period, and no member of the Urology team developed SARS-CoV-2. Data is shown in **table 3**. Furthermore, there were no clinical cases of SARS-CoV-2 in the anaesthetic or nursing teams in any of the three hospital. SARS-CoV-2 screening is shown in **figure 1**.

Table 3: SARS-CoV-2 screening and outcome

	Total, N
SARS-CoV-2 questionnaire	136 (100%)
Cocooning pre-operatively	136 (100%)
SARS-CoV-2 swab and PCR testing	99 (72%)
CT Thorax	40 (29%)
Post-intubation stoppage for aerosol dispersion	136 (100%)
Full PPE worn	26/136 (19%)
Post-extubation stoppage for aerosol dispersion	136 (100%)
Outcome	
Post-op symptoms requiring repeat SARS-CoV-2 swab	5 (3.6%)
SARS-CoV-2 infection (Patients)	0 (0%)
SARS-CoV-2 infection (Urology team)	0 (0%)

N; number. PCR; Polymerase chain reaction. PPE; personal protective equipment.

Figure 1: SARS-CoV-2 screening pathway



SARS-CoV-2 prevalence in the region

On the 23rd of March 2020, there were 116 confirmed SARS-CoV-2 infections in the region. The incidence was 13.65/100,000 people[1]. Two weeks later, on the 6th of April, the total number of cases was 452, and the incidence was 63.50/100,000. On the 27th of April 2020, the total number of cases was 1413, and the incidence was 201.10/100,000. Social distancing measures appeared to have worked by this date, and viral spread was reduced. By the 15th of May, the total cases were 1746, and the cumulative incidence was 236.70/100,000.

Discussion

Our findings demonstrate that elective urological surgery can be safely performed in regions with low incidence of SARS-CoV-2 infection during the pandemic. We report no cases of symptomatic SARS-CoV-2 infection or deaths among 136 patients undergoing urological surgery during a 6-week period at the height of the pandemic in Ireland. This is the first study to evaluate the safety of urological surgery in a low-incidence region during the SARS-CoV-2 pandemic.

Peri-operative SARS-CoV-2 infection increases morbidity and mortality significantly[3]. Pulmonary complications occur in half of patients, and the ICU admission rate is reported to be as high as 44%(2, 3). The reported mortality varies between 20 and 23.8%[2,3]. Consequently, it was proposed that the threshold for surgery during the SARS-CoV-2 pandemic should be higher due to these risks[3]. Various guidelines based on expert opinion have been published in order to guide surgeon's decision making on elective surgery during the pandemic[4-6]. However, these guidelines are limited by their level of evidence and there is a demand for large studies with prospective data in order to guide decision making for surgeons. Furthermore, it must be noted that much of this data was published from regions with a high rate of SARS-CoV-2 infection.

There have been a limited number of studies from Ireland on surgery during the SARS-CoV-2 pandemic. McDermott et al reported on their experience of 101 Urological procedures in Dublin and demonstrated a 3% risk of peri-operative SARS-CoV-2 infection and 1% mortality[7]. Hintze et al. reported on a case series of 3 patients undergoing head and neck cancer surgery in Dublin who developed peri-operative SARS-CoV-2 infection, and two patients died[8]. It must be noted that the incidence of SARS-CoV-2 in Dublin was 2-3 three times that of Cork[1]. Similar to this study, Fitzmaurice et al reported their series of 56 patients undergoing elective cardiothoracic surgery and no patients developed peri-operative SARS-CoV-2 infection[9]. Our study is the most extensive series in Ireland to date on the safety of elective surgery during the pandemic and is the first study based on hospitals outside of Dublin. It is the first study from Ireland to report from a low-incidence region. Information from our study will inform surgeons in Ireland and other countries on the risk and benefits of elective surgery during this challenging period.

This study has several limitations. In the early stages of the study, protocols for pre-operative testing were not standardised across sites. Initially patients had a telephone screening assessment but as testing became more available all patients underwent protocoled pre-operative SARS-CoV-2 testing with a nasopharyngeal swab. Secondly, the limitations of laboratory testing mean that some patients with possible false negative results may have been excluded from the study. This is a relatively small series with short-term follow up.

It is important that urologists are provided with robust data on peri-operative outcomes during this pandemic. Our findings will help inform surgeons about the safety of elective surgery in low-incidence regions in order to reduce the risks associated with delayed elective surgery. This may prove urologists with evidence and reassurance to recommence urgent elective surgeon in order to minimise the harm to patients associated with deferred surgery.

Our findings demonstrate that elective urological surgery can be safely performed in regions with low incidence of SARS-CoV-2 infection during the pandemic. We report no cases of symptomatic SARS-CoV-2 infection or deaths among 136 patients undergoing urological surgery during a six-week period at the height of the pandemic in Ireland. This is the first study to evaluate the safety of urological surgery in a low-incidence region during the SARS-CoV-2 pandemic and is the largest series to date from Ireland.

Declaration of Conflicts of Interest:
The authors declare that they have no conflicts of interest.

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Frailty, COVID-19 Disease Severity and Outcome Among Hospitalised Older Adults

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Abstract

Aim

To examine the characteristics and outcomes of hospitalised older adults with COVID-19.

Methods

Retrospective, multi-centre, cohort observational study. Data from sixty-nine hospitalised patients aged over 70 years with reverse transcriptase polymerase chain reaction-confirmed COVID-19 at three Irish hospitals were collected from health records. Symptom profile, COVID-19 severity level based on Irish Thoracic Society guidelines, Clinical Frailty Scale (CFS), Cumulative Illness Rating Scale-Geriatric (CIRS-G) scores, laboratory and radiological data were reviewed.

Results

Patient mortality rate was 23.2% (n=16). Median survivor age was 81.5 years (IQR 76.5-86.5). Mean CFS and CIRS-G scores were 5; (SD1.6) and 8.19; (SD4.4). Most patients (n=56, 81.1%) were categorised as mild COVID-19 cases. Five patients (n=5, 7%) were asymptomatic. Atypical symptom presentation was 7%(n=5). Delirium was noted in almost one-third of patients (n=21, 30.4%). Seven patients (n=7,10.1%) required intubation and intensive care unit admission. Over 1/3 of delirious patients died (n=8, 38%). Frail patients were older (*P*= 0.005), more likely to have dementia (*P*=0.04) and required less ventilatory support than non-frail patients (*P*=0.001) but were categorised as mild COVID-19 on admission (*P*=0.004).

Conclusion

Despite mild COVID-19 symptoms, mortality and delirium rates remained high. Low co-morbidity burden & atypical symptom rates were recorded despite high frailty rates.

Introduction

Growing numbers of studies report that older adults, and those with underlying chronic health conditions, have more severe clinical manifestations and higher mortality rates with COVID-19 infection.[1-2] To date, over 50% of all COVID-19-related deaths in the EU occurred in those aged 80 years and older.[3] Such co-morbidity burden in older patients is frequently associated with frailty, a multi-dimensional syndrome characterised by the loss of physiological and cognitive reserves.[4] Frailty may result in atypical presentation of COVID-19 infection and can also influence the disease trajectory and time to recovery from COVID-19 infection.[5-6]

While inflammatory markers and other acute clinical data are associated with the requirement for critical care and increased mortality,[7] there are few data on their influence on outcomes in older people. Comparative study results of frail and non-frail COVID-19 patients based on gender are also lacking. The importance for COVID-19 epidemiological data to be presented by age and gender has been consistently emphasised during the pandemic, in order to tailor public health strategies to those at risk.[8]

Recent papers in single-study centres have examined the relationship between age and frailty among older patients hospitalised with COVID-19.[9-10] These studies noted that many hospitalised severely frail patients survived. While older COVID-19 patients have poorer intensive care outcomes, longer inpatient stay and higher mortality, even the oldest and most frail may benefit from hospitalisation.[9] A paucity of information exists on older patients in terms of co-morbidity profile, COVID-19 severity on admission, and maximum airway support received. The primary objective of this study was to examine characteristics of older adults with laboratory confirmed COVID-19 infection. Secondarily, we examined a broad range of clinical, laboratory and radiological predictors of outcomes including ICU admission, mechanical ventilation and death.

Methods

All patients aged ≥70 years with RT-PCR laboratory confirmed COVID-19 infection; hospitalised between February 27th 2020 and April 24th 2020 in three hospitals in Cork City, (Cork University Hospital, Mercy University Hospital, St Finbarr's Hospital) were included in this observational cohort study. Confirmation of COVID-19 was via combined nasopharyngeal and oropharyngeal swabs as per Irish Health Protection Surveillance Centre guidelines.[11]

Cork University Hospital (CUH) is an 800-bed university teaching hospital and tertiary referral centre. Mercy University Hospital (MUH) is a 330-bed university city centre teaching hospital. Both CUH and MUH provide 24/7 acute medical, surgical and critical care services. St. Finbarr's Hospital comprises a 71-bed specialist rehabilitation unit for older patients. Patients in this unit included individuals admitted directly from a residential care facility with suspected COVID-19 infection. The study protocol was approved by the Cork Clinical Research Ethics Committee (CREC) Reference: ECM 4 (e) 05/05/2020 COVID-19.

Demographic (age and gender), clinical (symptoms on presentation, COVID-19 severity,[12] Clinical Frailty Scale,[13] Cumulative Illness Rating Scale-Geriatric[14]), laboratory (full blood count(FBC), C-reactive protein (reference value <5mg/L), radiological data,admission medications, antibiotic use, weight, delirium incidence and length of stay (LOS) were collected following review of medical records by doctors with specialist training in Geriatric Medicine.

The severity of COVID-19 infection on admission was determined by categorisation of respiratory parameters using the Irish Thoracic Society guideline document.[12] Categories A/B/C1/C2/D reflect increasing oxygen requirements and decreasing oxygen saturations. Category A refers to a respiratory rate (RR) of <20 breaths per minute and oxygen saturations (SpO2) of >94% on room air (RA) or nasal cannula ≤3L/min. Category B refers to a RR>20 or SpO2 <94% requiring nasal cannula >3L/min or Venturi mask 24-60% 02 with good response. Category C1 refers RR>20 or SPO2 <94% with poor response to Venturi mask requiring high flow, humified oxygen via AIRVO^{TM} . Category C2 refers to RR >20 or SPO2 <94%, with poor response to Venturi mask, requiring non-invasive ventilation (NIV) . Category D refers to those individuals who require immediate anaesthetic review with consideration for intubation and ICU care, having a RR>20 with SpO2 <94% with poor response to AIRVO^{TM}/NIV.

Frailty status was assessed using the Rockwood Clinical Frailty Scale (CFS)[13] via retrospective analysis of medical records. Retrospective use of the CFS has recently been validated to measure frailty in older hospitalized patients.[15]
The CFS is a nine item, clinically orientated scale that was formulated on the Canadian Study of Health and Ageing Frailty Index. The scale ranges from 1 (very fit) to 9 (terminally ill) based on descriptors and pictorial images of activity and functional status.

The Cumulative Illness Rating Scale (CIRS), and its refinement for geriatric use (CIRS-G), is a tool validated for geriatric hospitalised patients.[14.] The calculated score ranging 0 to 4 is the result of disease severity for each of 14 items representing possible organs affected by a chronic disease. A score ≥29 is deemed high. This scoring system is designed to rate the severity as well as the presence of disease. It has been validated as a predictor of readmission for hospitalized older adults[16-17] and as a predictor of long-term mortality when assessed in inpatient settings.[16,18]

Results for continuous and categorical variables are reported as median and interquartile range and number (percentage). Differences between survivors and non-survivors were examined using Mann-Whitney U test and chi-square test for continuous and categorical variables. Association of age, frailty, and other baseline characteristics with outcome were evaluated by Spearman *r* and multiple logistic regression. Two tailed *P* values <0.05 were deemed significant. All analysis were performed using SPSS® (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp)

Results

Baseline characteristics

Main biological and clinical characteristics of older patients with COVID-19 by gender are presented in *Table 1***.** Sixty nine patients aged ≥70 years were hospitalized with RT-PCR confirmed COVID-19 during the study period. Most were male (n=40, 58%). Median age 79 years (IQR 75-85 years), the majority were aged 70-79 years (n=36, 52.1%,*P*=0.005). Median number of co-morbidities was 6 (IQR 5-10). The most common were hypertension (60.9%,*P*=<0.001), ischemic heart disease (42%) and hypercholesteremia (37.7%). Prior smoking history was recorded in nine patients (n=9, 13%), while respiratory co-morbidities (COPD or pulmonary fibrosis) were noted in twelve (n=12, 17.3%) patients. Delirium was noted in almost one-third of patients during admission (n=21, 30.4%).

Most cases were classified as mild COVID-19 (Category A and B) (n=60, 87%). The majority of patients received antibiotics during their admission (n=55, 79.7%). Median length of stay (LOS) was 21 days;(IQR 8-42.5). Median weight recorded 73kg(IQR 59.9-83.25).

Table 1: Main biological and clinical characteristics of older patients with COVID-19 by gender, including COVID-19 severity, maximum airway support, CFS and outcome.

Characteristic	Male n = 40	Female n = 29	Total n = 69	*P* value
Age, years	78 (74-84)	83 (76-91)	79 (75-85)	0.108
Age Category				
70-79 years	24 (34.8)	12 (17.4)	36 (52.2)	0.005
80-89 years	15 (21.7)	9 (13.0)	24 (34.8)	0.076
>90 years	1 (1.4)	8 (11.6)	9 (13.0)	0.718
Co-morbidities				
Hypertension	26 (37.7)	16 (23.2)	42 (60.9)	<0.001
Ischaemic heart disease	23 (33.3)	6 (8.7)	29 (42.0)	0.068
Heart failure	6 (8.7)	6 (8.7)	12 (17.4)	0.432
Atrial fibrillation	14 (20.3)	6 (8.7)	20 (29.0)	0.218
Hypercholesterolaemia	12 (17.4)	14 (20.3)	26 (37.7)	0.052
Diabetes	13 (18.8)	6 (8.7)	19 (27.5)	0.218
Hypothyroidism	5 (7.2)	7 (10.1)	12 (17.4)	0.438
Obesity	3 (4.3)	2 (2.9)	5 (7.2)	0.762
COPD	5 (7.2)	3 (4.3)	8 (11.6)	0.632
Pulmonary fibrosis	3 (4.3)	1 (1.4)	4 (5.8)	0.831
Chronic kidney disease	7 (10.1)	2 (2.9)	9 (13.0)	0.632
History of stroke	8 (11.6)	1 (1.4)	9 (13.0)	0.717
Hx of Malignancy	9 (13.0)	5 (7.2)	14 (20.3)	0.428
Osteoarthritis	12 (17.4)	5 (7.2)	17 (24.6)	0.289
Osteoporosis	5(7.2)	4 (5.8)	9 (13.0)	0.568
Depression	5(7.2)	4 (5.8)	9 (13.0)	0.588
Dementia	6(8.7)	5 (7.2)	11 (15.9)	0.477
Parkinson's disease	5(7.2)	1 (1.4)	6 (8.7)	0.780
BPH/incontinence	7(10.1)	2 (2.9)	9 (13.0)	0.632
Hx of thrombosis	4(5.8)	1 (1.4)	5 (7.2)	0.831
Vascular surgery	7(10.1)	3 (4.3)	10 (14.5)	0.555
Smoking history	7(10.1)	2 (2.9)	9 (13.0)	0.660
Alcohol excess	3(4.3)	1 (1.4)	4 (5.8)	0.831

Clinical presentation				
Cough	20 (29.0)	8 (11.6)	28 (40.6)	0.061
Pyrexia (Temp ≥38.0°C)	18 (26.1)	15 (21.7)	33 (47.8)	0.581
Dyspnoea	19 (27.5)	8 (11.6)	27 (39.1)	0.094
Delirium	15(21.7)	6(8.7)	21(30.4)	0.197
Lethargy	5 (7.2)	7 (10.1)	12 (17.4)	0.208
Chest pain	2 (2.9)	1 (1.4)	3 (4.3)	0.755
Diarrhoea	5 (7.2)	2 (2.9)	7 (10.1)	0.447
Anorexia	3 (4.3)	4 (5.8)	7 (10.1)	0.393
Abdominal pain	0 (0)	1 (1.4)	1 (1.4)	0.237
Hypoxia	2 (2.9)	2 (2.9)	4 (5.8)	0.739
Radiological findings				
Chest x-ray performed	37 (53.6)	26 (37.7)	63 (91.3)	
Normal	5 (7.2)	11 (15.9)	16 (23.3)	0.314
Consolidation	32 (46.4)	15 (21.7)	47 (68.1)	<0.001
Not performed	3 (4.3)	3 (4.3)	6 (8.7)	
Admission COVID-19 Category				
Category A	19(27.5)	21(30.4)	40(57.9)	0.006
Category B	10(13)	10(14.5)	20(28.9)	0.186
Category C1	3(4.3)	0 (0)	3(4.3)	0.085
Category D	5 (7.2)	1 (1.4)	6(8.6)	0.780
Maximum ventilatory support				
None (room air)	11 (15.9)	15 (21.7)	26 (37.7)	0.070
Nasal prongs/face mask	13 (18.8)	11 (15.9)	24 (34.8)	0.080
High-flow oxygen	8 (11.6)	2 (2.9)	10 (14.5)	0.606
Non-invasive ventilation	1 (1.4)	1 (1.4)	2(2.9)	0.324
Mechanical ventilation	5 (7.24)	2 (2.89)	7 (10.1)	0.804
Clinical Frailty Scale				
Fit/Well	9 (13.0)	3 (4.3)	12 (17.4)	0.459
Vulnerable	9 (13.0)	4 (5.8)	13 (18.8)	0.481
Mildly Frail	10 (14.5)	6 (8.7)	16 (23.3)	0.293
Moderately Frail	7 (10.1)	6 (8.7)	13 (18.8)	0.392
Severely Frail	5 (7.2)	10 (14.5)	15 (21.7)	0.342
CIRS-G				
0-5	12(17.3)	9 (13.0)	21 (30.4)	0.186
6-10	16 (16.6)	17(24.6)	33 (47.8)	0.005
11-15	7(10.1)	3(4.3)	10(14.5)	0.555
16-20	4(5.8)	0(0)	4(5.8)	0.432
>20	1(1.4)	0(0)	1(1.4)	
Polypharmacy				
≤5 medications	17 (25.0)	12 (17.6)	29 (42.6)	0.081
6-10 medications	15 (22.1)	14 (20.6)	29 (42.6)	0.030
≥11 medications	7 (10.3)	3 (4.4)	10 (14.5)	0.555
Outcome				
Survived	29 (42.0)	24 (34.8)	53 (76.8)	0.319
Died	11 (15.9)	5 (7.2)	16 (23.2)	

Table 1: Data are presented as median (IQR) or n (% of total). COPD, chronic obstructive pulmonary disorder; BPH, benign prostatic hyperplasia; PE, pulmonary embolism; DVT, deep vein thrombosis. P<0.05 was considered significant.

