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Hepatology, Diagnosis and Clinical Management

Editor: E J Heathcote

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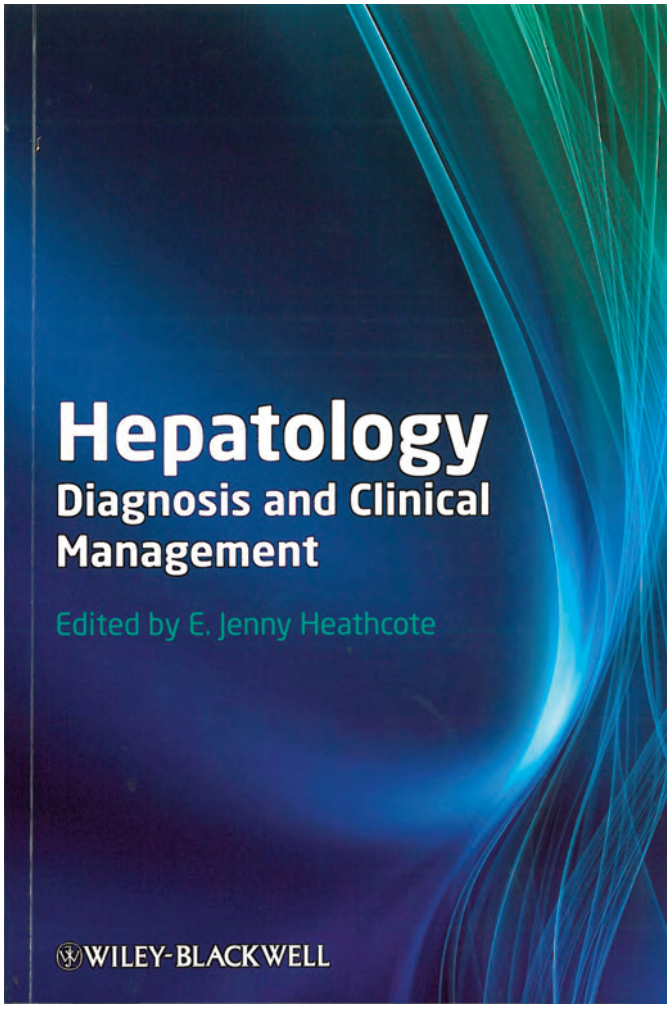
This is a short multi-author clinical textbook of hepatology. It is aimed at physicians who encounter liver disease patients in the emergency room, medical clinics or general medical wards, but who have not received specialist training in hepatology. There is a need for such a textbook as the number of patients with chronic liver disease presenting for medical attention has dramatically increased over the past few decades. This is driven by increasing prevalence of alcoholic liver disease, viral hepatitis, non-alcoholic fatty liver disease and hepatocellular carcinoma. The textbook is edited by Prof Jenny Heathcote who is a very eminent clinical academic with a lifetimes experience dealing with chronic liver disease patients. There are 15 contributers all of whom work in Toronto, Canada, as does Professor Heathcote. The book is well edited and has a unified feeling which is often missing from multi-author text-books. One of its strengths is that it deals with both adult and paediatric hepatology problems, subjects which are usually treated separately. There are a lot of clinical similarities between older children and adults with liver disease and teenagers may present to either adult or paediatric services so this approach is to be welcomed.

The 26 chapters move methodically through the approach to the hepatology patient, the pathophysiology of the common symptoms of liver disease, and its various disease states: viral hepatitis, alchohol and drug-induced liver disease, non-alcoholic fatty liver disease, autoimmune, metabolic conditions and a good number of other comparative rarities. The chapters are characterised by clear, methodical prose which often aims to tell the story of a sequential progression over time. This step-by-step approach extends from describing the pathophysiological basis of a particular disease and its subsequent natural history, to the appropriate sequence of diagnostic testing and subsequent management options. This prose often goes side-by-side with simple diagrams, allowing the reader rapidly to grasp complex processes such as the development of portal hypertension; the explanation of which is one of the the book's key successes. Complex diagnostic criteria and involved lists are kept to one side, simultaneously maintaining the flow of the text and making them easily found for later reference.

Naturally, a book that aims to be concise will have to treat some subjects in less detail than would be desirable. In general, the balance between topics competing for space is well-struck. However, bearing in mind that the one of the book's core focuses is the diagnosis of liver disease, the short final chapter on radiological investigations does seem to give this vital diagnostic area somewhat short shrift. Counterbalancing this, the chapters on the viral hepatitides covered the topic in expert detail without pedantry.



Ultimately, the authors should be congratulated on a book that makes the vast scope of liver disease seem manageable and comprehensible. This is not a book that is destined to become a doorstop, and we would echo the authors of the foreword in saying that it would be a valuable read for any doctor in their first years training who hopes to increase their confidence in dealing with the diseases of this often-mystifying organ.

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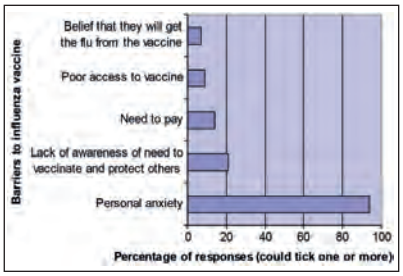
In this Month's IMJ

Preparedness of elderly long-term facilities in HSE East for Influenza outbreaks: O'Connor et al have studied the 'flu vaccine uptake rates in long-care facilities among clients and their staff. A total of 97 units participated. Vaccination rates for residential clients were universally high 75-100%. The barriers were anxiety regarding the vaccine and consent issues. The vaccination among staff was much lower with uptakes of 40% in 43% of facilities. The reasons given were anxiety and lack of awareness of the vaccine's protective effect on the residential clients.