Clinical symptoms on presentation

The majority patients with COVID-19 infection (n= 64, 93%) had symptoms at presentation. Five patients (n=5, 7%) were asymptomatic. The most common symptoms on presentation were pyrexia (≥38°C) (47.8%), cough (40.6%), and dyspnoea (39.1%). Atypical symptoms of diarrhoea (10.1%), anorexia (10.1%) and lethargy (17.4%) were noted. Most patients with atypical symptoms were male (52%), median age 79 years; (IQR 76.5-84.5) and mean CIRS-G 8.42, SD 4.

COVID Category on admission & Maximum level of respiratory support

Most patients were classified as mild COVID-19 Category A or B on admission (n=60, 87%), Six patients were classified as Category D on admission requiring immediate anaesthetic review for intubation and transfer to ICU (n=6, 8.6%). No C2 category patients were noted. Two patients initially triaged as COVID-19 category B, required increased ventilatory support during admission. One patient was subsequently intubated and one patient received ward-based management with palliative care input.

Radiological and laboratory characteristics

The majority of patients (n= 63, 91%) had a chest radiograph, with most having consolidation reported (n=47, 68%, $P<0.001$). Bilateral consolidation was reported on twenty-six patients during admission (n=26, 41.2%). Sixteen patients had a normal chest x-ray report (n=16, 23.2%). Frail patients did not have higher CRP values ($P=0.086$) or higher lymphopenia rates ($P= 0.111$) compared to non-frail patients.

Co-morbidities & Frailty status

The mean (CIRS-G) score was 8.18 (SD 4.45), which represents a low burden of chronic disease.
No significant association was seen between CIRS-G score and mortality ($P=0.473$) or maximum ventilatory support required ($P=0.134$).

The main biological and clinical characteristics of older patients with COVID-19 based on CFS groupings are presented in *Table 2***.**

Table 2: Main biological and clinical characteristics of older patients with COVID-19, including COVID-19 severity, maximum airway support and outcome, based on CFS group

Characteristic	**CFS 1-4** **n = 25**	**CFS 5-7** **n = 44**	**Total** **n = 69**	***P* Value**
Gender				
Male	18 (26.1)	22 (31.9)	40 (58.0)	0.075
Female	7 (10.1)	22 (31.9)	29 (42.0)	
Age, years	77 (72-82)	83 (76-89)	79 (75-85)	0.005
Age Category				0.014
70-79 years	18 (26.1)	18 (26.2)	36 (52.2)	
80-89 years	7 (10.1)	17 (24.6)	24 (34.8)	
≥90 years	0 (0.0)	9 (13.0)	9 (13.0)	

Co-morbidities				
Cardiovascular	18 (26.1)	36 (52.2)	54 (78.3)	0.342
Respiratory	8 (11.6)	5 (7.2)	13 (18.8)	0.035
CKD/Dialysis	3 (4.3)	6 (8.7)	9 (13.0)	0.846
Malignancy	4 (5.8)	10 (14.5)	14 (20.3)	0.504
Osteoarthritis	6 (8.7)	11 (15.9)	17 (24.6)	0.926
Dementia	1 (1.4)	10 (14.5)	11 (15.9)	0.041
Vascular Surgery	4 (5.8)	6 (8.7)	10 (14.5)	0.789
Smoking history	5 (7.2	4 (5.8)	9 (13.0)	0.196
Symptoms on Presentation				
Cough	13 (18.8)	15 (21.7)	28 (40.6)	0.145
Pyrexia (≥38.0° C)	9 (13.0)	24 (34.8)	33 (47.8)	0.138
Dyspnoea	13 (18.8)	14 (20.3)	27 (39.1)	0.099
Delirium	6 (8.6)	15 (21.7)	21 (30.4)	0.381
Lethargy	5 (7.2)	7 (10.1)	12 (17.4)	0.667
Chest pain	2 (2.9)	1 (1.4)	3 (4.3)	0.262
Diarrhoea	3 (4.3)	4 (5.8)	7 (10.1)	0.7
Anorexia	1 (1.4)	6 (8.7)	7 (10.1)	0.203
Abdominal pain	0 (0.0)	1 (1.4)	1 (1.4)	0.448
Hypoxia	3 (4.3)	1 (1.4)	4 (5.8)	0.097
COVID Category				
Category A	10 (14.4)	31 (44.9)	41 (59.4)	0.004
Category B	9 (13.0)	12 (17.4)	21 (30.4)	
Category C	2 (2.9)	2 (2.9)	4 (5.8)	
Category D	6 (8.7)	0 (0.0)	3 (4.3)	
Polypharmacy (n=68)				
≤5 medications	12 (17.6)	17 (25.0)	29 (42.6)	0.663
6-10 medications	9 (13.2)	20 (29.4)	29 (42.6)	
≥11 medications	3 (4.3)	7 (10.3)	10 (14.7)	
Maximum Ventilatory Support				0.001
None (room air)	7 (10.1)	19 (27.5)	26 (37.7)	
Nasal prongs/facemask	5 (7.2)	19 (27.5)	24 (34.8)	
High flow oxygen	4 (5.8)	6 (8.7)	10 (14.5)	
Non-invasive ventilation	1 (1.4)	0 (0.0)	1 (1.4)	
Mechanical ventilation	8 (11.6)	0 (0.0)	8 (11.6)	
Radiological findings				0.074
Normal	2 (2.9)	14 (20.3)	16 (23.3)	
Abnormal	20 (29.0)	27 (39.1)	47 (68.1)	
Not performed	3 (4.3)	3 (4.3)	6 (8.7)	
Outcome				
Survived	19 (27.5)	34 (49.3)	53 (76.8)	0.904
Died	6 (8.7)	10 (14.5)	16 (23.3)	

Data are presented as median (IQR) or n (% of total). *P*<0.05 was considered significant.*[Note: Cardiovascular =HTN,IHD,A fib, CCF, Hypercholesterolaemia, Respiratory = COPD, Asthma, Pulmonary fibrosis, CKD=Chronic Kidney Disease]*

The mean CFS was 5; (SD 1.59). CFS 5 represented the largest category of patient (23.2%). In all, 63% of patients were deemed frail (CFS ≥5). No CFS 8 or 9 patient groups were recorded. Older patients accounted for higher CFS scores, with median age 83 years (IQR 76-89) in CFS 5-7 group. Female patients were non-significantly frailer than male patients (*P*=0.075).

The mean number of medications was 6; (SD 3.42). Male patients had non-signficantly higher levels of polypharmacy (≥5 medications) compared to female patients (*P*=0.855)

Outcomes

Study mortality rate was 23.3% (n=16). Most patients had been discharged at time of last review (n=48, 69.5%). Five remained as inpatients (7.24%). Median age of survivors was 81.5 years, (IQR 76.5-86.5). The oldest surviving patient was 103 years.
Frail patients were older (*P*=0.005), more likely to have dementia (*P*=0.04), but less likely to have respiratory co-morbidities (*P*=0.035).Frail patients required less ventilatory support than non-frail patients (*P*=0.001) but had milder COVID-19 categorisation on admission(*P*=0.004).

Among the seven ventilated ICU patients,4 died (n=4, 57%), median age 77 years (IQR 71-84. Overall, most deaths occurred in frailer patients, although this did not reach statistical significance (*P*=0.9) and no difference in survival time between frail and non-frail groups was noted (*P*=0.296).

Discussion

This study represented all hospitalised patients aged ≥ 70 years admitted in the Cork metropolitan area, a population of 305,000 people, in the first 100 days of the Irish COVID-19 pandemic. While mortality was high (23%), and comparable with other studies internationally[19-20]; 76% of patients survived, indicating that inpatient hospital care for this older COVID-19 cohort was not futile.

Frailty was common, affecting 63% of inpatients but was not associated with poorer outcomes. A recent study from Australia advocates against using frailty screening tools as a sole component in critical care decisions among older COVID-19 patients.[21] With this in mind, our study also rated total co-morbidity disease burden in older persons using the CIRS-G scale. Over one third of patients had CIRS-G score greater than 10, which may prove a useful marker for re-admission rates and long-term mortality.[16,17] As a marker of biological frailty, recent studies indicate that 20-30 % COVID-19 patients will develop delirium during hospitalisation.[22] Our study results were higher at 30.4%, a serious complication requiring vigilance from clinical staff to reduce the risk of adverse outcomes.

Atypical symptom presentation in our study was 7%, lower than other published studies.[23] A previous study reports advanced age and increased number of comorbidities as potentially increasing the probability of atypical presentations[24]; our atypical symptom group had low co-morbidity burden, highlighting the need for further studies to elicit the disease trajectory of these patients.

The majority of patients were classified as mild COVID-19 cases on admission and one third required no supplemental airway support. Only seven patients required ICU transfer for intubation. This discrepancy in airway support could be due to severely frail patients not requiring high levels of airway support, or perhaps reflect conservative goals of treatment for individual patients decided between patient and physician. Collaborative inpatient escalation of care discussions are vital at an early stage of COVID-19, in order to balance realistic expectations with available treatment options.[25]

Our data have to be treated with caution, given the small sample size. This will limit generalisation to different hospitalised settings. Inconsistencies were also seen in the severity of COVID-19 categorisation in older patients on admission, which may be due to referral bias from community medical services and needs to be considered when reviewing our significant results.

Our study was a multi-centre collaboration that allowed a rich dataset to be collated. Very severely frail patients did not present to our study sites. Potentially, decisions regarding care goals for these patients were discussed in the community, care goals that did not involve hospital admission. Proactive planning of older persons' care needs should be prioritised, in both acute hospital settings and with community healthcare colleagues.

In conclusion**,** the majority of patients in our study had a low chronic disease burden, fewer atypical symptoms and mild COVID-19 symptoms. Despite this, both mortality rate and delirium incidence were high.

Declaration of Conflicts of Interest:
The authors have no conflicts of interest to declare.

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Covid-19 and General Practice: Part 4

Interview with Dr. Ray Walley MRCGP FRCGP,
Member of the National Covid-19 GP Liaison Committee

General Practice has been represented by high level members of both the IMO and the ICGP to liaise with the HSE and Department of Health in response to the Covid-19 pandemic.

This briefing covers the period 20/7/20 to 20/11/20. In this period the primary access for Covid-19 testing referral continued to be from general practitioners with the system peaking at 120,000 weekly tests by early November 2020.

This is in no way a complete overview of work done but is a summary of some priorities dealt with to date.

How has General Practice continued to respond to Covid-19:

1. The IMO ICGP HSE National GP Liaison Committee teleconference on a formal weekly basis. Liaisons are at 7.30am on Fridays.

2. The Committee meets with high level HSE representatives from the Chief Clinical Officers Office / Operations / Infectious Disease / Procurement / I.T. etc.

3. The liaison serves the purpose of continued prompt addressing of organisational and educational issues pertaining to General Practice where 90% of all clinical consultations continue to occur. It is recognised that General Practice has a granular view on both Covid-19 and non Covid-19 effects on patients and services. This allows active discussion on interventions both clinical and organisational for the optimum management of Covid-19 and non Covid-19 issues.

4. Modifications of both the children's and adult algorithm occurred in consultation with both the IMO and ICGP reflecting the responsibilities of general practitioners. Learning from past experience there was a recognition that a GPs first knowledge of change should be through its professional bodies which accordingly happened.

5. The IMO and ICGP has engaged to ensure a regular cascade to members changes in Covid-19 algorithms / educational material / contract briefings on issues related to general practice care and provision. There is a recognition of a danger of messaging and information overload in circulating information to GPs so data provision has been moderated.

Contractual changes:

Covid-19 prevalence has required that GMS contract changes be prompt, dynamic and fluid. Recent GMS contract changes negotiated by the IMO include;

1. Contractual resourcing of flu vaccination for at risk groups on basis of age and morbidity. This includes for the first-time provision of a Nasal spray flu vaccine to all children between ages 2 – 12 years old. 600,000 nasal flu vaccines will be available for children whilst 1.35 million doses will be available for adults.
2. The HSE engaged the IMO to act as an intermediary on the provision of continued resourcing of out of hours GP co-operatives with agreement that weekend and bank holiday Covid-19 referrals will be facilitated on all patient contacts.
3. Provision of the chronic care contractual services is ongoing having been expanded from July 1st, 2020 to GMS patients >70 years old with morbidities including; A Fib / IHD / CCF / COPD / Asthma and Diabetes Mellitus.
4. The IMO secretariat supported by the GP committee have continued to organise contractual arrangements for Covid-19 telemedicine consultations and respiratory assessments for both public and private patients. These were to cease in August but after negotiation with the HSE have been extended till 2021.
5. A request was made to the IMO in October to ask GPs to refer contacts for a 3-day period only when the Contact tracing system was swamped. The patient numbers involved were a maximum of 10,000 equalling an average of an additional 3-4 patient referrals per GP. The IMO National GP committee unanimously supported this urgent request from the HSE / Department of Health on a strict interim basis only. GPs were not asked to contact trace. This proved to be a successful brief intervention.

Education and the Media:

1. IMO and ICGP have recognised the importance of continued education for all Medical Practitioners and have organised webinars on a weekly/monthly basis. These webinars continued in the summer vacation period and have also served the purpose of cohesive team building whilst also allowing ventilation of concerns.

2. GP Media expert opinion placement has been a priority for both IMO and ICGP to ensure knowledgeable commentary from General Practice. Important Media messages have been:

   ''Download the HSE Covid-19 App.''
   ''General Practice continues to be open to meet patient needs''
   ''Get Flu vaccinated''

   The IMO and ICGP have ensured that timely opinion is accessible through their respective public relations units.

3. The ICGP continues to update its excellent website on a daily basis and is the most up to date information point for GP educational issues.

Covid-19 GP Hubs:

Covid-19 Hubs are for Covid-19 and/or Presumed Covid-19 patients only.

Exclusion criteria includes: -

1. Acutely unwell patients who require AMAU/ Emergency Dept. referral
2. Non Covid-19 patients
3. Maternity patients
4. Children under 16 years of age

Many Hubs in the second wave have either had to expand service hours or be re-opened. These hubs have proved to be an asset to GP practices over-burdened with Covid-19.

Ongoing challenges for General Practice include (in no particular order):

Representations were made to the HSE on the following issues with an abridged status included;

- Access to local Hospital based phlebotomy – regional improvements are variable
- Re-Opening up cervical check to direct GP referral – operational
- Re-opening of National screening Mammogram service - operational
- Direct referral Access to all diagnostics incl. Xray, Ultrasound, CT and MRI imaging – operational in many areas with plans to be national
- Access to Acute Medical, Surgical and Paediatric Assessment Units – ongoing discussion
- Covid-19 testing for children with imminent procedural appointments via GP – ongoing discussion
- Prioritising of remaining limited Flu vaccine supply to key workers etc. - operational
- Nursing Home GP support – ongoing discussion
- Deficiencies with contact tracing system – ongoing employment of new staff
- Reversal of redeployment to allow re opening of allied community service provision – ongoing discussion
- Ensuring continued access to PPE – operational with plans to revert to Monthly order system with a back-up system for emergency orders
- GP Manpower deficits discussion – ongoing discussion
- Rostering for out of hours and Hub shifts in addition to surgery shifts - ongoing discussion
- Recognition of imminent questions from foreign travel retest access – under consideration
- Nursing home test access for new staff - operational
- Consideration of expanding Children's flu access up to and including 17-year olds if surplus supply available – under consideration
- Mental Health prevalence and service access – ongoing
- General Practitioner health matters – ongoing

Since the arrival of Covid-19 practices have polarised from same day face to face consultation access to 100% telephone/video consultations, reverting to a mid-ground of > 70% face to face, often reflecting the level of Covid-19 prevalence locally. Workloads are prioritised on clinical basis with “urgents” taking precedence over “routines”, with the administrative task list lengthening.

GPs and their staff have shouldered quietly the burden of this commitment. It is recognised that whilst in a second wave it is of the utmost importance that GPs look to their own health and to the health of their practice teams to prioritise their own prescription of diet, exercise and work life balance recognising the unique times we live in.

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Innovation and Transformation in a Time of Crisis; A National Rehabilitation Hospitals Response to COVID-19

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Abstract

Aims

To describe how the National Rehabilitation University Hospital has transformed how outpatient services are delivered in response to the COVID 19 pandemic.

Methods

A participant observational study of a period of rapid transformation during the COVID-19 pandemic in March 2020. Data generation consisted of direct observation, WhatsApp and meeting record content analysis and patient contact analysis of outpatient documentation.

Results

Before COVID-19, telehealth played a minor role in the provision of rehabilitation services. Upon pandemic declaration, immediate steps were taken to maintain continuity of care for patients and to deliver some form of treatment remotely. A WhatsApp group facilitated rapid information exchange about telehealth options and the OPD programme manager and information technology (IT) manager facilitated testing of solutions. The week prior to the cessation of OPD there were 0 remote contacts. In the 3 weeks after, 222 patient contacts were performed remotely with good patient and staff experience.

Conclusion

Telehealth has become the predominant means of OPD provision in the space of 3 weeks and plans are underway to expand our telerehabilitation services.

Introduction

Despite long held ambitions for telehealth in the National Rehabilitation Hospital, it played a minor role in service provision, remaining ad hoc with the vast majority of care being delivered face to face. This paper describes the experience of the hospital in converting to telehealth in response to COVID-19.

Methods

An observational study of a period of rapid transformation during the COVID-19 pandemic in a National Rehabilitation Hospital. The lead author was a participant observer researcher and data collected consisted of direct observation**,** WhatsApp and meeting record content analysis and patient contact analysis of outpatient documentation. This occurred in real time in March 2020.

Results

After the WHO announced that COVID-19 was a pandemic[1], the COVID-19 planning group was established in the hospital. One of the early decisions taken was to pause outpatient (OPD) activity to reduce infection risk. Clinicians immediately took steps to maintain continuity of care for patients and deliver treatment remotely[2]. A WhatsApp Consultant group facilitated rapid exchange of information about telehealth options and the OPD programme manager and IT manager facilitated rapid testing of solutions.

The week prior to the cessation of OPD there were no remote contacts. In the 3 weeks after, 222 patient contacts were performed remotely as summarised in table 1. Patient and staff uptake were excellent, and patients were supported by staff as outlined below.

Table 1: Telehealth contacts in a Rehabilitation Hospital March 2020

Type of Telehealth Contact	**Modality**	**No. booked Telehealth patient attendances**
Medical – Consultant Only Brain Injury and Spinal Cord Injury		
Review clinic	Phone	45
Consultant Led Interdisciplinary Clinics		
Adult: Neurobehavioural Interdisciplinary Clinic	Videoconference (Microsoft teams)	18
Paediatric: IDT Brain Injury and Spinal Cord Injury Consultant Led Interdisciplinary Clinics	Videoconference	20
HSCP Led Clinics		
Individual Therapy Sessions	Phone	61
Interdisciplinary Assessment	Videoconference	4
Meet and teach Groups (OT/SALT)	Videoconference	48
Continuing Rehab sessions (e.g. OT/SALT)	Videoconference	4
Continuing Rehab Pilates Class (PT)	Videoconference	16
IDT Rehab sessions (e.g. SLT/MSW)	Videoconference	4
Continuing Neuropsychology	Videoconference	2
Total		**222**

Documentation

Clinical documentation continued in the usual manner. Clinic letters were dictated and sent to General Practitioners and therapy encounters were recorded in the healthcare record.