Pedestrian deaths in children – potential for prevention: Hamilton et al report that there were 45 child pedestrian deaths in the 6 years 2006-2011. Over half of the deaths 53% occurred in the 1-4 year old age group. Rollovers mainly in residential driveways accounted for 13 deaths. Evening and summer peaks were also encountered. The use of head-phones and mobile phones are new threats.

Table 2 Circumstances of Traffic and Non-traffic related deaths 2006-2011

	Age Group			
	1-4yrs	5-9yrs	10-16yrs	Total
Traffic:				
Crossing road	0	3	4	7
Getting school bus	0	0	3	3
Dart Out	2	3	2	7
At Play	5	1	0	6
Walking in hard shoulder of motorway	1	0	2	3
Total	8	7	11	26
Non-Traffic:				
Low-speed vehicle rollovers	13	0	0	13
Farm incidents	2	0	2	4
Other	1	0	1	2
Total	16	0	3	19

Day-Case tonsillectomy: practical solution or practical impossibility: Kharytaniuk et al have examined the feasibility of day-case tonsillectomy. They studied the case-notes of 161 patients who underwent tonsillectomy July 2011- August 2012. Only 27% patients were deemed suitable for day-case surgery. Some of the most common reasons for unsuitability were obstructive sleep apnoea and a journey to the hospital of more than 30 mins. The conclusion is that currently there is not sufficient infrastructure in place to deliver day-case tonsillectomy.

Table 1 List of medical and social exclusion criteria. Data in brackets represent patient numbers/percentages

Medical reasons for exclusion	
• Age less than 3 or over 65	(7/4.4)
• ASA grade more than 2	(3/2)
• Weight less than 15kg	(7/4.4)
• Obstructive sleep apnoea	(18/11.2)
• Bleeding disorder	(1/0.6)
• Trisomy 21	(1/0.6)
• Hypertension	(2/1.2)
• Epilepsy	(2/1.2)
• Autism	(1/0.6)
Social reasons for exclusion	
• Journey to hospital more than 30 minutes	(103/64)
• No access to private car	(0)
• No access to private telephone	(0)
• No access to toilet and suitable washing facilities	(0)
• Unavailability of two adults at home	(0)

Is primary prevention of childhood obesity by education at 13-month immunisations feasible and acceptable? Results from a General Practice based pilot study: Doorley et al instituted a programme at the 13 months immunisation- it consisted of weight measurements and a dietary history and dietary advice. The intervention was helpful. There was an increase in fruit/vegetable consumption, a reduction in TV watching, and more supervised exercise.

Table 2 Results of Toddler Healthy Lifestyle Survey

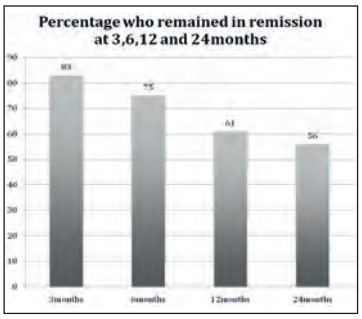
Lifestyle Parameter	Baseline	Follow-up	T-test
% Fruit and Veg intake of 4 or more portions	20.5	28.6	1.95*
% Abstinence from unhealthy snacks	15.4	21.4	3.95*
% Sugared Fizzy drink intake	0	3.6	3.86*
% Fruit juice throughout day	41.0	25.0	1.87*
% TV watching over 2 hrs	12.8	0	0.47
% Exercise over 30min/day	69.2	89.3	0.97

Re-attenders to the emergency department of a major urban hospital serving a population of 290,000: Ramasubbu et al define a re-attender as a patient who returns to the ED within 28 days with the same complaint. In this study the re-attendance rate was 13%. There was a higher admission rate at the second attendance 39% compared with a first attendance 17%. The reasons for re-attendance were multi-factorial. A 'difficult case' management programme was effective in reducing ED re-attendances.

Table 2 The outcomes for re-attenders at 1st and 2nd attendance

Outcomes for Re-Attenders	1st Attendance	2nd Attendance	Chi Test
Discharged	130 (56%)	122 (53%)	p=0.45
Admitted	39 (17%)	89 (39%)	P<0.001
LBCT	57 (25%)	17 (7%)	P<0.001
Refused Admission	4 (2%)	1 (0.5%)	p=0.09
Died	0 (0%)	1 (0.5%)	p=0.39
Total	230 (100%)	230 (100%)	

Major cost savings associated with biologic dose reduction in patients with inflammatory arthritis: Murphy et al note that the cost of TNF inhibitors (etanercept, adalimumab) treatment in Ireland for Rheumatoid Arthritis is €130 m annually. In this study a cohort of RA patients were offered a reduction in drug dose. The dose reduction saved €600m in a 2 year period.

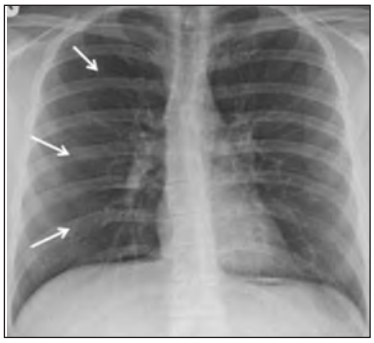


In-hospital stroke: Characteristics and outcome: Briggs et al report that in-hospital stroke (IS) accounted for 11% (50/458) strokes. IS patients had a longer hospital stay 79.2 days vs 21.9 days. Mortality was higher among the IS patients 13/50 vs 39/408.