Patient Experience

Patients were contacted prior to the appointment and asked if they wished to avail of this option. Therapists talked through the requirements and process, supported by a patient checklist. A patient information leaflet was also developed. Patients provided positive verbal feedback about the experience.

Staff Experience

Staff reported a positive experience and continue to expand the possibilities for telehealth in the hospital given the national remit, the distances patients travel and the concurrent burden of travel on patients and families.

Technical issues

Some patients were unable to log on but most issues were resolved without the need for technical support. <10% were contacted after the failure and were supported through a test process or talked through the process of joining a live session by the therapists. Therapists became proficient quickly at supporting patient access without technical support.

Discussion

The IDT at the NRH have adapted readily to the rapid introduction of telehealth as have patients and families. A Telehealth user guide was developed, and training and support provided. Telehealth has proven to be an acceptable means of delivering rehabilitation interventions during the COVID-19 crisis and was essential for continuity of service. As our patients will be required to remain 'cocooned' for the foreseeable future, we plan to enhance our telehealth capacity and capability and our data collection will continue. Telehealth overcomes many barriers to rehabilitation experienced by patients and families as a result of the often-complex needs of the patients and can reduce the burden of care and travel for families. It has been overwhelmingly successful in delivering continuity of essential rehabilitation care in a time of severely restricted services and many of those benefits are relevant in the future beyond the current restrictions. The success has also been testament to the willingness and innovation of the staff involved to change practice so quickly in a challenging time for health.

Telehealth will continue to be a valuable offering for rehabilitation in the future. We will endeavour to expand our telehealth offerings to include the full spectrum of therapeutic treatments and patient communications, including interdisciplinary therapy sessions, individual therapy sessions, education therapy and physician or specialist consultation. We are researching best practice in this regard and are planning to develop a research protocol to study the impact. In conclusion, telehealth has become the predominant means of OPD provision in the space of 3 weeks. Plans are underway to expand our telerehabilitation offerings in partnership with the HSE.

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The authors have no conflicts of interest.

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CAMHS Free from Waitlists

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Abstract

This paper summarises a number of changes which have been made on a community CAMHS team which allow the team to function with little or no waitlist for many years. These changes include that (1) new cases are opened by 2 members of the team, (2) an evidence-based approach is used for each case, (3) new cases are allocated according to a rota, (4) new referrals are screened carefully, (5) help is accepted when it is offered – from trainees and from voluntary services, (6) "work bundles" are used help to streamline CAMHS work, (7) there are no internal waitlists, (8) a desk review of open cases occurs regularly at team meetings and (9) achievements are celebrated. Other CAMHS are encouraged to develop their own model within their team to improve efficiency.

Introduction

This paper describes the processes which were adopted within a community CAMHS team which allowed the team to function with little or no waitlist for many years (pre COVID). There have been many small changes to how the team works; this paper outlines these changes and encourages other teams to develop their own model within their team which leads to a service without a waitlist.

This community CAMHS team had a long waitlist in 2008, and a team meeting was held that year to discuss possible methods to approach the long waitlist. The book "7 Helpful Habits of Effective CAMHS" was reviewed by a number of team members; the team committed to making a number of changes, many of which have shaped our team today. Initial changes made by the team at that stage include the introduction of an urgent rota, two disciplines (one psychiatry) opening urgent/emergency cases, and the introduction of a Team Co-ordinator. "Team Review" meetings were planned to occur 4 times per year, to review the progress of these changes, and to plan further changes.

These regular team review meetings have continued, but now instead of reviewing waitlist statistics, we can look at the number of new cases seen per month, or the number of new cases seen per Whole Time Equivalent per year. The year following the introduction of the early changes, the team reported a 36% increase in the number of new cases seen; a small reduction in the waitlist was reported while there was a 36% increase in referrals (in 2009 in comparison to 2008).

Since then there have been many challenges to this CAMHS team, such as a change in the management and governance of the service, the transfer of responsibility for mental health services for 16 and 17 year olds to CAMHS, and the introduction of the HSE CAMHS Standard Operating Procedure and more recently the HSE CAMHS Operational Guideline (COG). There have also been many changes in team members, times when one or more disciplines or roles were vacant on the team, a change in the work location, and a change to the catchment area of the team. Through this we have maintained a high throughput of cases and for many years we have been working without a waitlist, with referrals processed quickly and offered an appointment shortly after triage of the referral. The following is a summary of the current system within the team which has evolved over time, which allows for referrals to be processed in a timely manner and has allowed a long period of management without a waitlist.

New cases are opened by 2 members of the team

One person from psychiatry and one other team member, usually from psychology, social work or nursing. The psychiatry trainee or consultant brings the skill of making a diagnosis, risk assessment and management of risk while the other team member brings various recovery-focused skills, such as management of family communication, de-escalation techniques, or perhaps recommends local services which may be accessed by the young person and their family. There is also the “added bonus” that team members have an opportunity to learn new skills from each other.

An evidence-based approach is used for each case

Information about the most *effective* treatments for the various conditions seen in CAMHS is available in NICE guidelines and similar treatment guides. By making a clear diagnosis and following these guidelines carefully it is likely that we will use the quickest and safest way to treat the young person and thus achieve discharge quickly. All members of the team are encouraged to keep an evidence-based perspective in their treatment. Best medical evidence may be discussed at team meetings and team members are encouraged to take up opportunities to participate in further training and education.

New cases are allocated according to a Rota

Team members are on a rota to see new cases, and each week new cases are allocated to team members according to this rota. The non-psychiatry therapist is automatically listed as the Keyworker, though there may be a change in key worker at a later stage. There is a Team Co-ordinator who allocates cases on this rota.

New referrals are screened carefully

Referrals are accepted where a Psychiatry-led mental health service is required. If the young person could be treated in primary care or by therapists who are not linked to a psychiatry-led service, then other services are suggested. A detailed 1-page list of other services in the catchment area, and their contact details has been generated and is sent to the GP with a letter of guidance regarding non-accepted cases, with a suggestion that the case can be re-referred to CAMHS if symptoms remain after the child has had a primary intervention. There is psychiatry involvement in the screening and triaging of new referrals, and more urgent referrals are offered appointments before routine appointments. The HSE Standard Operating Procedures and the CAMHS Operational Guideline are used to guide the screening of new referrals.

Help is accepted when it is offered – from trainees and from voluntary services

Trainees and students of various disciplines are welcome on the team – they take on various roles, ask questions and energise the team. They can contribute a vast amount of therapy time to the team, and often work in a manner which is very much informed by current guidelines and evidence. We will also work closely with local services - some voluntary agencies working in the area can provide services which are not readily available in CAMHS such as individualised parenting support in the home, or the mentoring Big Brother Big Sister intervention. We often try to co-work a case, with local services.

"Work Bundles" are used to help to streamline CAMHS work

An ADHD medication clinic was set up within the team in 2008, with streamlined paperwork to create efficiency. Appointments were initially offered 45 minutes apart one Monday per month, with a case-list managed on a central database. The names of young people offered appointments at the next ADHD clinic are discussed at Team Meeting, to allow other team members to plan appointments the same day and provide integrated care. Other services are similarly offered in "work bundles" where possible eg group Parenting programmes, group Occupational Therapy.

No Internal waitlists

Multidisciplinary working is used from the time the case is opened until closure, often with more than one therapist working with a family at the same time. The team makes a conscious effort to deliver co-ordinated care to families - if 2 therapists are working with a family, they will co-ordinate their work or appointments so that appointments may be simultaneous or dove-tailed so that both appointments occur on 1 day. Cancelled or missed appointments are discussed weekly at Team meetings, so that the alliance of the family with the service can be supported.

Desk Review of open cases regularly at Team Meeting

A list of all open cases in alphabetical order is maintained, and 6-10 charts are brought to each weekly team meeting, in alphabetical order. A desk review of each chart is performed by the team. The focus of desk reviews has changed over time – initially we looked for cases which were not attending regularly or who had missed appointments; currently we are reviewing the care planning process. When the complete open caseload has been reviewed, the process begins again with the first chart in the list.

Achievements are celebrated

Positive re-inforcement of team achievements is considered very important. Local CAMHS statistics are shared with the team so that the impact of their work can be seen. The team has consistently opened a high number of new cases per Whole Time Equivalent in the sector area for some time, and this has been communicated to the team.

Discussion

The overall plan for each referral is that there is a clear diagnosis, clear communication to the GP and to the family and that patients/families are supported early in the treatment process to find their own solution to the difficulties they present with, if possible. The team attempts to "harness" the energy the family has at the point of referral to CAMHS, to support the family to create change from that point onwards.

Many of these strategies were previously described in a relevant text[1] and many are found in other CAMHS in Ireland. However, there are also many waitlists in CAMHS in Ireland, with a recent report of 2,606 young people on CAMHS waitlists[2]. Similarly, there are long waitlists in CAMHS in the UK, with an increase in the rate of referral to CAMHS noted[3]. We need to continue to develop ways of working in CAMHS in Ireland which are effective and efficient, in order to meet the challenge of current long waitlists *and* the challenge of increasing numbers of referrals to mental health services. Easy access to team statistics or measurements such as the number of new cases per Whole Time Equivalent opened and closed per month (which indicate the flow through the service) will help the development of efficient practices in each CAMHS. However, changes in CAMHS may not be enough to meet the increased need for mental health services for young people - we also need a societal change which will reduce the overall need for CAMHS.

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Professor Mulligan has no conflicts of interest to declare.

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Love of Coffee in the Time of Corona

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Abstract

Introduction

In this study, we introduced a free coffee initiative for doctors in a university teaching hospital with an optional donation component. We wished to investigate donation patterns and coffee consumption among doctors and whether COVID-19 would impact on this.

Methods

A pod-based coffee machine was provided with suggested donations of 50c and €1. Donations were accepted piggy bank and through a mobile phone based digital banking application. The study ran from 6th January to 6th March 2020 and 6th April to 6th June before and after the onset of 'lockdown measures'.

Results

A total of 460 cups of coffee were drank throughout the study period at a cost of €165.60. The total amount donated was €177.46. Donations fell significantly during the COVID-19 pandemic p=.048. Despite the fall in overall donations, digital donations increased. Coffee consumption per week also fell during pandemic but this did not reach significance p=.085.

Conclusion

We present a successful free coffee initiative for hospital doctors that was fully funded by solicited donations. While donations and consumption fell throughout the COVID-19 pandemic, net donations yielded enough money to cover the costs of supplying the coffee.

Introduction

Coffee consumption is common among hospital doctors and has been shown to be associated with a range of health benefits including reduced all-cause mortality, cardiovascular mortality, type 2 diabetes, depression, and Alzheimer's disease[1].

The aim of this study was to introduce a free coffee initiative to doctors in a university teaching hospital with an optional donations component. We wish to prospectively assess whether doctors would donate enough to cover the costs associated with it. We also wished to determine the impact of the COVID-19 pandemic on coffee consumption and donation patterns.

Methodology

A pod-based coffee machine was provided with a suggested donations reference scale of 50c to €1. Quantities absent from this pricing scale were also accepted. Coffee pods were dispensed to doctors in batches of twenty which cost €7.20 (36c per pod).

The donation system consisted of a large bright pink piggy bank which accepted all denominations of euro currency. These were made on an anonymised basis in accordance with GDPR regulations. Donations were also accepted through a mobile phone based digital banking application.

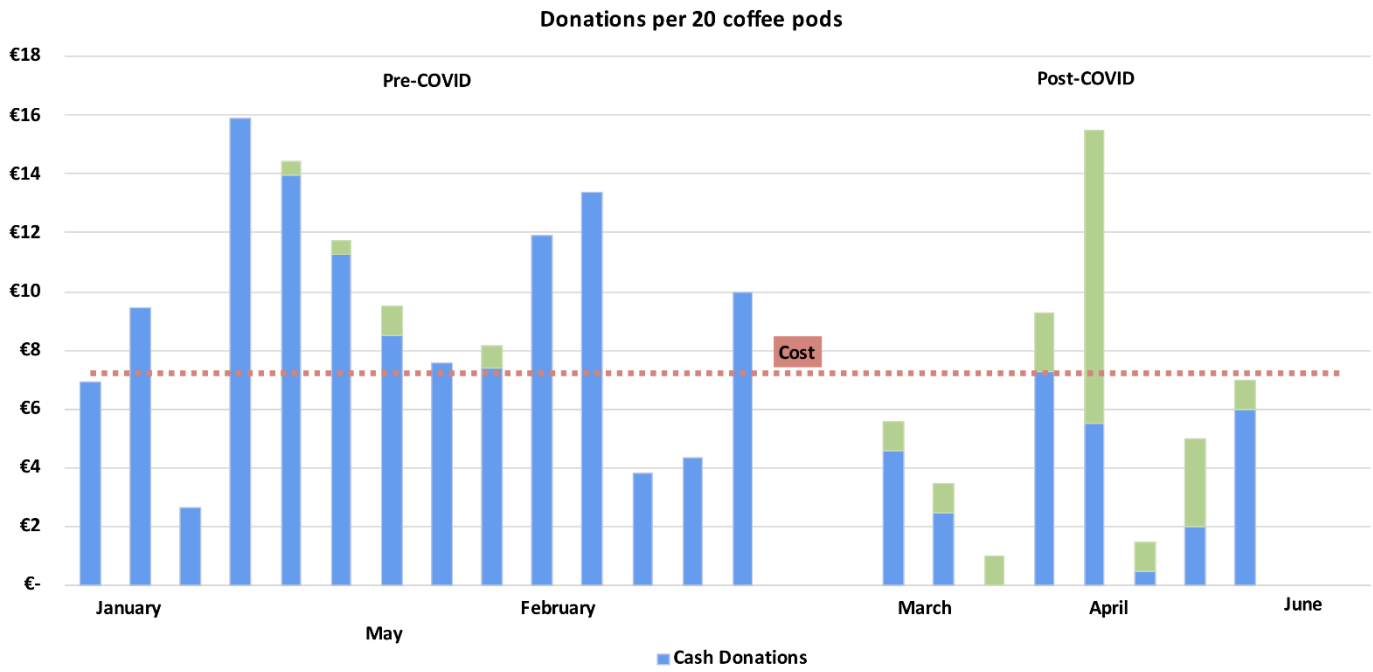
Donation amounts and coffee consumption were monitored prospectively during the study period. The study commenced on 6th January 2020 and was stopped temporarily after two months due to COVID-19 enforced staff absences. The study was recommenced on the 6th April and ran for a further two-month period.

The primary outcome measure was whether donations covered the cost of the initiative. We also wished to monitor coffee consumption and the mode of donation (cash vs digital). These outcome measures were assessed for the full study duration and also before and after the start of the lockdown measures. Continuously variable data (money donated and coffee consumption) was analysed using the two-tailed independent student t-test. Cohen's *d* test was used for calculating the effect size. Statistical significance was set at $p < 0.05$. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) software version 25[2].

Results

A total of 460 cups of coffee were provided throughout the study period at a cost of €165.60. This corresponded with 3.8 cups of coffee per day (€1.37 per day). The total amount donated was €177.46 (€1.46 per day), which fully covered of costs of the coffee with a surplus of €11.86. Coffee consumption and donations are illustrated in Figure 1.

Figure 1: Donations per 20 coffee pods pre-COVID and post-COVID



Donations per 20 coffee pods during the pre-COVID period (M = 9.27, SD = 4.01) compared to the post-COVID period (M = 5.37, SD = 4.84) demonstrated significantly higher donations per pod, t(21) = 2.1, p = .048, d = 0.88. Despite the fall in overall donations, digital donations increased in the post-COVID period (M = 2.00, SD = 2.94) compared to the pre-COVID period (M = 0.20, SD = 0.34), t(22) = 2.29, p = .03, d = 0.86. Coffee consumption per week fell during the post-COVID period (M = 35, SD = 14.14) compared to the pre-COVID period (M = 22.5, SD = 12.82) but this did not reach significance, despite a large effect size, t(14) = 1.85, p = .085, d = 0.93.

Discussion

Doctors consumed a large amount of coffee throughout this study period. It is reassuring that, as a whole, the doctors in this study proved themselves to be altruistic in their consumption of coffee and their donations allowed this initiative to continue to fund itself. Doctors who donated may have done so because they valued coffee drinking, because they wished to ensure the availability of coffee for other doctors, for the positive psychological effects of drinking coffee, or for the "warm glow" effect of giving regardless of the cause[3].

The suggested donations scale provided a satisfactory pricing model. From a purely monetary perspective, doctors had to consider both internal pricing referents, which are operationalised through past spending behaviour, and external pricing referents such as the cost of coffee in the hospital coffee shop (€3.65 to €3.85)[6]. Our pricing scale proved successful in nudging contributors towards donation amounts that covered the cost of the initiative. Setting deliberately low suggested donation amounts can increase the number of donations meaning the total donations frequently exceeds that when a higher suggested amount is chosen[5,7].

Donations for our coffee initiative fell during the COVID-19 pandemic. This shortfall in donations has been mirrored across society where multiple charities are suffering from a fundraising collapse as a result of COVID-19[8]. While a lot of funding may have re-directed charitable donations towards COVID-19 related causes, the opportunity cost of donating to one charity means that another charity often misses out [4, 9]. This provides a timely reminder that many charities are struggling to continue operations due to cancellation of regular fundraising events and many have issued direct appeals for support.

Reduced cash withdrawals from automated teller machines (ATM) across the country throughout the COVID-19 pandemic represents another possible contributory factor to the reduction in donations received during this time period. ATM withdrawals were down by 57% in April 2020 compared to the same period last year as many retailers aimed to move to contactless payments to reduce spread of COVID-19[10]. This is reflected in our data where there was a statistically significant increase in digital donations.

Coffee consumption in our study fell throughout the COVID-19 pandemic. The fall in coffee consumption did not reach statistical significance but had a large effect size. There are numerous considerations for why this may have occurred. Concern regarding the spread of COVID-19 may have resulted in reduced usage of a communal coffee machine within the doctors' residence particularly for team meetings. Similarly, less staff may have used communal dining facilities within the doctors' residence to ensure adequate social distancing. Less staff were rostered in many departments within the hospital to reduce unnecessary staff exposure or because much of the elective activity within the hospital ceased or were outsourced to other departments. Many doctors were required to isolate during the pandemic and would not have been able to avail of the free coffee. Other possible reasons include doctors such as anaesthetists who received less coffee breaks due to the greater workload associated with the pandemic.

Limitations

We were unable to determine the average individual cash donation as these were only collected on a weekly basis. This would have been helpful to determine the impact of the suggested donations scale on donation amounts. Framing and asymmetry are important considerations for pricing[11]. Whereas we only provided binary pricing referents, perhaps we could have manipulated pricing donations greater by provided a greater range of suggested donation amounts. This could include a upwardly adjusted extreme non-dominant alternative with the target alternative at the centre of a trinary set. Mental accounting theories indicate that individuals display aversion to extremes and tend to choose the 'safe' middle option[11].