Table 1

	In-hospital Stroke	Out of hospital Stroke	p Value
Female Sex	29/50	185/408	0.09
Age (Years)	73.84 +/- 11.7	72.15 +/- 13.5	0.40
Mean LOS (Days)	79.2 +/- 87.4	21.9 +/- 45.9	<0.01
Thrombolysed	1/50	51/408	0.03
Stroke Unit Care	1/50	136/408	<0.01
Atrial Fibrillation	13/50	84/408	0.38
D/C Home	25/50	264/408	0.04
RIP	13/50	39/408	<0.01
D/C Nursing Home	5/50	20/408	0.13

Westermark's sign of pulmonary embolism – well known but frequently overlooked: Tsvetanova and Logan report the chest x-ray of a patient which showed Westermark's sign of pulmonary embolism. Westermark's sign is distal oligaemia in affected lung due to a reduction in the size of the blood vessels distal to the pulmonary embolism.



Rediscovering Lost Values: Professor Aidan Halligan: Doolin Lecture 2014

The 2014 Doolin Lecture was delivered by Aidan Halligan. Professor Halligan is an internationally renown figure in his field. He was the first NHS director of Clinical Governance and served as the Deputy Chief Medical Officer for England. His clinical background is in obstetrics and in an earlier period of his career he was Professor of Fetal Medicine at Leicester University. He says that despite his long tenure in the UK he has maintained his Irish identity and uses it to his advantage.

Halligan is one of the 'stars' of patient safety and good clinical governance. He stands shoulder to shoulder with his US counterparts Atul Gawande, Donald Berwick and Peter Provonost. This group of doctors straddle the interface between the traditional values of medicine and the modern, more impersonal application of the new technological advances. Currently healthcare is struggling to reset the balance and achieve a novel more caring, and more patient safety aware equipoise.

Halligan is working in the North of England in a major project called 'Well North'. He is trying to tackle the major health issues of the underprivileged across 9 cities with high levels of deprivation. The 3 things that the Public Health nurses, who work with him, commonly encounter among their patients are financial debt, domestic violence and lack of self worth. The difference in life expectancy between Bradford and Gilford is 19 years. Behaviour is what leads to higher morbidity and early death. Education teaches individuals to control their emotions. In its absence, personal crises are dealt with by violence, drinking and substance abuse rather than by reasoning.

A substantial portion of the lecture was taken up with the concept of leadership and what it entails. Halligan pointed out that there are 53,221 books on leadership available on Amazon. Leaders inspire you. They make you more determined to achieve your goals. Doctors are supposed to be leaders but get no training for the role at medical school. However, becoming a doctor changes how people view you and how you view yourself. Leadership can be a lonely place. A leader cannot allow loyalty and friendship to trump the safety of the organization as happened in Mid-Staffordshire. Leaders earn the respect of others by how much they care. They are frequently criticized for trying to improve or change current practices. They must be brave and stand up for their principles. They must also be aware that the difference between a halo and a noose is only 2 inches. Cicily Saunders, a pioneer in the development of the hospice movement and palliative care, faced many obstacles in the early years. Despite all the barriers she won through and left an invaluable legacy.

Halligan has interesting and novel ideas about management and how the current structures function. He says that meetings are a block to progress and all that really matters is what you do and what you achieve. Negotiations about annual budgets are like 'dancing around the handbags' and involve a lot of posturing before the bottom line is reached. He stresses the importance of accountants and how their fiscal decisions can impact on patient care and clinical outcomes. They need to be better informed about medical illness and its consequences. The drown stream outcome of their deliberations can impact significantly on the lives of sick patients.

He spoke at length about clinical governance. Dysfunctional institutions are not populated by bad people but rather poorly led people. Bullying remains a big concern in large organisations like the NHS. It leads to sub-optimal clinical performance and makes healthcare workers afraid to speak up when they see things that are not right. He gave an example of hospital hierarchy and the sense of helplessness that it can engender. He described how a consultant, on a ward round with his junior staff, repeatedly failed to engage with an anxious elderly patient because her case notes were not readily available to him. The interaction had a very negative effect on the surgical intern who was left feeling inadequate and disillusioned. He was fully aware that you cannot challenge your consultant. Halligan points out that the situation could have been easily averted by the consultant putting his hand in the patient's hand and saying 'don't worry I'll come back and talk to you shortly'.

In unresponsive organisations, it is always too early to act until it is too late to respond. When reviewing medical mishaps, the 5 words that Halligan commonly hears are 'it could not happen here'. A common error made by hospitals is concentrating their energies on managing the communication rather than addressing the error. Emotions must be collectively kept in check. The challenge of good governance is the facility being able to do the right thing on the difficult days.

The words kindness, compassion and integrity are mentioned on a number of occasions. Patients need kindness throughout their journey through the healthcare system. It is not the property of any particular grade of staff. Halligan recounts the story of Dolly, a long-standing ward receptionist, who through simple acts of kindness had a major impact on the lives of both patients and staff. Compassion cannot be contrived. It is an important attribute for anyone caring for sick patients. While it isn't an alternative to clinical skill, it makes the patient's passage through her illness more bearable and comfortable. Integrity is what you do when nobody is looking. It is not easy because it requires one to be honest with strong moral principles. The public perceives doctors to have integrity with a 92% public trust compared with 13% for politicians.

Halligan spoke also about the homeless. He has set up a health service for them and is chairman of Pathway a support organisation. He points out that managers became interested in the problem when it was demonstrated that their healthcare costs 8 times more than the rest of the population. Among the cohort that he was following, 25% died within 1 year. The average age of death was 42 years. He commended the current movement in Ireland to tackle homelessness. He said that we had already gone much further than other countries. The Government has pledged to end long-term homelessness by 2016. In a spontaneous act of kindness, customers of a Dublin shop bought 900 blankets over a 3 day period. In Dublin, alone, there are 140 people sleeping rough nightly. Focus Ireland estimates that at any one time there are 5,000 people homeless across the State.