The money collected from the piggy bank was accessed removing a plastic cap from the sole of the pig's foot. This plastic cap was easily removable however and we cannot exclude the presence of burglars which would have affected our total donations.

This may particularly have been the case for the last allocation of coffee pods, where there were no cash donations made. We are unable to state whether this reflected expected variation in donation patterns amongst doctors or whether the data was compromised. Similarly, for digital donations, a single particularly large digital donation of €10 was made which was a significant outlier compared to other digital donations. This may represent a particularly generous donor or a typo.

Conclusion

We present a successful free coffee initiative for hospital doctors that was fully funded by solicited donations. While donations and consumption fell throughout the COVID-19 pandemic, net donations yielded enough money to cover the costs involved. Digital donations increased throughout the pandemic. The reduction in charitable donations for our initiative throughout COVID-19 provides a timely reminder that many charities are struggling in light of the restrictions to fundraising activities and the opportunity cost of COVID-19 related spending.

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The Impact of the COVID-19 Pandemic on Oncology Clinical Trials

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Abstract

The COVID-19 pandemic has created unprecedented disruptions to clinical trial research across the world due to a temporary global suspension of patients' recruitment to cancer clinical trials. Here within we present the negative impact of the COVID-19 pandemic on cancer clinical trial activity at the Clinical Trials Ireland Unit at the Mid-Western Cancer Centre. In the first six months of 2020 directly compared with the same period in 2019 there was a 33% (147 V's 99) reduction in patients screened for participation and a 60% (37 V's 15) reduction in patients consented to clinical trials within our unit. At the same time, the COVID-19 pandemic has led to increased clinical research activities in regard to the development of treatments, diagnostics and vaccines to control the pandemic. Extrapolating our observations from the swift implementation of COVID-19-related clinical trials, we discuss strategies to improve the design and conduct of cancer clinical trials.

Background

In December 2019, the novel coronavirus SARS-CoV-2 emerged from the city of Wuhan, resulting in the clinical syndrome of coronavirus disease 2019 (COVID-19) [1]. To date, over 46.2 million cases and almost 1.2 million COVID-19 related deaths have been reported worldwide. The first verified case of COVID-19 in the Republic of Ireland was documented on 28th February 2020. Since then, over 62,000 confirmed cases and greater than 1,900 COVID-19 related deaths have occurred [2]. The COVID-19 pandemic has disrupted all aspects of clinical care delivery worldwide.

Patients with cancer are a vulnerable population, at high risk for contracting COVID-19 and experiencing adverse events [3, 4]. Early studies from Italy, a country greatly affected in the early weeks of the global pandemic, revealed that 20% of COVID-19 related deaths were amongst patients with underlying cancer, most of whom were receiving systemic anti-cancer treatments (SACT) [5].

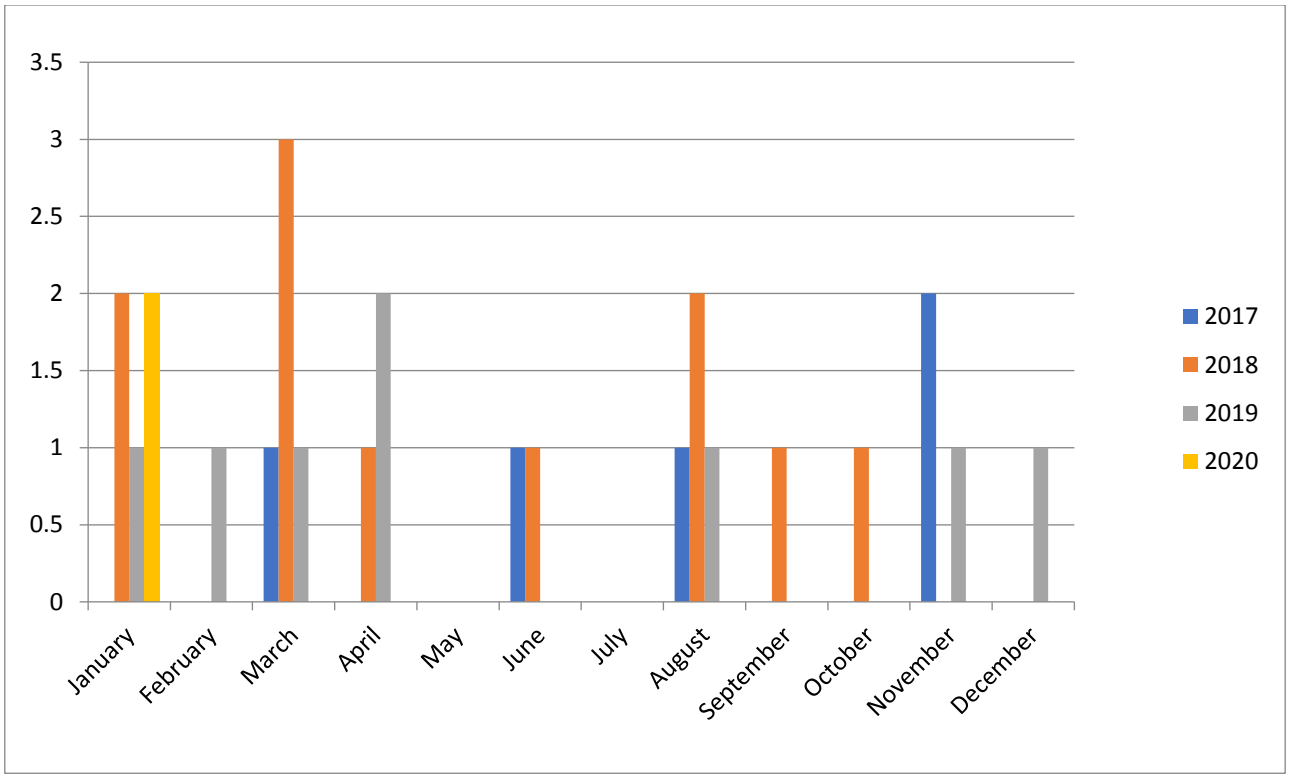
On March 12th, the Irish Government initiated a national lockdown of non-essential services. This nationwide, severe disruption resulted in several changes to the way in which the medical oncology services were delivered across the country's eight cancer centres and their satellite units. Cancer care providers focused on limiting cancer patients' exposure to people infected with the virus and asymptomatic carriers, while attempting to continue routine SACT and access to cancer clinical trials. The European Society of Medical Oncology (ESMO) and the American Society of Clinical Oncology (ASCO) issued guidance on managing oncology patients during the pandemic [6, 7]. In the UK and Ireland, the National Health Service (NHS) and the National Cancer Control Programme (NCCP) have subsequently developed local guidance [8]. This has resulted in changes to the delivery of care, including transfer of inpatient care to private hospital facilities and transfer of the ambulatory delivery of SACT to off hospital sites where possible, as well as introducing virtual solutions for outpatient appointments [4, 8].

In addition, the COVID-19 pandemic has resulted in a worldwide disruption to clinical research. Oncology clinical trials are essential for advancing cancer treatment [9, 10]. Over the last 25 years, thousands of patients in the Republic of Ireland have been enrolled in and benefited from over 400 cancer clinical trials nationwide. In addition, these clinical trials have enabled patients to access novel and potentially beneficial treatments that would not be available for them outside of the trial. It is well documented that patients enrolled into clinical trials have a better outcome due to better treatment options and best clinical practice procedures [11].

Impact of COVID-19 on Mid-Western Cancer Clinical Trials Unit

The Cancer Trials Ireland has an extensive network of over 15 research units throughout the country, all of which have been impacted by COVID-19 pandemic. We aim to illustrate the impact of the COVID-19 pandemic locally on the Clinical Trial Unit at the Mid-Western Cancer Centre, University Hospital Limerick (UHL). Learning from this negative impact, in collaboration with our global colleagues in clinical research, we seek to identify opportunities for transformation of our structures to ensure our vitality and longevity, providing continued meaningful clinical trial opportunities.

The Cancer Clinical Trials Unit (CCTU) at the Mid-Western Cancer Centre opened in 2002. It has established itself as a leading centre for innovative and translation oncology clinical trials in the country. Over the last 4 years 25 clinical trials have opened here, across a variety of primary disease sites, with 5 trials opening in 2017, 11 in 2018, 7 in 2019 but only 2 in 2020 to date (Figure 1).There are a further four expected to open before the end of the year.



New Trials Open: 2017 – 2020 (Figure 1)

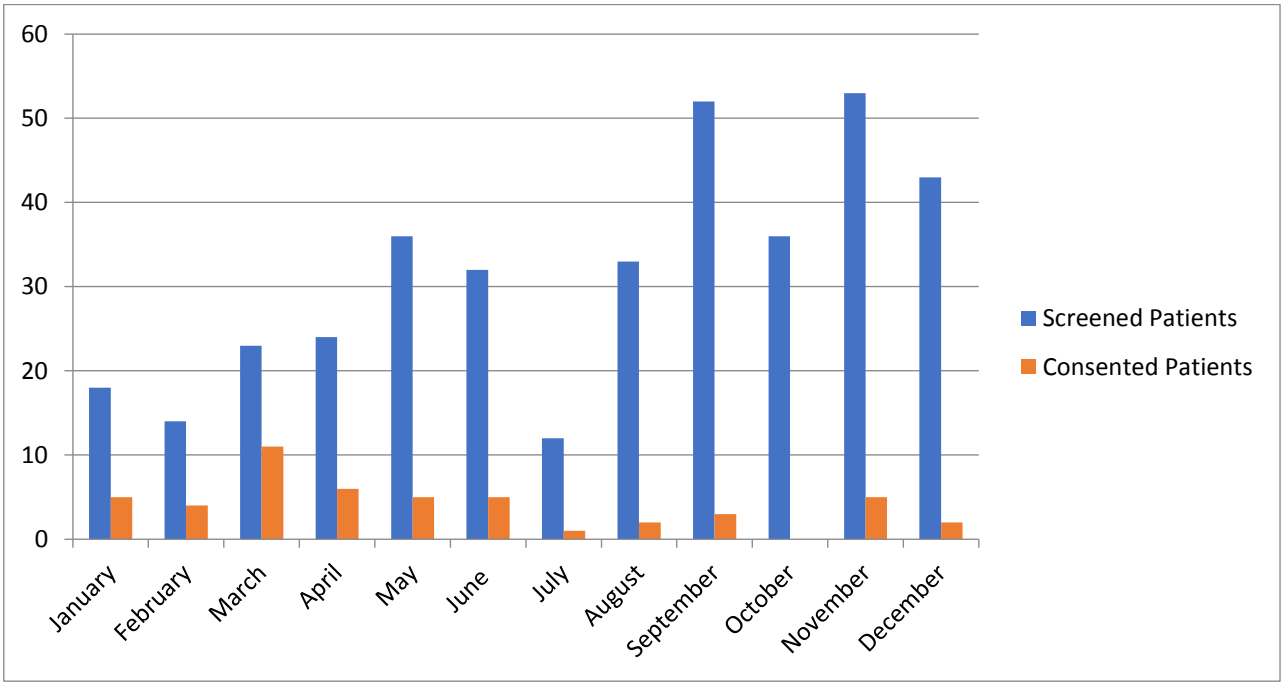
The disruption of the activity of the CCTU due to global COVID-19 pandemic has the potential to impact the scientific integrity and patient safety of ongoing clinical trials, increasing operational burdens on clinical trial programs, and as a consequence, limit access to trials and newer therapies for cancer patients [9, 10, 12]. In response to this, regulatory authorities like European Medicine Agency (EMA) and The Food and Drug Agency (FDA) have produced guidance on all aspects of the ongoing conduct of current trials [13].

This year as the global COVID-19 pandemic affected Ireland, only few cancer clinical trials were opened. The recruitment to existing clinical trials was suspended and screening procedures for eligible patients for possible participation in trials was stopped. Collaborative laboratory centres across Europe were closed and unable to accept trial tissue samples for analysis. There were concerns local radiology services would be limited and our laboratory would be overwhelmed with COVID related samples and unable to prepare samples as indicated by various trial protocols. Clinical trial nursing staff were re-deployed within the hospital to help with demands of COVID-19-related care. A skeleton staff remained in place to oversee the treatment and follow up of patients enrolled already to clinical trials.

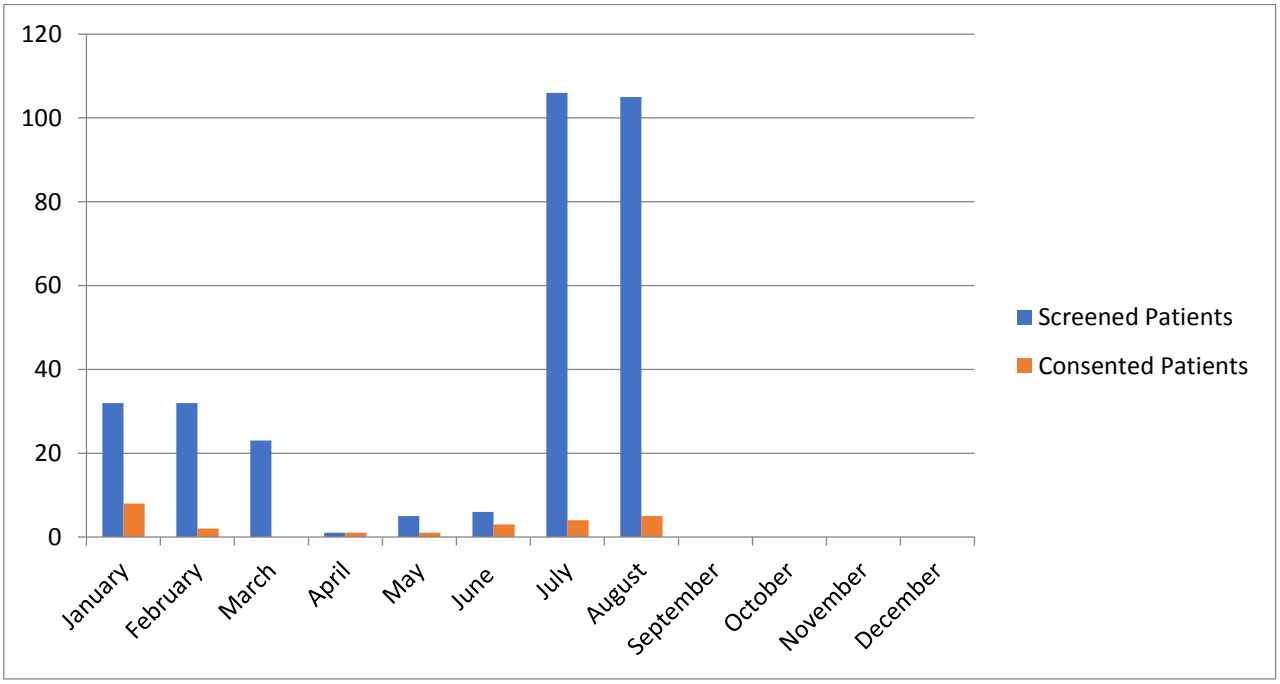
Our statistics illustrate a negative impact in recruitment and screening since the COVID-19 pandemic emerged in Ireland. The smaller number of newly opened trials and the reduction of staffing levels within the CCTU has affected access to new treatments for cancer patients within our region.

In the time period from January 2019 until December 2019, 376 patients were screened for inclusion to participate and 49 (13%) patients signed informed consent to participate in a clinical trial within CCTU at UHL.

In the six months from January 2020 until the end of June 2020, 99 patients were screened and only 15 (15.2%) signed informed consent to participate in a clinical trial (Figure 2 and 3). When these figures are directly compared with the first six months of 2019 there is a 33% reduction in patients screened for participation (147 V's 99) and a 60% reduction in patients consented (37 V's 15) to clinical trials. These figures highlight the immediate negative impact of the global COVID-19 pandemic on cancer clinical trial opportunities and recruitment in our region.



Patients Screened and Consented in 2019 (Figure 2)



Patients Screened and Consented in 2020 (Figure 3)

In July and August 2020 Irish healthcare services attempted to return to a "new normal" due to the dropping numbers of COVID-19 positive patients. During these months of still limited clinical activity across the country, we saw an increase in the number of patients screened for trial participation and a small number of patients signed an informed consent to participate (Figures 2 and 3). Currently there are number of clinical trials due to open, however, as Ireland enters a second surge of COVID-19 cases and further lockdown restrictions are implemented, the future of our practice is uncertain. It is likely that without a national implementation of strategic planning addressing the activity of cancer trial units, recruitment could be further suspended and halted as the health service struggles and staff focus on delivering only essential care.

Learning from the pandemic going forward

Despite the challenges regarding the logistics of clinical trials activity during the COVID-19 pandemic, numerous opportunities to improve clinical trials are identified. Impressive solutions have been suggested and future implementation of these may provide the answers to sustain and support cancer clinical research during the ongoing pandemic. These suggestions include protocol amendments, allowing more flexibility of assessments without hampering treatment safety and efficacy, transfer of cancer research to specific "COVID free" centres for administration of treatment, and telehealth visits for participants, remote site initiation visits and remote consenting as well as the opportunity to ship oral drugs directly to patients avoiding hospital visits where possible [10, 13, 14]. All these changes protect our vulnerable patients while minimising their encounters with possible virus carriers while continuing access to fundamental treatment opportunities. These solutions require investment and may make cancer clinical trials more efficient and patient centred.

The global COVID-19 pandemic has resulted in implementation of novel procedures within clinical research as well as in developing treatments, diagnostics and vaccines to fight the pandemic. The rapid design and launch of these clinical trials, with over 2000 active trials currently in operation, has shown that certain aspects of cancer clinical trials including speedy protocol development and ethical approval approaches could be improved, streamlined and modernised in ways that would benefit patients, clinicians and all researchers [13 - 15].

Conclusion

The COVID-19 global pandemic is continuously evolving. As we enter uncertain times for cancer patients and all involved in their care, it is crucial that we continue to monitor and identify effective strategies to navigate the ever-changing situation. Patient safety and the safety of the staff is the most important consideration going forward but without losing out on fundamental high-quality cancer clinical trial opportunities. This has been an opportunity for deep reflection and to review our practice making permanent adaptions into the future, improving clinical trials and producing a robust evidence base for the treatment of cancer into the future.

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Post Pandemic Physician Vulnerability

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Abstract

Clinicians have adapted robustly since the first outbreak of COVID 19 in Ireland. This piece highlights physician vulnerability in a new era of telemedicine and explores the challenges we face in terms of stigma and burnout. It explores the consequences, both positive and negative, of living and working in a virtual world recommending strategies to optimise patient care, training and clinician wellbeing.

There is no end in sight with COVID-19. Six months ago, the Irish government's mantra was to "hold firm" and "stay together by staying apart". We presumed this was a finite recommendation and a gradual return to normal would ensue. It is now increasingly clear that normal is not coming back. There have been almost 60,000 cases in Ireland and over 1800 deaths[1]. On 21st October Ireland moved to level 5 restrictions for a six-week period to curb rising case numbers.