Aidan Halligan gave his entire presentation without slides or notes. It was very different to most modern talks in which the audience looks at the slides and listens to the lecturer. In this talk the audience both looked at and listened to the lecturer. His delivery and its content were inspiring and compelling. It made us all want to go back to work and do a better job.

JFA Murphy
Editor

Preconception Low-Dose Aspirin and Pregnancy Outcomes: Results from the EAGeR Randomized Trial

Obstetric practice is evolving; the future will see a shift in the focus of care to the pre-conceptual period and early trimester with a move towards interventions which optimize maternal and neonatal outcome.[1] Low dose Aspirin (LDA) is one such intervention. The safety and efficacy of this medicinal product has already been proven[2,3] and subsequently it is now used common in practice for at-risk pregnancies for prevention of pre-eclampsia, fetal growth restriction and complications of anti-phospholipid syndrome.[4,5]

An area where the provision of LDA requires further exploration is that of pregnancy loss prevention. Pregnancy loss is a devastating event, which occurs in approximately one third of conceptions, with women that have had a previous loss being at greater risk.[6] Although the pathogenesis of pregnancy loss is not fully understood, it is postulated that LDA can prevent this phenomenon through the promotion of prostacyclin production in favor of vasodilation, in addition to having an anti-inflammatory effect.[5] A question which remains unanswered is if LDA can improve live birth rates in women who have had previous pregnancy loss. The Effects of Aspirin in Gestation and Reproduction (EAGeR) trial has set out to answer this question.[7] This multi-center double-blind randomized controlled trial of 1078 women was set in the USA from 2007 to 2011. Women that met pre-defined inclusion criteria (notably 18-40 years of age with one previous pregnancy loss with no history of infertility) were randomized to receive either folic acid 400ug and LDA 81mg versus a placebo, which also included folic acid 400ug both of which were commenced pre-conceptually until 36-completed weeks gestation. Patients were followed up until the completion of pregnancy, two peri-conception losses or failure to conceive after six menstrual cycles. The primary outcome of the study was live birth with secondary outcomes including implantation, confirmed pregnancy, pregnancy loss (<20 weeks), birth weight and serious obstetric complications (pre-eclampsia, gestational diabetes gestational hypertension or pre-term birth).

Results of the study did not demonstrate a significant difference overall between groups in terms of live birth rate (58% in LDA group vs 53% in placebo RR 1.10 (p=0.0984 95% CI 0.98 to 1.22)) nor in terms of secondary outcomes as previously noted. Interestingly the study adds to the existing evidence on safety of LDA with no reported birth defects and although vaginal bleeding was more common in the LDA group (4.49% vs 1.47% placebo p=0.038), this did not increase pregnancy loss rates in this group.

Strengths of this study lie within the robust patient follow-up, clearly defined outcome measures and methodology, which add to the validity of this study. Computerized randomization, similar demographic characteristics between groups and the adoption of an intention-to-treat analysis demonstrate that the potential of selection, subversion and attrition bias was addressed and minimized. The authors cannot be accused of reporting bias as the negative and positive findings are discussed within sub-groups. Further to this the study is original in concept the first of its kind to address the proposed, highly relevant clinical question. The main weakness of this study was the fact that inclusion criteria were expanded after the study had started to include women with a previous pregnancy loss greater than 20 weeks as well as other factors that had previously been exclusion criteria. This clearly impacted upon results as there was a significant difference in outcome measures within the original stratum in terms of live birth rates (62% in LDA group vs 53% placebo RR 1.17 (95% CI 1.01 to 1.37 p = 0.0446))) and notably those who became pregnant in the LDA cohort (ultrasound-confirmed pregnancy 74% LDA group vs 64% placebo RR 1.17 (95% CI 1.04 to 1.32 p=0.0113)). This difference was noted further on sensitivity analysis in this group although these results were not reported upon. Authors suggest the reason for this is the impact of LDA on fecundity and implantation rates. Additionally the number of patients in the study fell short of the projected power calculation of 1254 women and there was no robust scientific method to assess medicinal compliance with subjective assessment only including questionnaires and bottle weights. These factors call into question the reliability of results and as there was a significant difference within the original stratum, calls into question the overall conclusion. It is difficult to know if the results are applicable internationally as the external validity is limited by the fact that most participants were well educated women with a higher income; this may not be relevant in other study groups.

Overall, this study concludes that preconception initiated LDA does not increase the live birth rate nor reduce rates of pregnancy loss in women with one or two previous loses. Results support what we already know about the safety of LDA, notably at doses of 81mg, which is greater than the 75mg dose typically prescribed in Irish obstetric practice. The overall results are backed up by that of existing studies.[8,9] However, before firm recommendations can be made for clinicians it is important to perform further RCTs which can be guided by the methodology of this study.

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Preparedness of Elderly Long-term Care Facilities in HSE East for Influenza Outbreaks

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Abstract
We assessed preparedness of HSE East elderly long term care facilities for an influenza outbreak, and identified Public Health Department support needs. We surveyed 166 facilities based on the HSE checklist document for influenza outbreaks, with 58% response rate. Client flu vaccination rates were >75%; leading barriers were client anxiety and consent issues. Target flu vaccine uptake of 40% in staff occurred in 43% of facilities and was associated with staff vaccine administration by a facility-attached GP (p=0.035), having a facility outbreak plan (p=0.013) and being a non-HSE run facility (p=0.013). Leading barriers were staff personal anxiety (94%) and lack of awareness of the protective effect on clients (21%). Eighty-nine percent found Public Health helpful, and requested further educational support and advocacy. Staff vaccine uptake focus, organisational leadership, optimal vaccine provision models, outbreak plans and Public Health support are central to the influenza campaign in elderly long term care facilities.