The lack of return to normality for clinicians has been noticeable with the landscape of our day to day work changing dramatically. Outpatient clinics in most specialties are operating at a fraction of their previous capacity due to need for social distancing, enhanced cleaning regimens and patient non-attendance for fear of contracting the virus. Attendance at emergency departments (EDs) initially dropped at the outset of the pandemic mirroring trends seen with MERS and SARS[2]. At the end of those outbreaks, attendance increased to previous levels but in the absence of a clear endpoint with COVID-19 the trajectory is harder to predict.

Clinicians have been rapidly innovating to meet the needs of a variety of stakeholders; patients, teams and trainees. One example of this is the overnight shift to telemedicine – a hot topic among psychiatrists prior to COVID 19. There was understandable apprehension given its limitations.

How do you perform a comprehensive mental state examination remotely? Patients must have adequate IT skills and hardware such as a smart phone with a camera function. Patients with disabilities may be disadvantaged while interactions requiring an interpreter bring another level of complexity to the process. Multi-disciplinary team (MDT) meetings form a core aspect of delivery of care across all specialties. These moved online in March and many continue to take place remotely avoiding unnecessary clinician contact. Challenges include maintaining confidentiality and paucity of infrastructure and technology to support remote working in our health care system.

There is pressure on clinicians to adapt quickly and seamlessly to telemedicine as an integral part of service delivery. Much administrative work is required to effectively set it up, and huge efforts have been made across disciplines in learning to use various tools. The paucity of equipment in services has been thrown into sharp relief - never before was the dearth of video cameras such a barrier. Enhanced verbal communication skills are necessary to navigate the “virtual appointment”. Troubleshooting potential problems in advance is advisable such as a plan of action if the connection fails. In the early stages of the COVID 19 outbreak clinicians were busy drafting local guidelines for conducting remote care with no clear centralised guidance. Formal training in this area is necessary to enhance clinician confidence and skillset allowing the healthcare system to maximise the benefit of this valuable tool.

While telemedicine remains a work in progress, there is no doubt that it allows us to access more patients. We can continue to provide essential support prior to next available “face to face” review and troubleshoot a number of issues. In psychiatry specialties it may reduce the risk of relapse of mental illness and number of crisis admissions. A hybrid of face to face and online interactions will be necessary for some time. Despite our most valiant attempts, there will always be a proportion of patients for whom telemedicine will not be a viable option. It is crucial that a small number of face to face sessions are safeguarded for this vulnerable cohort regardless of restriction level. Without these measures, patients are more likely to present in crisis putting more pressure on an already squeezed emergency and inpatient service.

This hybrid approach aims to maintain optimum levels of patient care but also allows continued learning and professional development which arrested temporarily at the outset of the pandemic. National training days were initially cancelled; examinations were moved online. Conferences have been either deferred or moved online and previous “in person” teaching sessions at all levels have been transformed into webinars. Networking has changed completely with virtual sessions favouring tech savvy, confident characters with strong verbal communication skills. Others risk being just one of the crowd and may be left behind in this virtual takeover. Strong chairs can transform a session but again skills training is needed across the board to even the playing field.

A word of warning however in this sea of virtual possibilities. We need to be mindful that as our virtual access improves, our ability to disconnect reduces. Clinicians may notice that the lines between work and home are becoming blurred. It is paramount that we safeguard our work life balance - something clinicians have seen diminish in recent months and others never had in the first place. It matters not only for clinician wellbeing but to allow us to remain effective in our clinical roles thus maintaining patient safety.

There are additional pressures on the clinician in this "new normal" environment. Mask wearing has become standard practice in healthcare settings. This has an impact on ease of communication with patients particularly paediatric patients, elderly patients or those with an intellectual or physical disability. The "new normal" also affects communication between co-workers and colleagues. Strict guidance around coffee and lunch breaks by design reduces social contact opportunities. While this is necessary from an infection control perspective, clinicians may find themselves more isolated in the workplace with reduced outlets to discuss complex cases, ethical dilemmas or simply catch up. This is likely to put further pressure on an already vulnerable cohort[3].

Another issue is that of "COVID-stigma". Back in February, healthcare workers (HCWs) were lauded as heroes. As Ireland opened up again many clinicians reported informal requests not to attend sports clubs or social gatherings. Fear and avoidance of HCWs is a global issue with a recent Canadian study reporting 1 in 3 survey respondents actively avoided HCWs[4]. Clapping for HCWs is all very well; but adequate supports are also needed. If HCWs are frozen out of their usual social outlets this will have a detrimental impact on their mental health and wellbeing leading to reduced ability to function effectively in their clinical role.

Unfortunately, in Ireland these challenges occur at a time when our health service and staff are already under pressure. Burnout and clinician distress are recognised globally. In the 11th revision of the International Classification of Diseases (ICD 11), Burnout syndrome is classified as an occupational phenomenon resulting from chronic workplace stress. It is characterised by three dimensions: feelings of exhaustion, increased mental distance from one's job, or feelings of cynicism related to one's job and reduced professional efficacy[5]. Burnout impacts negatively on psychological wellbeing, which if not addressed, may deteriorate into a defined mental disorder. In Ireland we have long recognised these issues with studies indicating burnout rates of up to 42% amongst consultants and non-consultant hospital doctors (NCHDs)[6,7].

Prevention is better than cure. Greenberg at al offer a number of strategies to address this including formally thanking HCWs for their efforts during the crisis[8]. Several Irish hospitals have already distributed commemorative medals to staff. Return to work interviews are encouraged as the pandemic eases but given the unclear trajectory of COVID-19, timing these may be a challenge. The benefit of Schwartz rounds is also highlighted as a space for staff to share their experiences – these are already in practice across Ireland[9,10]. They aim to promote communication and foster positive interdisciplinary engagement. Balint groups are small reflective groups which aim to validate emotional experiences. Again, these have already been positively received and integrated into Irish training[11], and have shown some promise in reducing physician burnout[12]. Protected time for clinicians is needed at organisational level to allow busy clinicians to avail of these resources.

Staffing is a major issue in Ireland – we have one of the lowest consultant numbers in Europe[13]. The mental health budget in Ireland is 6% of the total budget – less than half of the EU average of 13%[14]. Retention of doctors remains difficult with better working conditions and quality of life luring doctors further afield. Appropriate staffing levels, funding and focus on retaining graduates in Ireland are key aims to prevent burnout in our existing workforce.

Clinicians and healthcare teams have proven agile, innovative and adaptive. We have shown resilience in the face of an array of challenges. There is apprehension in the air as we face into winter. Can we count on systemic support to face what lies ahead? Good communication across services, adequate support of staffing and resourcing, systemic supports bolstering resilience and making meaning of experiences, acknowledging stigma and its impact, and extra individual supports where necessary, must be widely available. We held firm. Now we need more to keep fighting the good fight without falling victim to it.

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Impact of Covid-19 on Mental Health in Ireland: Evidence to Date

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Abstract

There is widespread concern about the impact of Covid-19 and associated restrictions on mental health. Evidence to date shows that the combined effect of the Covid-19 pandemic and associated restrictions is that approximately one person in every five in the general population in Ireland (and elsewhere) has significantly increased psychological distress (e.g. anxiety, depression). Risk factors include being female and living alone. Rates of significant psychological distress among healthcare workers are approximately double those in the general population. To ameliorate this, healthcare staff require careful rostering, ability to take leave, organisational support from employers and, where necessary, "psychological first aid". Covid-19 infection itself affects mental health both immediately (e.g. depression, anxiety) and, most likely, in the longer term, especially among those hospitalised (e.g. post-traumatic stress, post-viral syndromes). People with pre-existing mental illness are at significantly increased risk of Covid-19 infection and require particular support to maintain wellness during the pandemic.

Introduction

There is widespread concern about the impact of Covid-19 and associated restrictions on mental health in Ireland. This paper outlines existing evidence about the effect on Covid-19 on mental health at time of writing (November 2020) and provides suggestions for ameliorating the negative mental health effects of the pandemic and its associated restrictions.

Mental health effects of the Covid-19 pandemic on the general population

From the start of the Covid-19 pandemic, it was clear that population mental health was going to be affected by both the pandemic itself and the impact of restrictions[1]. These effects are now apparent among people with mental illness and general populations around the world[2].

In China, one study of 1,210 people in 194 cities in January and February 2020 found that 54% rated the psychological impact of the Covid-19 outbreak as moderate or severe, 29% reported moderate to severe anxiety symptoms and 17% reported moderate to severe depressive symptoms[3]. In Spain, a study of 21,207 people in March 2020 (a week after lockdown began) reported significant psychological impacts on people with no previous mental illness, including depressive responses (41%), avoidant behaviour (39%) and stress (27%)[4].

In Ireland, Maynooth University and Trinity College studied 1,000 people in March and April 2020 (during the initial restrictions) and found that 41% of respondents reported feeling lonely, 23% reported clinically meaningful depression, 20% reported clinically meaningful anxiety and 18% reported clinically meaningful post-traumatic stress[5]. A peer-reviewed study of 847 members of the public in Ireland between March and June 2020 (during restrictions) also found significant increases in depression, anxiety and stress compared to before restrictions[6]. A survey of 195 psychiatrists by the College of Psychiatrists of Ireland in May and June 2020 found that the majority reported increased referrals for generalised anxiety (79% reported an increase), health anxiety (72%), depression (57%) and panic (54%)[7].

These findings are likely attributable to a combination of anxiety about Covid-19 and the effects of restrictions, such as quarantine, which can include confusion, anger and post-traumatic stress[8]. Particular stressors include longer duration of quarantine, infection fears, frustration, boredom, inadequate supplies or information, financial loss and stigma.

Mental health service use is not a reliable indicator of need owing to altered patterns of use across many services during the pandemic. For example, provisional figures show hospital presentations for self-harm fell by 25% in April 2020 compared to April 2019, but all-cause presentations fell by 40%, rendering it difficult to interpret service-use data precisely as indicators of need[9].

It is clear that the combined effect of the Covid-19 pandemic and associated restrictions is that approximately one person in every five in the general population in Ireland and elsewhere has significantly increased psychological distress (e.g. anxiety, depression). Particular risk factors include being female and living alone[10].

Distress associated with restrictions can be diminished by maintaining restrictions for no longer than required, providing clear rationales and information about protocols, ensuring sufficient supplies and reminding the public about the benefits[8]. The needs of most people with continued distress would be best met by expansions of the HSE Counselling in Primary Care and HSE Primary Care Psychology Services, as well as specialist secondary mental health services for those who need them.

Mental health effects of the Covid-19 pandemic on deliberate self-harm and suicide

The effects of the Covid-19 pandemic on suicide are not yet clear because data collection and coroners' reports lag significantly behind events.

The survey of 195 psychiatrists by the College of Psychiatrists of Ireland in May and June 2020 found that 64% reported increased referrals for self-harm/suicidal ideation[7]. There is also evidence of increased lethality of self-harm in at least one Irish hospital[11].

Notwithstanding these findings, there is, as yet, no systematic evidence of increases in deliberate self-harm and suicide at national level during the pandemic. Close analysis of incoming data will be required to clarify this situation over the coming months and years. Social and economic supports will be vital, alongside existing suicide prevention strategies, which appear to be working[12].

Mental health effects of the Covid-19 pandemic on healthcare workers

At global level, healthcare workers are at added risk of mental health effects of Covid-19[13], with up to 86% reporting feeling stressed with regard to changes in work environments and transmission of the virus[14]. In China, one study of 1,257 hospital healthcare workers in January and February 2020 found high levels of distress (72%), symptoms of depression (50%), anxiety (45%) and insomnia (34%)[15]. These rates are substantially higher than those in the general population. Risk factors for poor mental health outcomes are female gender, being a nurse and being on the frontline. In Ireland, a survey of 370 radiographers between March and May 2020 found that 40% reported burnout symptoms due to the pandemic and 30% considered changing jobs or retiring since the outbreak[16]. The survey of 195 psychiatrists by the College of Psychiatrists of Ireland in May and June 2020 found that 61% reported increased workloads; 46% reported decreased well-being; and 51% reported decreased ability to avail of annual leave[7].

Overall, rates of significant psychological distress among healthcare workers (≈40%) are approximately double those in the general population (≈20%). To ameliorate this, healthcare staff require careful rostering, ability to take leave, organisational support from employers[17] and, where necessary, “psychological first aid” [18].

Mental health consequences of infection with Covid-19

Infection with Covid-19 affects both physical and mental health. Past experience with severe acute respiratory syndrome (SARS) backs this up. Among patients hospitalised with SARS in Hong Kong in 2003, 59% fulfilled criteria for mental illness 30 months later, mostly depression and post-traumatic stress disorder[19]. Emerging evidence across several studies suggests increased levels of depression, anxiety and post-traumatic stress symptoms among people who test positive for Covid-19[2,20]. One Chinese study of 103 Covid-19-positive patients hospitalised with mild symptoms found that 60% reported depression and 55% reported anxiety, compared to 31% and 22% (respectively) of Covid-19-negative matched controls[21]. Levels of C-reactive protein (a peripheral inflammatory indicator) correlated positively with depression score, linking the infection with the psychological distress. In the longer term, a second wave of psychological morbidity due to Covid-19 might also emerge, as was observed in the aftermath of previous epidemics and pandemics.

Covid-19 infection affects mental health immediately (e.g. depression, anxiety) and will also likely affect mental health in the longer term, especially among those hospitalised (e.g. post-traumatic stress, post-viral syndromes). The best way to prevent the negative mental health effects of Covid-19 infection is by preventing infection in the first place, through public health measures. For those who are infected and hospitalised, liaison psychiatry services are vital for providing care as inpatients; multi-disciplinary follow-up clinics at hospitals are needed after discharge; and primary care and secondary mental health services are needed for management of longer-term psychiatric consequences among all groups (children, adults, older adults, people with intellectual disabilities and others)[22].

Effect of mental illness on the distribution of Covid-19 in the population

In addition to Covid-19 contributing to psychological distress and mental illness, it is now clear that pre-existing mental illness also affects the pattern and distribution of Covid-19 across populations. In the United States, the odds of infection with Covid-19 are over seven times greater in people with depression or schizophrenia compared to the general population, even after adjusting for age, gender, ethnicity and medical comorbidities (cancers, cardiovascular diseases, type 2 diabetes, obesity, chronic kidney diseases, chronic obstructive pulmonary disease, asthma, and substance use disorders)[23].

There is every reason to believe that this is also the case in Ireland. In 2019, the Inspector of Mental Health Services, Dr Susan Finnerty, reported that "patients with serious mental illness experience reduced access to health care either through delayed presentation, reduced uptake of health screening and preventive care, difficulty coping with the demands of monitoring and treatment, or misattribution of symptoms" (p.5)[24]. Reduced access to public health advice is, clearly, a very specific problem during the current pandemic.

Overall, it is clear that people with mental illness are at increased risk of contracting Covid-19. In light of this, community mental health teams need to be strengthened in order to give people with severe mental illness improved access to public health advice. There are also calls to prioritise Covid-19 vaccination for people with severe mental illness in order to both meet their health needs and help prevent further spread of Covid-19 in the general population[25].

To conclude, it is clear that protecting mental health is crucial during this period. It is also worth noting that Covid-19 is likely to have other effects on mental health owing to increased rates of domestic violence during the pandemic, altered patterns of alcohol and substance misuse, and various other factors. The full extent of these trends will only become apparent in time.

Conflicts of Interest Declaration:
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Providing Medical Education in a Pandemic: A Personal Experience

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Abstract

The COVID-19 pandemic has challenged our traditional methods of delivering medical education. The face-to-face model of didactic lectures, small group tutorials and bedside teaching were forced to cease to follow public health guidelines in order to prevent the transmission of the virus. This forced an almost overnight transition to virtual learning. This meant that many educators had to rapidly upskill. This has generated a number of technological and non-technological challenges for educators. This is a personal account of my experience as an educator in transitioning to a virtual teaching platform and the personal challenges I encountered.

The COVID-19 pandemic has challenged our traditional methods of delivering medical education. The face-to-face model of didactic lectures [1], small group tutorials and bedside teaching were forced to cease to follow public health guidelines in order to prevent the transmission of the virus [1]. The "unprecedented challenges"[2] posed by the pandemic to medical education included an almost overnight transition to virtual learning[3]. Virtual learning refers to the use of digital platforms for example Microsoft Teams ™ (Microsoft Corporation, Redmond, Washington, USA), Zoom™ (Zoom Video Communications Inc., San Jose, CA, USA) and Collaborate Ultra ™ (Blackboard Inc., Washington D.C. USA) that enable the synchronous and asynchronous delivery[4] of lecture and tutorial material to students. Some of the platforms for example Zoom™ provide a visual medium for the delivery of educational material, a participant or moderator can share their screen if they have prepared material for example a lecture and it has an additional chat function for discussion and questions. Other platforms for example Collaborate Ultra ™ have the additional benefits of extra interactive functions like break-out rooms, polls and multiple-choice questions as well as interactive whiteboards. The platforms have the benefit of enabling recording of sessions if students wish to listen back to the material presented. For me as an educator the shift to virtual teaching was exciting but also a daunting experience.

Like so many other medical educators I had to "rapidly upskill"[4] in the provision and delivery of virtual education. This has generated a number of technological and non-technological challenges.

Prior to the pandemic some medical schools across the world had already established "initiatives for digital transformation…into e-Learning platforms"[5] in particular in Singapore and Canada in response to the SARS (2003)[6] pandemic. However in my institution face-to-face teaching was the norm and it is recognised that embracing any new digital platform is often a challenge for "both first –time users and seasoned users"[7]. In order to quickly improve my skills, I undertook a number of 'how-to' webinars provided by the School of Medicine as well as attending virtual group meetings with other clinical tutors and clinical leads. This helped me to navigate the various available platforms including how to set up and record lectures, how to upload pre-lecture material, how to share screens and upload files etc.

Initial technical issues were inevitable and have been cited by numerous papers [1, 4]. One example was when I first trialled Microsoft Teams™ with one small group. Unfortunately, the microphone on one of the student's laptops was not working consistently and as a result my planned session of quick-fire short cases became rather start-stop and was quite a frustrating and unsatisfactory teaching experience for both the students and I. Another example was a failed attempt at sharing my screen on Collaborate Ultra™. It was my first time using the platform and I had not set aside sufficient time before the session to familiarise myself with the share-screen toolbar. I found that it was difficult to engage the students after this as it was understandably time-wasting and inadequate. In order to mitigate these technical issues, I now set up sessions fifteen minutes before a session is due to start. This enables me to upload files and trial sharing my screen.

Another challenge was adapting my already prepared lecture/tutorial material for a virtual audience. This was very time-consuming but by incorporating interactive and engaging resources for examples polls, multiple choice questions and break-out groups I felt it maintained the students' engagement. It is suggested in the literature[8] that along with taking attendance, interactive activities [9] during lectures promotes students' interest and engagement and "fosters participation" [1].