Introduction

Influenza is a challenging problem in long term care facilities (LTCFs) for the elderly, causing considerable morbidity and mortality amongst this vulnerable population. Illness rates up to 60% have been seen in influenza outbreaks in LTCFs with mortality rates of 5-10% reported.[1,2] The closed environment of LTCFs and limited mobility of clients facilitates transmission of influenza.[3] In addition, influenza may be difficult to detect in the LTCF population due to atypical presentation, with minimal fever and respiratory symptoms. A combination of interventions is required to prevent an outbreak of influenza at a LTCF. These include vaccination of clients and health care workers (HCWs), regular staff education on influenza detection and control, and a designated flu lead to co-ordinate an influenza prevention programme.[2,4] A recently developed checklist for LTCFs aids in planning influenza prevention and control programmes for individual LTCFs.[4] There are 166 LTCFs for the elderly in the Health Service Executive (HSE) East area. Approximately 15% of these are HSE LTCFs; the remainder are privately or voluntary sector run. In 2012/2013 season there were 23 outbreaks of influenza-like illness (ILI) in these LTCFs notified to Public Health, with 242 people notified as ill. In 2013/2014 the HSE leadership team prioritised HCW influenza vaccination in all health care facilities including LTCFs in response to poor vaccination rates of 15% nationally among HCWs for the 2012/2013 influenza season.[5] The HSE leadership team set a target of 40% for HCW influenza vaccination coverage for the 2013/2014 season in all health care facilities and informed relevant stakeholders.[6] The aim of our study was to assess the preparedness of LTCFs in the HSE East area at the start of the 2013/2014 influenza season for an influenza/ILI, outbreak and to identify how the Department of Public Health could support these facilities.

Methods

We identified all elderly LTCFs in the HSE East using a previously assembled and recently updated excel database. We designed a 39 item questionnaire on preparedness and planning for influenza/ILI outbreaks. The questionnaire was based on the HSE checklist document and used several questions from an earlier survey undertaken in HSE South-East; consequently it was not piloted. The questionnaire was posted to the Director of Nursing or general manager of all facilities and was returned by email or post. We sent a reminder email one month later, and followed up non-responders by telephone and email copy of the questionnaire. Data was manually entered and analysed in SPSS version 21. Descriptive analysis was carried out to describe preparedness of LTCFs for an influenza/ILI outbreak. Associations between variables were tested using chi-square distribution. Significance was set at 5% (p=0.05).

Results

Demographics

In total 97 out of 166 (58%) LTCFs responded; 83% of responders were non-HSE facilities. Ninety-nine percent of responders provided residential care facilities. Additionally, 37% provided respite services, 20% day centre facilities, and 11% provided other facilities such as palliative care. Most (89%) facilities reported over 50% of residents were aged 80 or older.

Table 1 Factors associated with meeting HSE target of 40% HCW vaccine uptake

	Proportion meeting HCW vaccine uptake target		p value
		%	
Type of facility			
Non-HSE2	32/65	49.2	0.019
HSE	1/11	9.1	
Provider of vaccine			
GP attached to facility	30/55	54.5	0.035
Personal GP	7/20	35.0	
HSE clinic	2/12	16.7	
Type of care provided			
Residential care only	30/60	50	0.003
Residential and respite care	6/19	24.0	
Residential and day care	1/14	7.2	
Influenza outbreak plan for facility			
Yes	28/56	50	0.014
No	3/18	16.7	

n=numerator; d=denominator

Influenza vaccination for clients

All (100%) responders recommended influenza vaccination to clients and staff. Vaccination rates of residential clients were uniformly high (range 75-100%). Common barriers to client vaccination were anxiety regarding the vaccine (49.5%) and consent issues (23.7%). Less common barriers included; low awareness of vaccine (5.2%), difficulty accessing vaccine (2.1%) and personal choice (2.1%).

Influenza vaccination for staff

In contrast, healthcare worker (HCWs) vaccination rates varied greatly (range 0-94%). Forty-three percent of responding LTCFs reported a HCW vaccination rate of 40% (HSE target for 2013/2014). Significantly more non-HSE LTCFs had HCW vaccine uptake rates of 40%, when compared with HSE facilities (p=0.019) (Table 1). The administration of the vaccine by a general practitioner (GP) attached to the LTCF was significantly associated with HCW vaccine uptake rates of 40% (p=0.035), compared with the administration of the vaccine at a HSE clinic or by the HCWs personal GP. Facilities providing day centre or respite care were significantly less likely to have HCW vaccine uptake of 40%, (p= 0.003). In HSE facilities, lack of access to influenza vaccine (25% of respondents) was a significant barrier to HCW vaccination when compared with non-HSE facilities (5.2%) (p= 0.01). The barriers to HCW vaccination most frequently identified by managers were 'anxiety related to the vaccine' (94%) and lack of awareness of the need to vaccinate to protect

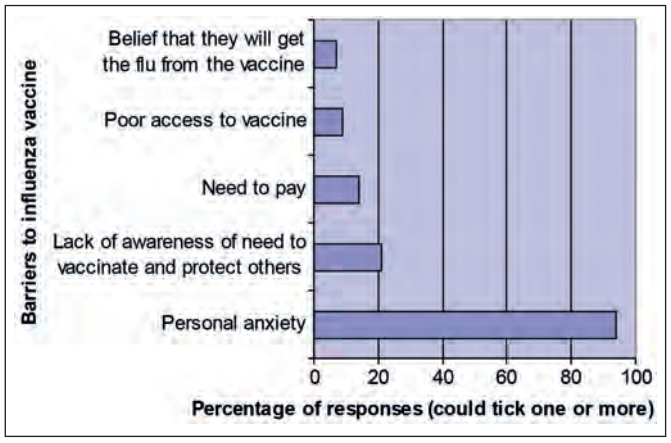

Figure 1 Reported barriers to influenza vaccine in HCWs

themselves and the residents (21%) (Figure 1). Leading anxieties were fear of adverse reaction and needle phobia.

Outbreak detection and management
Most (73%) LTCFs had an influenza outbreak plan specific to their facility. Those with a plan were significantly more likely to have HCW vaccination rates of 40% (p=0.013). Ninety percent of LTCFs had a process to monitor for influenza-like illness (ILI) in clients, whereas 80% also had a process in place to monitor staff. Most LTCFs believed that they had timely access to viral swabs (81%), masks (93%), vaccine (94%) and antiviral medication (83%) in the event of an outbreak of influenza.

Preparedness for Outbreak
Eighty three percent of LTCFs reported that they were mostly or fully prepared for an outbreak of influenza/ILI; 94% were aware of the HSE Checklist document.[4] The majority of facilities had an appointed influenza lead (80%) and a lead GP (78%). However, having an influenza lead (p=0.592) or a lead GP (p=0.289) did not have a significant effect on HCW vaccine rates. Approximately 9% of LTCFs provided training and education in influenza preparedness for staff on commencement of employment, 34% provided it annually at the start of influenza season and almost 24% provided it at both of these times. Education was provided by the staff influenza lead or local infection control nurse in the majority of cases (84%).

Interaction with Public Health
Most (75%) LTCFs reported previous contact with Department of Public Health, while 23% had previous contact specifically with regard to an influenza/ILI outbreak. Eighty nine percent of responders reported that Public Health were helpful or very helpful. Suggestions on how Public Health could support LTCFs' preparedness for an outbreak of Influenza/ILI included: provision of more education sessions and resources e.g. posters, leaflets, influenza information packs; advocacy for the use of medication protocols to facilitate administration of the vaccine by trained in-house staff, and dissemination of more information to increase public awareness of the seriousness of influenza illness.

Discussion

Preparedness and mitigation of influenza outbreaks within LTCFs requires high levels of vaccination of HCWs and residents, early recognition of illness and timely response. We found that 43% of LTCFs reached the HSE target of 40% HCW vaccine rate**,** with HSE-run facilities significantly more likely to be under target. Globally, immunisation rates of HCWs against influenza are low, despite it being a recommendation in most countries. Studies of HCWs in Germany and the UK found influenza immunisation rates of 18% and 34% respectively.[7,8] Our findings of reported barriers for HCWs are consistent with other research.[9-11] Vaccine related anxiety was an almost universally reported barrier to HCW vaccination in our study (94%). Anxiety can be diminished by improving understanding with further education. Many HCWs perceive themselves to be healthy and therefore either not at risk of influenza or able to successfully fight off the influenza virus. Similar to previous studies, we found that HCWs do not necessarily see that by having influenza vaccine themselves, they are protecting their vulnerable clients.[9,10] Twenty-one percent of responses were in this category. Additional education and discussion would help HCWs understand their ethical responsibility to protect clients from influenza. Our study highlights the connection between lack of access to vaccine and below target vaccine uptake in HSE–run facilities. Improved staff access should be facilitated through the delivery of the vaccine at place of work, preferably at unit level, as well as the provision of vaccination clinics outside of usual working hours. These measures have been shown to improve HCW vaccine rates.[9,11,12] We found that the administration of the vaccine by GPs attached to the LTCF was associated with reaching the uptake target and this model could be considered by all LTCFs. The appointment of a designated 'flu lead' in each LTCF receiving education and training, supported by a medication protocol would facilitate on-site delivery of the vaccine to HCWs. In LTCFs with day/respite and residential services, clients are more vulnerable to the introduction of circulating community influenza strains. A significantly lower level of staff vaccine uptake was identified and this should be a target in future campaigns.

Irish guidelines recommend that residents of LTCFs should receive seasonal influenza vaccine,[13] with a World Health Assembly target of 75% vaccination rate for this group.[14] While all responders achieved this target, barriers were identified, namely; personal anxiety about the vaccine (52%) and consent issues (25%). For clients unable to give consent, this should be sought from next-of-kin at time of admission to the LTCF. Most LTCFs reported a majority of clients aged 80 or older. Previous studies inform us that in this age-group vaccine effectiveness has been estimated at 30-40%.[15] Even at low effectiveness levels, while not sufficiently protecting elderly residents from influenza, vaccination of residents does protect against hospitalisation and death.[15] Vaccination of staff has been shown to reduce mortality and ILI amongst LTCF residents.[16] Responders had a high awareness of the HSE checklist and those facilities with a written outbreak plan were significantly more likely to reach the HSE HCW vaccine target. Although LTCFs reported easy access to viral swabs, masks, vaccine and anti-virals, an anti-viral supply problem occurred in Ireland this season and it was clear that most LTCFs were relying on the national commercial supply chain. Securing this supply would permit timely response to outbreaks. LTCFs felt that increased public awareness of the seriousness of influenza was warranted; LTCFs repeatedly requested facilitated educational sessions to inform staff about influenza outbreaks and preparedness. While guidance material has been made available to LTCFs,[4] assistance from Public Health departments in meeting with senior staff and providing education sessions to HCWs can be a valuable support.

A strength in our study was that we received responses from both private and HSE-run LTCFs allowing us to identify problems that may be related to a specific type of LTCF. Responses were received from LTCFs of all sizes which gave us an overview of the preparedness across the sector. The response rate of 58%, although suboptimal, was anticipated. It is possible that non-responders may be less prepared than those who responded. However, the ratio of HSE/non-HSE responses reflects the regional situation. The majority of LTCF managers reported a high level of preparedness for an influenza outbreak in the areas of outbreak policies, illness monitoring protocols and influenza leads. However, the low rate of HCW influenza vaccination coverage identified is a major obstacle to optimal preparedness for influenza outbreaks. It is clear that more must be done to increase vaccine uptake rates. The good working relationship identified between Public Health and the LTCFs for the elderly should be capitalised on to develop specific campaigns to increase HCW vaccination rates. Innovative ways to increase access to the

vaccine and educational programmes targeting flu myths should be key elements of any targeted campaign.