As the weeks have continued since transitioning to a virtual classroom, I have personally found the students engaging more in comparison to the initial period of transition. I would go further to say that they have engaged even more so than face-to-face teaching. Kanneganti et al.[9] surveyed students on a continuing medical education (CME) virtual programme that was rolled out and feedback suggested the students felt more comfortable asking questions for a number of reasons including reduced fear of public speaking and a perceived reduction in feelings of intimidation compared to the physical classroom. Torda[4] suggests that the virtual classroom has a number of additional benefits including convenience and comfort. In fact it was observed [10] that attendance improved with the increased flexibility and convenience of virtual classrooms. Indeed it may well be that in the post-Covid era (whatever and however that will look like!) the virtual learning platform will be incorporated into medical education infrastructure[1, 4, 9] in particular for pre-clinical education.

Other issues I have encountered included adapting to the working from home environment which included minimising interruptions. Almarzooq et al.[1] suggest that participants should be advised to mute their microphones to reduce unintended interruptions, to video-highlight the speaker and to

advise participants to adjust their background to maximise privacy. One situation which I encountered at the start of my online teaching was when my two –year old son bolted into a teaching session while my husband raced after him apologetically and scooped him up and out the door. Despite the light reprieve that it probably gave the group it was embarrassing. Although I apologised profusely, I felt this unintended interruption was unprofessional on my behalf. Using a generic background has now become part of my routine during virtual sessions to maximise my privacy. Atreya et al (2020) acknowledge that for some participants it may be difficult to find a private space to watch and interact in virtual teaching if other family members are at home. This has become increasingly prevalent with people being advised to work from home where possible or if they are forced to self-isolate with Covid symptoms. Recording sessions is one method to overcome this [1, 8, 9]. In fact this may be another reason to incorporate virtual platforms into medical education in the post pandemic era to facilitate teaching for students who are absent on sick, parental, maternity or paternity leave [1].

The transition to virtual teaching during the Covid-19 pandemic has posed a number of challenges for me as an educator. Numerous papers have described the transition to virtual platforms as well as new, interesting and dynamic teaching activities. A recent systematic review of developments in medical education in response to the pandemic [11] however detailed a paucity of vigorous evaluation. It discussed the need for "robust evaluation"[11] to underpin high quality developments in medical education research. In order to understand if the changes I have made to address these challenges are working or are indeed adequate, the next step is for evaluation. I have commenced a quality improvement project, and this will in turn allow me to reflect on the effectiveness of the changes I have implemented and above all if it will be of benefit to continue post pandemic.

Declaration of Conflicts of Interest:
The author has no conflict of interest to declare.

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The Establishment of the Irish Trainee Emergency Research Network (ITERN)

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Introduction

It is well understood that research is a core part of Emergency Medicine (EM) training and the continuous professional development (CPD) of all doctors. Through a solid grounding in research, EM doctors can both contribute to, and remain up to date with, evidence-based practice [1]. Research involvement during training is likely to promote future research engagement as consultants, and professional medical bodies view research as an important component of maintaining professional competence [2]. However, time constraints, a lack of expertise in research methods and constant movement of trainees between sites can make it difficult to undertake high quality research during training [1, 3]. Additionally, if research is undertaken in single centres, it can result in studies with limited patient numbers, lack of generalisability and the introduction of biases [1, 4]. In Ireland, it is generally accepted that most specialities require a higher degree or certainly evidence of involvement and experience in research projects to progress into advanced specialty training. For some however, it may be perceived as a means to an end, with some not truly benefitting from it, or maintaining an active meaningful research interest into their consultant career [1].

To overcome these obstacles in the UK and Ireland, multiple trainee research groups have been established which consist of groups of trainees with an interest in research. These groups are led primarily by other trainees, with guidance provided by consultants and relevant training bodies [3, 4]. These collaborations allow for multi-site research, larger study numbers, shorter data collection periods, more generalizable studies and aim to improve patient care [1]. It gives trainees an accessible way to become involved in research providing the infrastructure for trainees to turn local small audits into national multi-site research projects [5]. From an Irish perspective, the Irish Surgical Research Collaborative published a prospective cohort study in 2019 on perioperative fluid management, which managed to enrol 94 patients from 17 sites over 3 weeks [6]. This study provided a national service evaluation, and the data was largely collated by trainees, under the supervision of surgical consultants.

This is proof of the success and benefit of an Irish specialty research group, addressing a knowledge gap through a robust methodology; similar projects have been successfully completed by research groups in the UK over the last decade [7]. In 2018 the Trainee Emergency Research Network (TERN) was established to improve access for research opportunities and to demystify the process of clinical research in the UK. To date this group has completed a 22 site service evaluation, the HED-1 study (Headache in the Emergency Department); co-ordinated the UK HEAD study, an international collaboration in 7 UK sites, which collected data on the epidemiology of headache and finally the TIRED study (Trainee-led evaluation of the need for inter-shift recovery among emergency department doctors in the United Kingdom and Ireland), a 112 site ED study collecting over 4500 responses.

To address the lack of a similar collaboration in EM in Ireland, we have created the Irish Trainee Emergency Research Network (ITERN). We aim to promote and facilitate collaborative, trainee-led research within EM in Ireland, and to drive research projects that could potentially change practice for emergency departments (EDs) in Ireland. The purpose of this paper is to describe the inception of ITERN, present our current projects, and discuss plans for future collaborative research.

Methods

The purpose of ITERN is to provide a central platform for research co-ordination that can be easily accessed by EM trainees in Ireland. At the beginning, a network committee was established consisting of a network lead, project coordinator, a social media coordinator and a supervising consultant. Trainees were invited to bring project ideas to the committee, which were screened, and a suitable project was selected. The committee then works to help with the delivery of the project nationally. The individual roles of the network are explained below. The network is supported by TERN UK through shared resources, collaborative projects and financial grants. The network is also supported by the IAEM Research and Academic Committee providing governance and oversight for research projects to date.

Network Lead

The network lead is responsible for the overall running of the research network. This person also assists with the delivery of the individual projects but primarily concentrates on the acquisition of new projects, recruitment and liaising with the Irish Association of Emergency Medicine (IAEM) to benefit from the collective Emergency Medicine research expertise and experience, maximise the value and impact of the research and facilitate the performance of the research in EDs in Ireland.

Project Coordinator

This individual is a member of the ITERN committee and is responsible for communication and coordination between sites, providing project updates and facilitating troubleshooting if issues are encountered in an individual site. This person will liaise with the project lead on a regular basis to ensure successful completion of the study.

Project Lead

This is the EM clinician that has brought the project to the network, will have formulated a study protocol and have gained local consultant approval for the study design. This individual should have obtained ethical approval for the study. Following completion of the project, the project lead will collate and analyse the data and begin the submission process for peer-reviewed publication. ITERN can provide statistical support for projects should this be required by the study lead.

Site Lead

This is an EM trainee that has volunteered to participate in a study and collect data in their ED. They should inform the local research and ethics committee and EM consultants to ensure the study complies with local guidelines. They should then disseminate the study methodology to their department and begin data collection. Following the completion of data collection, this individual will be able to analyse the local data when compared to the overall numbers, and potentially implement change and quality improvement in their own ED.

Authorship

Clear authorship policies are of vital importance when undertaking collaborative research [1, 4]. Publications by research networks to date have incorporated a group authorship model, whereby all contributing collaborators are included in the article text and searchable via Medline [8, 9].This model of authorship is based on recommendations made by the International Committee of Medical Journal Editors [10].

Work to Date

There are two projects currently being facilitated by ITERN, and it is anticipated that they will be submitted for peer review publication in the future. ITERN has successfully recruited site leads for each of these projects and disseminated through the network to Irish EDs.

The first project is the National Emergency Resuscitation Airway Audit (NERAA) which aims to prospectively analyse current RSI and intubation practices in Irish EDs. We have 15 sites recruited and data collection is ongoing. This project is in conjunction with the establishment of an Emergency Medicine Airway Registry Audit (EMARI) and it is hoped that NERAA will provide initial data for the registry and gain feedback from site leads regarding the usability of the data collection tool.

The second project is the Covid-19 Emergency Response Assessment (CERA) and is being performed in collaboration with our colleagues in TERN in the UK. This study aims to understand the psychological impact of the Covid-19 pandemic on doctors, during the acceleration, peak and deceleration of the COVID-19 pandemic wave. This will be conducted via 3 surveys, the first of which has been disseminated in March 2020 via ITERN. There were over 500 responses to the survey in just over a week. This study has been performed in conjunction with the College of Anaesthesiology Ireland (CAI).

Future Plans

NERAA has been led primarily by members of ITERN to allow the network launch and CERA has allowed us to further "test" the network and demonstrate its feasibility as a vector for multi-site data collection. It is anticipated these two studies will increase visibility of ITERN amongst EM trainees and result in an increase in engagement in future projects. The current ITERN committee have set a robust and achievable plan for growth over the coming years. This focuses on increasing the size of the central ITERN committee through the transitioning of site leads into committee roles. It aims to empower data collectors to take up site lead roles and encourage trainees who become consultants to become ITERN supervisors.

Summary

The Irish Trainee Emergency Research Network has been established by trainees, for the development of research opportunities for EM trainees in Ireland and to produce practice changing research. We hope that this network provides the platform for trainees to become engaged in research practices and that ITERN can support, guide and drive the development of evidence-based practice amongst EM trainees in Ireland.

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Adjunctive Everolimus Therapy in Tuberous Sclerosis-Associated Refractory Epilepsy

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Abstract

Presentation:
In this article we are reporting the beneficial impact of everolimus treatment on the renal & CNS manifestations of TSC.

Diagnosis
The patient diagnosed with refractory seizure associated with tuberous sclerosis.

Treatment
The patient was treated with everolimus, and he was commenced at a dose of 10 mg daily.

Conclusion
This report shows that everolimus treatment for three years of refractory seizures in patients with TSC, can lead to a clinically meaningful reduction in seizure frequency. Compared with other anti-epileptic medications, everolimus demonstrated additional benefits in reducing Subependymal giant cell astrocytoma (SEGA) and renal angiomyolipoma volume. At the time of preparation of this report, the patient continue treatment with daily everolimus without adverse events.

Introduction

Tuberous sclerosis complex (TSC) is a multisystem autosomal dominant uncommon genetic disorder that affects many organ systems.TSC patients most often present with neurologic symptoms, with approximately ninety percent (90%)of affected individuals experiencing seizures.[1]

There have been a number of recent studies describing the long-term use of everolimus (mTOR inhibitor) for management of refractory seizure and renal angiomyolipoma associated with tuberous sclerosis.[2]

Many seizure types can be seen in individuals with tuberous sclerosis, including tonic, tonic-clonic, myoclonic, and atypical absence.[3] The seizures are often refractory to the medical therapies.[4] Renal manifestations are the second most common findings associated with TSC, with angiomyolipomas occurring in eighty percent (80%).[5]

TSC is caused by mutations in the TSC1 and/or TSC2 genes which regulate mTOR, a key molecular control in cell proliferation and differentiation. Thus, mutations at the *TSC1* and *TSC2* loci may result in loss of control of cell growth and cell division, and therefore a predisposition to tumour formation.[6]

In recent years, mTOR inhibitors have been approved by the US Food and Drug Administration (FDA) and European Medicines Agency (EMA) for treatment of Subependymal giant cell astrocytoma (SEGA), renal angiomyolipomata, and lymphangioleiomyomatosis (LAM) in patients with TSC.[7]

Here we report the beneficial impact of everolimus treatment on the manifestations of TSC in a thirty 31-year-old patient with refractory epilepsy.

Case report

In June 2003, a male patient was referred to the epilepsy service in Beaumont Hospital for management of intractable generalized epilepsy associated with TSC. He had initially presented with infantile spasms at three months of age. Over the years, he has been treated with different regimes of standard antiepileptic drugs (AEDs).

His seizure pattern included clusters of two to three seizures daily, consisting of tonic posturing, tonic falls, and generalized tonic-clonic seizures. His Renal screening with ultrasound and CT revealed multiple angiomyolipomata (AML) in both kidneys. Initial MRI brain showed multiple cortical tubers, and multiple subependymal nodules.

The patient had been evaluated in the epilepsy monitoring unit (EMU) and findings were consistent with multifocal onset of seizures. Despite extensive multiple combinations of different AEDs, the patient remained refractory. Based on his video EEG findings, it was determined that focal resection was not an option. In view of his systemic involvement, treatment-refractory seizures and following a discussion with his family, it was decided that he might benefit from treatment with everolimus, and this was commenced at a dose of 10 mg daily.

At three years of follow-up, the patient is maintained on everolimus, with excellent tolerability. There has been a significant improvement in the number of disabling seizures. His parents report no admissions to hospital, his need for rescue benzodiazepine therapy has decreased. Follow up renal imaging has showed reduction in the size of renal tumors (Figure 1). There has also been a reduction in subependymal nodules.

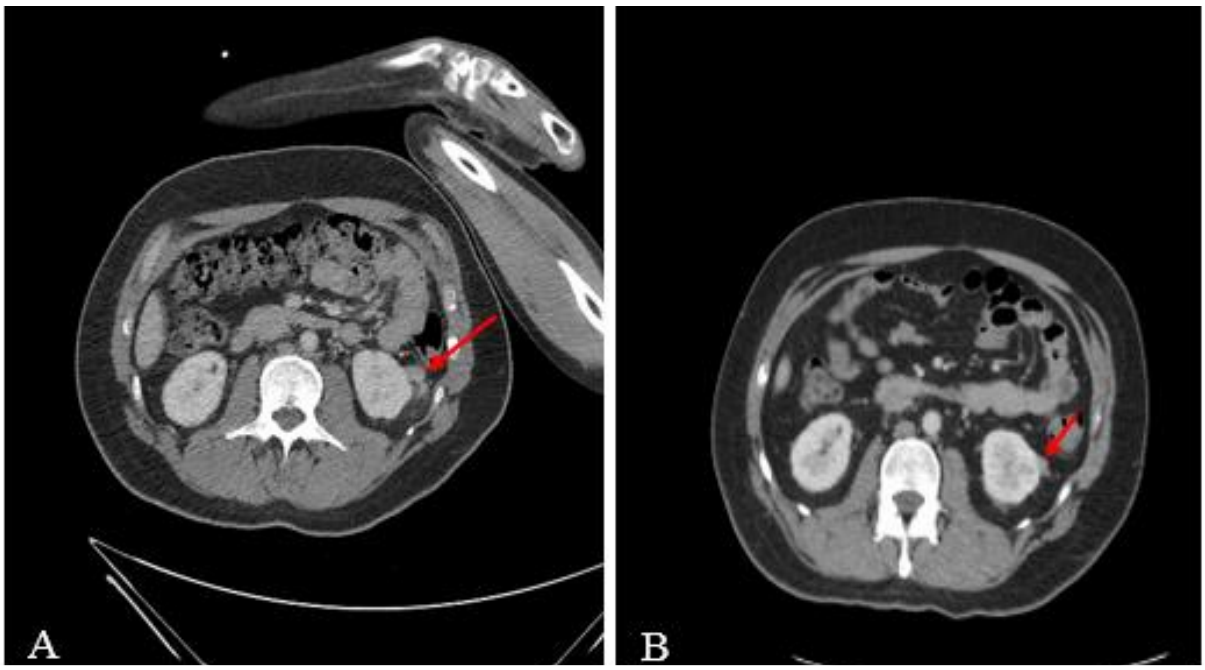

Figure 1: Renal CT performed in 2014 (pre-treatment) shows an angiomyolipoma measuring 2.2 cm arising from the lower pole of the left kidney (A). Follow up renal CT (36 months post treatment) shows a decrease in size of the same lesion to 1.2 cm (B).

Discussion

Tuberous sclerosis complex is an autosomal dominant genetic disorder with an incidence of approximately 1 in 5000 to 10,000 live births. It is caused by a mutation in either the TSC1 or the TSC2 gene.[8] TSC1 gene encodes the protein, hamartin, which is widely expressed in normal tissues. Hamartin forms a complex with the tuberin protein which is encoded by the TSC2 gene. Hamartin and tuberin are involved in the control of cell growth and cell division through inhibition of cellular signalling mediated by the mechanistic target of rapamycin (mTOR). Understanding the role of hamartin-tuberin complex in mTOR signalling has led to the development of the mTOR inhibitor everolimus, a novel precision therapy for patients with TSC.

Several clinical studies have reported the benefits of oral everolimus in reducing SEGA and renal angiomyolipoma volume. The EXIST-3 trial was a prospective, randomised, multicentre, double-blind, placebo-controlled, phase 3 study evaluated the efficacy and safety of two dosing regimens of adjunctive everolimus compared with placebo in patients with tuberous sclerosis complex and treatment-resistant focal epilepsy.[9] The findings from EXIST-3 provide evidence that everolimus is an effective treatment option as adjuvant therapy for children and adults with treatment-resistant epilepsy.

In conclusion, this case report shows that everolimus treatment of mixed-type seizures in patients with TSC, despite the high baseline burden of seizures, can lead to a clinically meaningful reduction in seizure frequency. Reports suggesting that long term use of everolimus with median treatment of nearly three years have not revealed any additional safety concerns.

Declaration of Conflicts of Interest:
The authors have no conflicts of interest to declare.

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Subcutaneous Emphysema and Pneumomediastinum

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Abstract

Presentation

A 23-year-old male self-presented to the emergency department with complaints of dyspnoea, chest pain, neck swelling and forceful vomiting following alcohol consumption and intranasal cocaine insufflation.

Diagnosis

Chest x-ray and computed tomography of the thorax showed extensive subcutaneous emphysema and a pneumomediastinum.

Treatment

The patient was treated with nasal oxygen therapy and analgesia.

Conclusion

With the rise of cocaine abuse in Ireland, this rare complication should be considered in patients who present with chest pain following cocaine inhalation.

Introduction

The latest drug treatment figures from the Health Research Board (HRB) show a 50% increase in the number of cases presenting for cocaine treatment between 2017 and 2018. The number of cases treated for cocaine abuse has increased year-on-year from 2013 (708 cases) to 2018 (2,254 cases).[1] Unusual sequelae of cocaine abuse that must be recognised early include pneumomediastinum, pneumorrhachis and subcutaneous emphysema. We present a unique case of cocaine abuse that posed a diagnostic and therapeutic challenge.

Case Report

A 23-year-old male self-presented to the emergency department with complaints of dyspnoea, chest pain, neck swelling and forceful vomiting following alcohol consumption and intranasal cocaine insufflation. He was haemodynamically stable at presentation. He had no past medical history, no recent travel, trauma or surgery. He smoked cannabis regularly and had a history of occasional cocaine use prior to this presentation.

On physical examination, subcutaneous emphysema was palpable in the neck and chest. He was Hamman's sign positive. Examination of his throat revealed no evidence of airway obstruction, and he was conversing normally throughout the physical examination.

Electrocardiogram demonstrated sinus tachycardia. Chest x-ray (Image 1) showed extensive subcutaneous emphysema and a pneumomediastinum. Computed tomography (CT) of the thorax with oral contrast administration, (Image 2) confirmed the X-ray findings.

He was admitted under the surgical team for further investigations. He was managed conservatively and kept overnight for observations. He was treated with nasal oxygen therapy and analgesia. Subsequent gastrografin swallow revealed no evidence of oesophageal rupture or perforation. An oesophago-gastroduodenoscopy was not performed given the findings from the CT and gastrografin swallow. The patient's condition remained stable and he tolerated oral intake. The patient declined addiction psychiatry review. He was discharged the following day with lifestyle advice and education. The radiology department recommended a repeat chest X-ray 6 weeks post-discharge, which demonstrated resolution of the pneumomediastinum and subcutaneous emphysema.

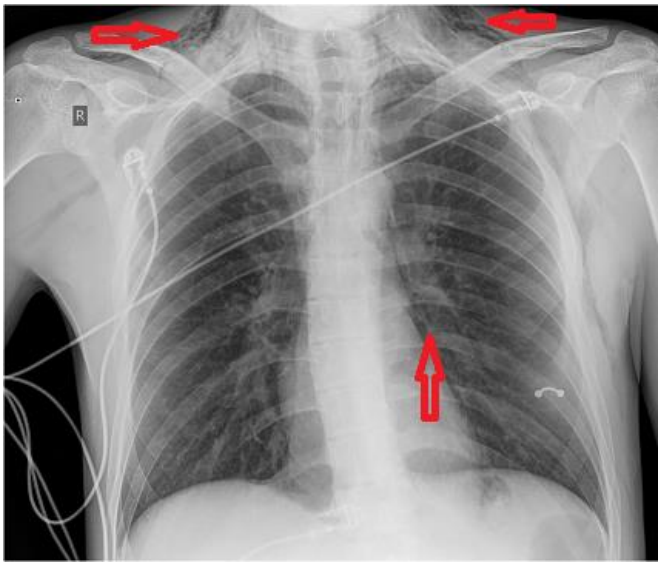

Image 1: Chest X-Ray – extensive subcutaneous emphysema and pneumomediastinum. No pneumothorax.

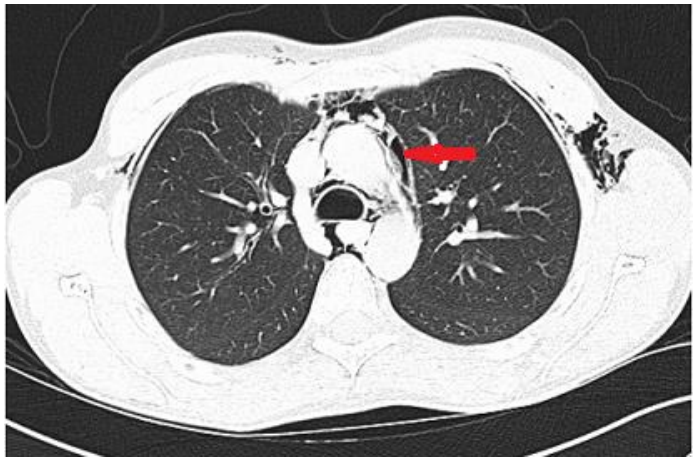

Image 2: Computed tomography of the thorax showing subcutaneous emphysema and pneumomediastinum (red arrow).

Discussion

Spontaneous pneumomediastinum is uncommon and has traditionally been considered a benign, self-limiting entity that can occur in young adults without any pre-existing medical conditions.[2] Subcutaneous emphysema and pneumomediastinum are usually caused by oesophageal or chest trauma. Iatrogenic aetiology has been reported in cases of assisted ventilation and medical or dental procedures. Spontaneous aetiology can occur with emesis, coughing, forceful straining, such as childbirth or exercise.[3]

Widespread abuse of cocaine has led to an increase in the frequency of ED visits worldwide. The most common complaint voiced by patients is chest pain.[4] Recent literature has reported that frequent consumption of cocaine is considered to be a pre-disposing factor for the development of spontaneous pneumomediastinum due to its toxic effect on the alveolar membranes.[5]

There are several possible mechanisms hypothesised behind the development of subcutaneous emphysema and pneumomediastinum, however alveolar rupture secondary to an abrupt increase in alveolar pressure due to bronchoconstriction combined with the Valsalva manoeuvre is most commonly implicated.[6] The sudden increase in the intra-alveolar pressure leads to dissection of air along the bronchovascular planes, subsequently leading to air in the pulmonary interstitium and the mediastinal and pericardial cavity.[7]

The majority of cases reported in the literature have been reported to resolve spontaneously with conservative management, consistent with our case above.[8-10] However, each case should be managed with guidance from the history, physical examination, vital signs, investigations and clinical judgement from the treating physician. It is important for physicians working in the acute setting to be aware of this phenomenon and to consider it during initial assessment and investigation to ensure appropriate management, in a timely manner. With the rise of cocaine abuse in Ireland, this rare complication should be considered in patients who present with chest pain following cocaine inhalation.

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The authors have no conflicts of interest to declare.

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Baclofen Toxicity: A Mimic of Brain Stem Death

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Abstract

Presentation
A 46-year old female presented to the emergency department when her partner awoke to find her seizing. Initially she was spontaneously ventilating with reactive pupils and a Glasgow Coma Scale (GCS) of 3 but five hours after presentation her pupils became unreactive and spontaneous respiratory effort ceased.

Diagnosis
A presumptive diagnosis of baclofen toxicity was made when her partner found empty baclofen packets at home. This was further supported when baclofen levels confirmed a toxic level. All other investigations were normal.

Treatment
No antidote is available so supportive management was continued with intubation for airway protection and management of hypertension

Discussion
The number of presentations of baclofen exposures are increasing worldwide. It should be considered in any suspected overdose who develops signs consistent with brainstem death.

Introduction

We describe a case of a 46-year-old female who, following a baclofen overdose, had signs consistent with brain stem death. Baclofen is a synthetic derivative of gamma-aminobutyric acid which at toxic levels can mimic brainstem death. Patients with baclofen toxicity have been incorrectly diagnosed with brainstem death in the past but have made a full neurological recovery after allowing an extended time for clearance of baclofen[1].

Case Report

A 46-year-old female presented to the emergency department after her partner awoke to find her seizing in bed. She presented with a GCS of three, reactive pupils, hypertensive and spontaneously breathing; tolerating an oropharyngeal airway and a C circuit. Her partner had last seen her awake and intoxicated eight hours prior to the seizure. Her past medical history included depression, alcohol dependency but no history of seizures. Clinically there was a strong suspicion of an overdose.

The decision was made to intubate due to her low GCS. Five hours after her initial presentation her pupils became fixed. On examination, she was making no respiratory effort, had an absent cough and gag reflex and was unreactive to painful stimulus despite sedation hold. She remained hypertensive with systolic blood pressure >180mmHg on propofol infusion of 200mg/hour.

Serial radiological brain imaging over the first six hours of her admission revealed no acute abnormality. Toxicology screen was positive for opioids, but this was ascribed to opioids administered at the time of intubation. Baseline haematological and biochemical investigations were within normal limits.

Her husband returned home and found an empty packet of baclofen which had been prescribed previously for alcohol withdrawal. A baclofen level, taken 16 hours after she was last seen awake (the time of her presumptive overdose), was 1.78mg/L (therapeutic range 0.08-0.6mg/L). Supportive management was continued with the presumptive diagnosis of baclofen toxicity. Dialysis was considered but, given her normal eGFR and urine output, it was felt this would not significantly increase the clearance of baclofen. Her pupils became reactive seven hours later. She was successfully extubated on day 4 of admission. On discharge from hospital she required no medical follow up.

Discussion

Baclofen at therapeutic levels acts on spinal GABAb receptors. In overdose selectivity is lost and GABA receptors in the brain are targeted causing seizures, coma and mimicking brainstem death. Indications include muscle spasticity from MS or spinal cord lesions. Off label uses include alcohol abstinence [3], hiccups and trigeminal neuralgia. Baclofen is 15% metabolised by the liver but otherwise excreted unchanged by the kidneys. Peak serum effect is 2 hours post ingestion. It has a half-life of 3-4 hours [4] but this can be prolonged in toxic doses [7]. The baclofen level taken in this case was 16 hours post ingestion likely significantly underestimating the highest level.

Toxicity can present with CNS and respiratory depression, cardiac arrhythmias and haemodynamic instability. Initial treatment is supportive with early intubation for CNS or respiratory depression and benzodiazepines for seizure activity. Dialysis should be considered in cases of renal impairment.

Risk assessment is important as doses >200mg can cause severe toxicity within two hours of ingestion [2]. Investigations for polypharmacy overdose should be performed. Decontamination with activated charcoal is reasonable if the patient presents within 2 hours of ingestion. There are no antidotes available.

Baclofen toxicity is increasing worldwide. Exposures reported to poison centres in Australia and the USA are increasing [5,6]. A high index of suspicion is required for diagnosis but with supportive treatment outcomes are good [7].

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No author listed has any conflicts of interest.

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Self Proning in COVID-19; A Physician's Experience

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Abstract

Presentation
We report the effects of self-proning in a 23-year-old anaesthesia trainee with severe respiratory failure, focusing on his subjective experience of symptoms, as a patient, physician and as an author of this paper.

Diagnosis
The patient presented with severe respiratory failure in the midst of the COVID-19 pandemic and subsequently tested positive for COVID IgG and IgM antibodies.

Treatment
Our patient was electively proned in the 'swimmers' position, one arm at his side and the other extended above his head. This position was assumed while awake and self-ventilating

Conclusion
This resulted in an improvement in his arterial blood gas (ABG) results, subjective improvement of symptoms and obviated him from requiring intubation and mechanical ventilation.

Introduction

The patient presented to our emergency department with a 4-day history of pyrexia, nausea, vomiting, diarrhoea and a dry cough. The previous week, he had been working in a dedicated COVID-19 ICU. He had no background medical history or recent travel.

Case report

On admission, he was tachycardic (HR 123), tachypnoeic (RR 27) and pyrexial (temperature 39.7C). His oxygen saturation was 98% on room air. Physical examination was unremarkable. His electrocardiogram (ECG) showed widespread T-wave inversion. He was lymphopenic ($0.41x10^9$ L^{-1}) and had elevated C-reactive protein levels of 124.9mg L^{-1}. Although a throat swab was negative for COVID-19 he was diagnosed on clinical grounds and treated as per local protocol.

On day 3 of his admission he described the sudden onset of dyspnoea associated with pleuritic chest pain. A decline in oxygen saturation was documented and supplemental high flow O2 was commenced. He had decreased air entry at the right base and was unable to complete full sentences. A CT Thorax showed dense right basal consolidation, consistent with a lobar pneumonia. Troponin levels rose, from 136ng L^{-1} on admission to 9634ng L^{-1}. With worsening arterial partial pressure of oxygen (PaO2), and requiring high inspired oxygen concentrations (FiO2), he was transferred to Intensive Care.

On admission to ICU, a trial of self-proning was suggested. The patient was conscious and self-ventilating via high flow nasal Oxygen (Airvo). Within 2 hours he had a remarkable improvement in PaO2 and felt symptomatic relief and lower levels of anxiety. He remained prone for 6 hours but within two hours of returning to the supine position, experienced another decline in his PaO2. He returned to the prone position and improved again over the next few hours. His changes on ABG are summarised in the following table:

	Day 3 Supine	**Day 3 Prone**	**Day 4 Supine**	**Day 4 Prone**
SpO2	83%	98%	95%	100%
FiO2	50%	60%	60%	55%
Resp rate	27	27	32	27
PaO2	6.6kPa	16.7kPa	7.8kPa	26.9kPa
P/F ratio	13.1kPa	28kPa	13.1kPa	48.9kPa
pH	7.49	7.46	7.48	7.44
PCO2	4kPa	4.2kPa	4.2kPa	4.4kPa

Table 1. Clinical parameters and ABG results in supine/prone position.

On day 5, the patient's condition continued to deteriorate. He became more dyspnoeic, hypoxic and hypotensive, requiring inotropic support. Bedside echocardiography showed severe left ventricular ejection fraction (EF) of 20-30%. His COVID-19 antibody tests were positive for IgG and IgM. He underwent frequent changes to the prone position to help oxygenation and comfort. The benefits were sustained throughout the severe stage of the illness.

On day 6 the patient began to improve clinically and symptomatically. Echocardiography showed his EF to be 45-50% and all supports were weaned by day 7. The requirement for prone positioning became less frequent.

Three days later, the patient was discharged home. A month after discharge, he can walk more than a mile comfortably and is returning to work.

Discussion

During the illness, when asked about his symptoms and the effect of proning, the primary benefit noted was amelioration of the cough. This was tolerable for 3-4 hours before stiffness became troublesome and a switch in position was needed.

The patient's main concern during proning was generalised stiffness that set in after a few hours. Repositioning was visibly arduous, taking considerable exertion and recovery time. This challenge was exacerbated by vascular access devices, catheters and monitoring cables.

Unlike proning in an intubated patient, which requires upwards of 6 people to co-ordinate and potentially expose themselves, self proning in this awake patient was done with a single assistant to mind the monitoring cables and catheters as the patient was able to turn himself.

Given his background, the patient was acutely aware of protecting vascular catheters. He also described anxiety about reaching an alarm to call the nurses due to his limited movement once prone. As with Covid-19 patients, contact was being minimised. No pressure areas were injured as he remained conscious and could redistribute his bodyweight throughout the admission. Patient education about the need to protect pressure areas and about frequent self-initiated adjustments to position will help avoid pressure sores in the general population.

Proning is an established technique in intensive care in the management of severe ARDS[2]. It improves arterial oxygenation and reduces posterolateral densities in the lung by shifting the blood supply from the posterior diseased lung to the anterior healthy lung, thus improving the ventilation/perfusion ratio[3]. During the recent viral outbreak of SARS-cov-2, proning has become more common in the intensive care setting[4].

Self proning of awake, non-intubated patients is now being assessed in response to the COVID-19 pandemic[1]. The benefits are not only subjective as described above but also delaying the need for, and potentially avoiding intubation[5] at a time where a surge in disease numbers could result in the need to rationalise ventilators and intensive care beds[6].

Declaration of Conflicts of Interest:
There are no conflicts of interest to declare.

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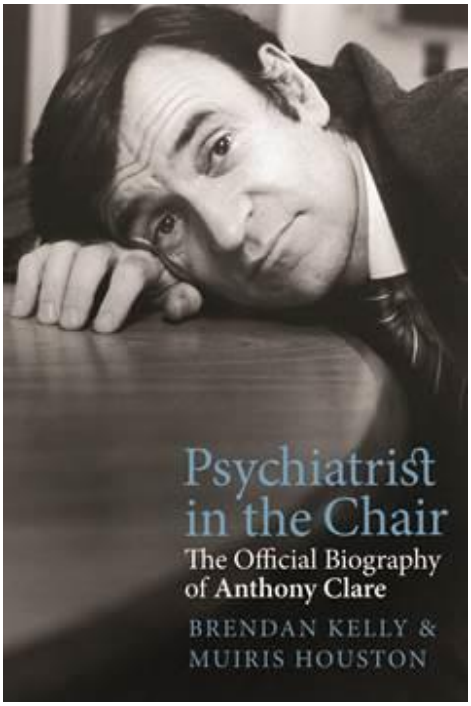
Psychiatrist in the Chair - The Official Biography of Anthony Clare

A book by Brendan Kelly & Muiris Houston

Reviewed by Aidan Collins, St Vincent's Hospital, Fairview, Dublin 3.



In its introduction, Kelly and Houston's biography of Anthony Clare is very clear that the book will focus on Clare's professional life, and this is indeed the case. Clare's entire background and life until graduation from medical school in UCD is covered by the first chapter. We are given an account of his childhood in broad strokes only. Questions abound for the reader. What were his family origins before his parents? What was the reasoning behind 'Ward', his second given name? Was he really a ward of court as an infant? What were the exact circumstances of that decision? It struck me that it may have been apocryphal or indeed a family joke around his name 'Clare, A Ward.

I was intrigued with Clare the boy and in particular his apparent attachment to British culture and media. I would have liked more material on this period of his life. The role of the Jesuits in Gonzaga in molding Clare is revealed and I was reminded of James Joyce's remark when the artist Frank Budgen referred to Joyce's religion -"You allude to me as a Catholic. For the sake of precision and to get the correct contour on me, you ought to allude to me as a Jesuit."

This book portrays Clare, the UCD undergraduate, probably correctly, as a bright student with no great attachment to the (dare I write it) oppressive nature of 1960s UCD and Irish society in general. His undergraduate career is not examined in detail.

We learn little about his clinical attachments or experiences and indeed we are not told about his undergraduate psychiatry experience or where it was gained. In the second chapter however, there is an account of an encounter with Norman Moore of St Patrick's Hospital during an RTÉ broadcast which may have been decisive in Clare's choosing psychiatry.

The Observer Mace victory with Patrick Cosgrave in 1964 is given appropriate attention and we are told it may have been when he was happiest. When I attended UCD in the 1980s, that victory was still being talked about in reverential tones in the L&H. Cosgrave, a Finglas man who was in Margaret Thatcher's inner circle at one stage and also the editor of *The Spectator*, was a fascinating figure and I would have liked to know more about the dynamic between them.

This biography really came into its own in the chapters describing Clare's early career in psychiatry and in particular his training at the Maudsley in London. I got an appreciation of the academic atmosphere there in the 1970s and the relationship Clare had with Robin Murray and others. Indeed, Murray's sympathetic descriptions of his friend Clare recur a number of times through the book as do contributions from Ruth Dudley Edwards (who was married to Cosgrave) and James Lucey, Clare's successor as medical director at St Patrick's Hospital in Dublin. Clare, we are told, had a substantial role in advocating for psychiatric trainees while he was in training in London. This interest in the training of psychiatrists continued after his return to Dublin as medical director of St Patrick's Hospital.

The absolute highlight of Clare's professional life (certainly in terms of publication) was the appearance of *Psychiatry in Dissent* in 1976. Clare's wonderful book, its relationship to other important critiques of psychiatry (by Szasz and others) and its impact on a generation of psychiatrists are both well covered and perhaps the publication of this biography may lead to a renewed interest by younger doctors in Clare's most important publication. In Chapter 3 the authors properly summarises that importance as follows:

"*Psychiatry in Dissent* was in many ways, a perfect distillation of the strengths and character of its author; fluent, thoughtful, witty and provocative. It provided a robust riposte to Goffman, Foucault Szasz and Laing, and it restored the credibility of psychiatry in the eyes of the public and, perhaps most of all, in the eyes of psychiatrists themselves."

Clare's media career, of course, also gets considerable attention with his popular radio show *In the Psychiatrist's Chair* being the zenith of this aspect of his professional life. He had a productive relationship with the BBC and became a household name in the UK and arguably the psychiatrist to a nation. With regard to his broadcasting career, this book could have done with contextualising Clare's career at the BBC with that of his Irish colleagues in British broadcasting. From Eamonn Andrews to Graham Norton the softer Irish accents have done well on the UK airwaves, perhaps better than the UK's own regional accents and it is surely the case that his confident, educated but non-threatening south Dublin accent was an integral part of Clare's success in allowing him to place his subjects at ease during his long-running radio programme.

As usual with publications involving Professor Kelly, the accuracy of the detail is near perfect and it has become a challenge to me and others to find fault with the material presented. However, I do think Peter Sutherland might have been amused at his being described as a 'politician'. I also noticed an important omission from Clare's list of publications, a very early one that exemplified his critical mind and his ability to raise hackles. In 1962, when he was a pre-clinical medical student, Clare wrote an article for Trinity's magazine *TCD Miscellany* about the censorship of student activities in UCD. Considering the vehicle he chose for this piece, it reads rather like a letter from Berlin in the 1930s!