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Pedestrian Deaths in Children – Potential for Prevention

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Abstract
The National Paediatric Mortality Database was reviewed for the six year period 1st January 2006 to 31st December 2011 and all pedestrian deaths extracted, after review of available data the deaths were categorized as either traffic or non-traffic related. There were 45 child pedestrian fatalities in the period examined. Traffic related deaths accounted for 26 (58%) vs. 19 (42%) non-traffic related. Analysis of the deaths showed there was a male preponderance 28 (62%), weekend trend 22 (49%) with an evening 16 (35%) and summer peak 20 (44%). The highest proportion of deaths occurred in the 1-4 year age group 24 (53%), with 13 (28%) due to low speed vehicle rollovers, mainly occurring in residential driveways 8 (61%). Child pedestrian fatalities are highly preventable through the modification of risk factors including behavioural, social and environmental. Preventative action needs to be addressed, particularly in relation to non-traffic related deaths i.e. low speed vehicle rollovers.

Introduction

Injury from road traffic incidents is a leading cause of child deaths worldwide[1]. In Ireland, progress has been made in decreasing child road- related deaths and injuries in recent years; the number of paediatric pedestrian fatalities reduced by 50% between the timescales 1996-2000 and 2004-2010. National road safety campaigns, increased enforcement by the police and changed cultural attitudes to road safety in this period may account for this striking improvement[2]. Young children lack the cognitive skills, attention and perception skills to interact safely with road vehicles[3]. Children may fail to appreciate the danger associated with fast moving traffic and be unable to integrate speed and distance of vehicles[4]. Play activity places children in unsafe locations such as driveways[5], and children are highly influenced by the behaviour of peers and heavily rely on adult supervision[3].

Methods

The National Paediatric Mortality Register (NPMR) collects data on all paediatric deaths in the Republic of Ireland aged from 29 days to 16 years. The main sources of data are 1) The Central Statistics office (CSO) which provides death registration data; 2) Autopsy reports from Coroners; and 3) Notifications received from Emergency departments. All fatalities recorded on the National Paediatric Mortality Database from 1st January 2006 to 31st December 2011 were retrospectively reviewed and all road traffic related deaths examined to identify pedestrian deaths. Autopsy reports were then reviewed to determine the circumstances of the injury. Where autopsy reports were not available media reports were used to supplement information. Cases where the child was a passenger in a vehicle or a cyclist were excluded. The selected cases were then categorised as being traffic related or non-traffic related. Non-Traffic related deaths were considered to be deaths involving a vehicle that had occurred in an off-road setting (e.g. driveways, farmyards). To examine socioeconomic status each death was assigned a deprivation score based on where the child resided. Deprivation was categorised using the 2011 Pobal Haase-Pratschke Deprivation Index for small areas, which assigns a deprivation score to each of the 3,000+ electoral divisions(ED) based on Census 2011 data. The Index's table of deprivation

CPD available online at www.imj.ie and questions on page 31.

scores was used to assign the ED where the child resided to a category from extremely affluent to extremely dis-advantaged.

Results

For the six year period examined a total of 82 deaths were reviewed with 45 being identified as pedestrian deaths. On examination of death registration data in some cases insufficient information was provided to determine whether the child was a passenger in a vehicle, a pedestrian or a cyclist. Autopsy reports were available for 64% of cases, media sources were used to supplement information in 28% of cases. Examination of the NPMR database for 2006-2011 showed that the greatest proportion of deaths (age 1-14yrs) from external causes (37%) was attributable to road traffic accidents (RTAs). Head and neck injuries sustained during road traffic incidents accounted for the largest proportion of injury related deaths; 40% of children <10yrs and 32% of children 10-14yrs. In the period 2006-2008 pedestrian death rates increased (from 0.8 to 1.31 per 100,000 population aged 0-14yrs) however from 2009-2011 rates have continued to decline (1.06 to 0.41 per 100,000 population aged 0-14yrs). The mean age was 6.11years with the highest proportion of deaths occurring in the 1-4 year age group (53%), followed by the 10-14 year age group (29%) (Table 1). Analysis of gender shows there was a male predominance in these deaths with a ratio 1.6:1. However in the 13-16year age group there was a greater number of female deaths (5 girls vs. 2 boys). The majority of incidents occurred in the afternoon between 16:00 and 18:00 (31%). There was a weekend trend with 27% of deaths occurring on a Saturday and 9% on a Sunday. Examination of seasonal distribution showed that most incidents occurred in the summer months particularly in the month of July (22.2%), with 44% of deaths taking place between July and September. The most common vehicle type was a car (44%), followed by commercial vehicles (trucks and vans) which accounted for 29% of fatalities.