In the end I did get great insight into Clare's extraordinary appetite for work and his consequent tendency to overextend himself. His ability to churn out articles is well described, and the authors have included an exhaustive list of his peer-reviewed and non-peer-reviewed articles. The index is first class as are the references which are presented in abundance in the form of endnotes. The pivotal nature of his return to Ireland as medical director of St Patrick's is explored but, perhaps ironically, there is limited examination of Clare's own psychological life. The context of his family life permeates the book with reminiscences from his wife Jane and his children but ultimately Houston and Kelly's book remains focused on Anthony Clare's life as a psychiatrist, broadcaster and author and, in this, it is a substantial and successful addition to the written history of British and Irish psychiatry and indeed, British broadcasting.

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Takotsubo Cardiomyopathy Secondary to Acute Asthma

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Takotsubo Cardiomyopathy (TCM) is an acute reversible cardiomyopathy induced by physical or emotional stress, first described in Japan[1]**.** It is characterised by chest pain, mildly elevated cardiac biomarkers, electrocardiogram (ECG) changes and left ventricular dysfunction with reduced ejection fraction (EF) and morphological changes on echocardiography (ECHO). Acute asthma is a rare precipitant with few cases reported.[2,3]

A seventy-four-year-old woman was admitted with an acute asthma exacerbation due to respiratory syncytial virus (RSV) bronchiolitis. She presented with dyspnoea, wheeze and denied chest pain. Diffuse expiratory wheeze was evident on auscultation. Blood pressure on admission was 150/65, heart rate 123, respiratory rate 22, SpO2 98% on three litres of oxygen, and temperature 36.6. Arterial blood gas (ABG) showed respiratory acidosis with pH 7.1, pCO2 8.11 and pO2 14. Chest radiograph was clear. She responded to intravenous (IV) antibiotics, steroids and nebulised bronchodilators and maintained 95% SpO2 on room air.

Subsequently she developed increasing respiratory distress and desaturated to 70% SpO2 on room air, warranting intubation and ICU admission. Repeat examination revealed bilateral inspiratory crackles up to mid zones. ECG showed sinus tachycardia and old left bundle branch block (LBBB). Cardiac troponin rose from 31 to 111. Repeat chest radiography was consistent with acute pulmonary oedema. Bedside ECHO showed ballooning of the left ventricular apex with no regional wall motion abnormality. IV hydrocortisone, furosemide, dobutamine infusion and empiric antibiotic cover lead to rapid improvement in respiratory and haemodynamic status. Serial portable chest radiographs showed improvement in bilateral airspace opacification and pleural effusions. She was extubated and transferred to the ward for rehabilitation. Departmental ECHO revealed left ventricular septal hypokinesis and apical septal akinesis with normal chamber and wall dimensions. She was discharged at functional baseline with Cardiology follow-up for coronary angiography.

Almost ninety percent of TCM patients are female over the age of 50[4]. Presentations include chest pain, dyspnoea, syncope, arrhythmias, cardiogenic shock, cardiorespiratory arrest or sudden death.[4] ECG shows LBBB, ST elevation, T wave inversion or pathological Q waves.[4] Other signs include bilateral infiltrates on chest radiography and left ventricular dysfunction on ECHO with mean EF of 20-49%[4]**.** Cardiac biomarkers are mildly elevated and normalise sooner than in acute coronary syndrome (ACS).[4] Evidence of no coronary obstructive lesion on coronary angiography definitively differentiates TCM from ACS.[4]

There is no definitive consensus on the mechanism of TCM. It tends to be preceded by stress, which induces endogenous catecholamine release. A systematic review found elevated noradrenaline levels in almost 75% of patients**.**[4]

Treatment in the acute phase is supportive and depends on the ensuing complications, most commonly heart failure with or without acute pulmonary oedema[4]**.** This includes upright posture, oxygen, diuresis, ventilation, intra-aortic balloon pump**,** vasopressor and inotropic support. TCM usually resolves within weeks to months with full recovery and rarely recurrence[4]**.** In-hospital mortality is estimated at 1-3%**.**[4] Left ventricular function may determine the prognosis.[1]

This case demonstrates acute respiratory failure driving acute heart failure. It highlights the importance of early suspicion of TCM and recognition of asthma as a potential driver.

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It Is All About the Sodium

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Dear Editor,

Hypernatremia is a common electrolyte disturbance. However, severe, life threatening hypernatremia is a rare presentation among paediatric population. In contrast to hyponatremia, guidelines regarding treatment and the rate of correction of the high sodium levels is not standardized and is largely opinion based[1]. Hence, there are lot of challenges encountered in the management of severe hypernatremia with choice of intravenous fluid, rate of correction and monitoring for complications.

In our case we describe severe hypernatremic dehydration in 11-year-old autistic male with acute oliguric renal failure caused by impaired thirst drive. He was referred to paediatric Emergency Department (ED) by General Practitioner (GP) with symptoms of upper respiratory viral illness, nausea, fatigue, and decreased fluid intake secondary to fear of vomiting.

Patient's behaviour has significantly changed in the last 24 hours, and he became irritable, intermittently delirious. His gait was ataxic. Vital signs revealed a tachycardia of 146 beats per minute and GCS of 14. Laboratory work confirmed hypernatremic dehydration with levels of serum sodium of 182 mmol/L on venous blood gas and 179 mmol/L on biochemistry laboratory report. His urea was 50.6 mmol/L. Glucose levels were normal. Physical examination revealed sunken eyes, dry mucous membranes, and unsteady gait. Basic blood tests were obtained, and he was commenced on the maintenance intravenous rehydration with Dextrose 5% in 0.9% Sodium Chloride at rate of 82ml/hour. Case was discussed with Nephrology team and we were advised to give 10ml/kg of 0.9% sodium chloride over one hour and then continue 50ml/hr. He has been urgently transferred to Intensive Care Unit (ICU) in tertiary centre for further management. In Paediatric Intensive Care Unit in a tertiary hospital, intravenous fluids were continued over a period of the next 72 hours and gradually sodium and urea improved. Regular bloods were done every 6 hours to monitor the decline rate.

Severe hypernatremia as described in this case is a life-threatening condition with mortality rate of maximum of 15%[2]. Neuronal cell shrinkage can lead to the cortical bridging veins tear, and subsequently cause brain haemorrhage[1]. Therefore, correction of hypernatremia has to be calculated carefully. Rapid correction of serum sodium can potentially lead to osmotic demyelination syndrome[3]. Hence, it is vital to establish whether hypernatremia is acute or chronic before the treatment. Rapid correction is acceptable and indicated if onset of hypernatremia is within the 48 hours. Thus, lowering serum sodium at rate of 10-12 mmol/L per day is advised. On the contrary, chronic hypernatremia has to be corrected slowly and gradually not exceeding the rate of 8-10 mmol/L per day[1]. This case emphasises the challenges in treating an anxious child with autism, sensory processing disorder, and oral aversion for fluids and fear of intravenous interventions.

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Expanding the Role of a Physician's Associate in the Irish Health Service

G.J Nason

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Dear Sir,

Physician associates (PAs) are highly skilled healthcare professionals who provide a broad range of medical services in a wide variety of workplaces (including all types of hospital and surgical care, GP practices and community health services). PAs support doctors and surgeons in the diagnosis and management of patients and are trained to perform several roles, including taking medical histories, performing examinations, making diagnoses and analysing test results. They work under the supervision of a named physician and are an integral part of the health service in many countries. The first cohort of 6 PAs graduated from RCSI in 2018. Despite this, the role of a PA is unknown to many in our health service.

Having just completed a two-year fellowship in Toronto, I saw first-hand the advantage of PAs to a surgical team. The PA is an integral part of the team- they attended clinics, endoscopy, surgery and wards, similar to fellows/residents. Their roles were expanded to running PA only clinics for surveillance, survivorship and depot injections. The PA was a coveted member of the team and often a point of contention regarding allocation of the PA among staff.

The role and volume of PAs in Ireland should be expanded. Currently, the RCSI runs the only Physician Associate Studies program in Ireland while there are almost 40 programs in the UK. There are a mix of undergraduate and postgraduate courses. The RCSI program is a two-year Masters program for students with a health-science or science related primary degree.

Critics to the role of a PA will argue that patients will always want to see their physician and that the role of a PA will negatively impact the experience of a surgical trainee. In an Irish study of 270 patients in both a public and private Dublin hospital, there was a willingness to be seen by a PA. [1] Unlike a surgical trainee who moves every 6-12 months in Ireland, a PA can become a permanent member of the department which improves continuity of care for patients. The presence of a PA in theatre can also increase productivity as they have experience with the surgeon's preferences regarding instruments, set-up, positioning., draping. Any reduction in time for set up can only be beneficial for surgical trainees' exposure. There are also potential to economic advantages to employing a PA in a department from reducing the need for locum cover and improving productivity.

The role of the PA should be further expanded in the Irish healthcare service for the benefit of patients and physicians alike.

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COPD Outreach Team in the COVID-19 Era – "Bringing un petit je ne sais quoi!"

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Sir,

The Irish National Healthcare Quality Reporting System Annual Report 2019 estimated that almost 500,000 people aged 40 years and over in Ireland have COPD, of whom over 200,000 have moderate or severe disease and only half are likely to be diagnosed. These figures were based on the 2011 census. As our population has become larger and older in the interim, it is likely that these figures are even higher today.[1] At Tallaght University Hospital as well as many other centres across the country, the COPD outreach service has shown to reduce length of stay in hospital and improve Quality of life of our COPD patients.[2] However with the emergence of the COVID-19, the timelines of the growing pandemic being uncertain, we noticed that many COPD patients cocooning have a feeling of loneliness.

Retrospectively we analysed the feedback forms of the COPD outreach patients submitted in 2019 and the ones submitted after the start of the COVID-19 pandemic in May 2020. The feedback of 18 COPD patients were analysed. Pre COVID-19 when our COPD outreach team did home visit: 16(89%) patients found the staff friendly; 15(83%) patients found the team interested in their concerns, information given to them and were satisfied of the service. During the COVID-19 pandemic when lockdown rules were introduced, our team continue to keep in touch with the patients via telephone call. The feedback received during the pandemic showed a positive response of at least 10% more in all the above questions previously asked.

Receiving empathy from caregivers—feeling understood and accepted—is critical for patient satisfaction. Empathy is a crucial element that our COPD outreach team felt is important in this difficult period. Although it took longer time than a usual consultation, it served to be an adaptive emotion regulation strategy developed by lonely people to reduce their loneliness effectively. Loneliness is an experience that has been around since the beginning of time. Problems can arise when an experience of loneliness becomes chronic. Studies have shown that loneliness should be addressed in patients with COPD as it could play a significant role in their disease progression.[3]

With cocooning, mobility of COPD patients decreases significantly. Decrease mobility in COPD patients have negative impact on exercise tolerance and quality of life.[4] Furthermore by expressing empathy our COPD outreach team builds patient trust and calms anxiety.

Reflecting on our findings we can only conclude that science alone will not give us the solution for our lonely COPD patients cocooning in this difficult challenging era; humanity needs to play a major contribution to optimise their management.

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Fear of Covid-19 Keeps Emergencies Away

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As with SARS in 2003[1] hospital attendances have fallen during the Covid-19 pandemic, this has been attributed to both fear and accessibility[2,3]. We describe a group of patients, referred by their general practitioner (GP) to the Emergency Department (ED) who did not attend because of fear of infection.

Our tertiary care ED has 70,000 attendances annually. Patients are referred by their GP, others walk in or arrive by ambulance. GPs usually give the patient a letter or use electronic referral, a new service, which began at the start of the pandemic.

Ireland went into lockdown from March 12th, 2020 and our ED attendances fell by 1,795 (33%) in the month of April. We noted ambulatory patients being referred electronically but not attending. From April 30th to May 25th, with hospital Ethics approval, we monitored this.

Seventy-one of 127 patients (55%) referred electronically did not attend. Of these, 58 (82%) were contactable by phone and agreed to a questionnaire survey.

Fifty-one (86%) of the patients said fear of Covid-19 infection was the primary reason for not attending. Other reasons included fear of dying without their family or fear of isolation (both misconceptions, as we do allow hospital visits) and also not wanting to burden the hospital.

Ten patients got better spontaneously, 48 (83%) sought further medical attention. None were aware of any serious on-going problems when phoned. The authors felt that ten patients had a potential threat to life, limb or sight based on the GP letter. One TIA may have been missed. Symptoms were mostly in the respiratory and gastrointestinal systems.

In conclusion, fear of Covid-19 and fear of isolation, led to ED non-attendance during lockdown. Our ED patient attendances figures have been back to normal since July. The improved attendance is likely due to better awareness of GP services and hospital pathways. We will soon see if ED attendances during the second wave of Covid-19 and the subsequent level 5 lockdown will be similar.

Ar scáth a cheile a mhaireann na daoine - sheltered by each other we survive.

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Healthcare Attire in the COVID Era

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Dear Editor,

The spread of SARS-CoV-2 has had major implications on a health, economic and social level in the last number of months. With increased attention to infection control, many clinicians who would have worn traditional attire have opted to don surgical scrub suits in an effort to have another layer of PPE between the hospital environment and the community.

Most of the evidence for clothing being a vector for infection is extrapolated from the potential to cause surgical site infections (SSI). A study published in 2018 demonstrated that SSIs are not related to staff clothing when, following an intervention of stringent infection control criteria, SSIs actually increased and were found to be related, unsurprisingly, to the degree of contamination of the procedure and not to staff attire[1].

Further evidence for the contamination of clothing comes from a randomised cross over trial involving 40 ICU nurses. Contamination was found to be highest on the sleeves and the midriff area. This study also showed that scrubs suits interwoven with anti-microbial fabric did not demonstrate a reduction in microbial growth[2]. There has also been evidence to the contrary. When several health services began suggesting the use of short sleeved garments and to discard the traditional white coat worn by clinicians, a UK study group produced evidence that a white coat and a newly laundered short sleeved garment had the same colony count after approximately 8 hours of wear.

Personal attire is likely to be laundered at home. The Association of Surgical Technologists developed a summary of the evidence available up until 2017 which surmised that (1) while evidence of infection transmission was not available, a theoretical risk existed (2) hospital or third party laundering was superior to home laundering (3) a risk of bio film formation within the drum of a domestic washing machine. Evidence to this effect may point towards a more centralised laundering service for hospital scrubs.

The general consensus would seem to show that physicians prefer more traditional attire. While patients of an older generation seem to prefer the more traditional attire of shirt/blouse and white coat, in contrast a younger cohort of patients show a preference for scrub suits. Although the older generation maintained a more traditional preference, this perception appeared to change when they are made aware of the potential for contaminated garments. Overall one of the most compelling features of the clinicians attire was ease of identification[3].

In the setting of a virulent pandemic it is prudent to take every precaution to prevent transmission to health care workers, particularly those most at risk. With close oropharyngeal /nasopharyngeal contact and many routine medical procedures/investigations now being classified as AGPs, it seems like a logical step to don scrub suits as an extra layer of PPE. This may also be the preferred option by patients considering ease of identification and hygiene are often top of our patient's preferences. The available evidence would also suggest that these are best laundered by a third party or hospital laundry.

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Face Masks - Let Us Not Forget the Patients

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Dear Editor,

The Covid-19 pandemic is challenging both communities and healthcare systems. There is overwhelming scientific support for physical distancing, face masks, eye protection and hand washing [1]. Across the globe, healthcare workers are increasingly wearing masks and respirators at work, with proven benefit [2]. Face masks are almost universally required in most environments.

While great attention has been paid to reducing risk for communities and health care workers, we wondered how patients themselves, admitted to acute hospital wards, fared when it came to use of face masks. Are they escaping rigorous protective measures and, in turn, potentially acting as a source of transmission within hospitals? The patient and the environment around a patient put healthcare workers at risk of contracting and spreading infectious disease [3]. A study published in JAMA demonstrated a significant decline in SARS-CoV-2 infections among community health workers after the addition of face shields to their personal protective equipment [4].

To probe the question of admitted patients and face mask usage we undertook a snapshot, prospective, ethically approved evaluation of a single surgeon's admissions, over a one- week period, to evaluate the use of face masks in admitted patients. The study, at Letterkenny University Hospital from October 11th to 18th 2020 with a single on-call surgeon, evaluated all general surgical admissions. There were 37 admitted general surgical patients, 17/37 (45.9%) underwent emergency surgery, 56% male, median age 44 years (range 2-92) and 8/37 (21.6%) were paediatric patients. Six were not suitable for face mask application, as three were on non-invasive oxygen masks and three were non-compliant due to confusion. Fifteen out of thirty-seven (40.5%) wore masks, of which 66% were surgical masks and 34% cloth face coverings. Improper mask use, not covering either mouth or nose, was noted in 3/15 (20%). All patients had been subjected to screening with Covid-19 antigen testing and one Covid-19 positive patient was not wearing a face mask during their interactions with the hospital staff. An introduction of face shields into the inpatient setting may be of potential benefit for patients and hospital staff who interact with them [4].

This short report identifies the need for stricter precautions for admitted patients who potentially could be either recipients or sources of Covid-19. Patients should be universally required to wear masks or potentially face shields in those with mitigating factors preventing mask application.

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Response Letter to '*Paediatric Day Case Tonsillectomy - Audit of a New Programme'* by Grant et al (Ir Med J; Vol 113; No. 4; P56)

I. O'Riordan, E. Phelan

Children's Health Ireland at Temple Street, Dublin 1.

Dear IMJ,

With regards to the study published in the April 2020 edition, "Paediatric Day Case Tonsillectomy - Audit of a New Programme", O Grant, P Harper. 2020 Apr 3;113(4):56. This study described an audit of the day case tonsillectomy service which was established by the ENT Department in Temple Street Hospital in August 2018. We are writing to clarify the complication rate as quoted in this paper.

This study audited 34-day case tonsillectomy patients over a period of 6 months. From our own data, 74 patients underwent day case tonsillectomy from August 2018-2019. One patient had a primary haemorrhage, 7 patients had a secondary haemorrhage (9.5%) 1 of whom returned to theatre. These numbers are in keeping with international rates of post tonsillectomy haemorrhage rates. The numbers reported in the original study were too low to comment on bleeding rates, and indeed our auditing is ongoing with regards to bleeding rates associated with different surgical techniques.

Of note, there were 2 failed discharges- one due to post-operative nausea and vomiting who was discharged home well the following day. A second child was admitted due to anaesthetic concerns regarding sleep apnoea. The child required no post-operative intervention and was discharged home well the following day. All children in our clinics are screened appropriately before being listed for day case tonsillectomy, specifically regarding OSA.

Temple Street is the only paediatric hospital offering day case tonsillectomy to our knowledge. This has been made possible by collaborative work between ENT, Anaesthetics and Nursing to facilitate a safe and productive patient journey from admission to post-operative care and we commend Dr Grant et al for highlighting this achievement in their paper.

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