Table 1 Description of Pedestrian fatalities 2006-2011

Variable	Group	N	%
Age Distribution	1-4yrs	24	53
	5-9yrs	7	16
	10-14yrs	13	29
	14-16yrs	1	2
Gender	Male	28	62
	Female	17	38
Time of incident	8am-9:59am	5	11
	10am-11:59am	5	11
	12noon-1:59pm	7	16
	2pm-3:59pm	5	11
	4pm-5:59pm	14	31
	6pm-7:59pm	2	4
	8pm-9:59pm	3	7
	10pm-7:59am	0	0
	Unclear	4	9
Annual Distribution	January-March	9	20
	April-June	8	18
	July-September	20	44
	October-December	8	18
Days of the week	Mon-Thurs	23	51
	Fri-Sun	22	49
Type of Vehicle	Passenger Car	20	44
	Commercial Van	7	16
	Heavy Truck	6	13
	SUV/4WD	4	9
	Tractor	3	7
	Vehicles Towing	3	7
	Other	2	4

Socioeconomic status

Social deprivation scores were assigned based on the electoral district in which the child resided. Figure 1 shows the distribution of deprivation index scores. The scores for the pedestrian fatalities were compared with the National population figures. The majority of cases(78%) were in the middle of the scale with just over half (53%) of the pedestrian fatalities being classed as being 'Marginally below average', compared with 30% of the population and 25% being classed as 'Marginally above average', compared with 35% of the population.

Traffic and Non-traffic related deaths

A review of the circumstances of the incident revealed that 58% were traffic related and 42% were non-traffic related. Table 2 details the circumstances of the incident for each group. Children in the 10-16 year age group accounted for the highest proportion of traffic related deaths (42%).Over half (53%) of the traffic related deaths involved the child attempting to cross the road or darting out onto the road from behind a parked car. In the 1-4year age group 63% of the traffic related deaths involved a child at play. Children in the 1-4 year age group accounted for 84% of the non-traffic related deaths. Sixty eight per cent of non-traffic related deaths were due to low speed vehicle rollovers. The mean age for the rollover deaths was 21.7months. In all cases of rollovers the cause of death was due to head injuries sustained in the incident. In 81% of cases the incident took place outside the child's residence. In 54% of cases the driver of the vehicle was a family member and the vehicle was performing a reverse manoeuvre. A weekend trend was apparent (69%) with a summer (46%) and late afternoon/early evening peak (46%). Table 3 gives a description of the rollover deaths in the six year period examined. There were 4 non-traffic deaths which resulted from farm incidents involving heavy machinery. In all cases the child was male and two thirds occurred in the summer months. In all four cases the child fell from a slow moving vehicle and was subsequently rolled over.

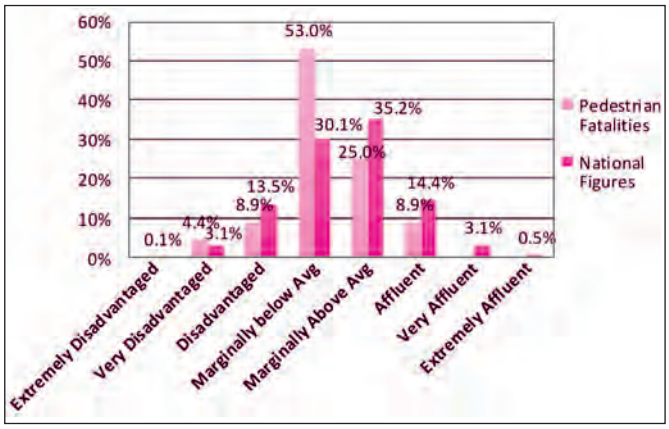

Figure 1 Distribution of deprivation index scores: Pedestrian fatalities vs. National Figures

Table 2 Circumstances of Traffic and Non-traffic related deaths 2006-2011

	Age Group			
	1-4yrs	5-9yrs	10-16yrs	Total
Traffic:				
Crossing road	0	3	4	7
Getting school bus	0	0	3	3
Dart Out	2	3	2	7
At Play	5	1	0	6
Walking in hard shoulder of motorway	1	0	2	3
Total	8	7	11	26
Non-Traffic:				
Low-speed vehicle rollovers	13	0	0	13
Farm incidents	2	0	2	4
Other	1	0	1	2
Total	16	0	3	19

Table 3 Description of low speed rollover deaths 2006-2011

Variable	Group	N	%
Age Distribution	12-18mths	4	31
	18-24mths	5	38
	24-36mths	4	31
Gender	Male	7	54
	Female	6	46
Time of incident	8am-11:59am	3	23
	12noon-3:59pm	2	15
	4pm-7:59pm	6	46
	8pm-7:59am	0	0
	Unclear	2	15
Annual Distribution	January-March	2	15
	April-June	2	15
	July-September	6	46
	October-December	3	23
Days of the week	Mon-Thurs	4	31
	Fri-Sun	9	69
Type of Vehicle	Passenger Car	6	46
	SUV/4WD	2	15
	Tractor	2	15
	Heavy Truck	1	8
	Vehicles Towing	2	15
Movement of Vehicle	Reversing	13	100
Location	Driveway	8	61
	Farmyard	4	31
	Car park	1	8
Driver	Family member	7	54
	Other	6	46

Discussion

Our study identified 45 fatalities with a striking male preponderance. This finding is supported by a number of studies in the literature that show an increased incidence among males[5,6], although some studies suggest an equal sex distribution[7]. In older children this sex discrepancy may be due to a higher incidence in

males of unsafe road crossing behaviour and playing on roads[8]. In terms of age, the majority of deaths occurred in the 1-4 year-olds and this finding was most marked in the non-traffic related pedestrian deaths. This is in keeping with a recent review of the literature, which suggested a peak incidence of driveway injuries in children under five[5] and is perhaps unsurprising given their stage of cognitive and perceptual development[3]. Our study showed a second peak in incidence in the 10-14 year olds and reflects risk-taking behaviours in this age group. This study identified some temporal risk factors (weekends and summer months) and this is perhaps unsurprising considering the increased amount of time spent outdoors and unsupervised during the summer months. Spring-summer time has previously been suggested to show an increased incidence of paediatric trauma deaths[9]. There was a peak incidence of injuries in the early evening at a time when road traffic is heavier due to work and schools finishing for the day. In relation to psychosocial factors, the highest incidence of pedestrian deaths was in the marginally disadvantaged group (see Figure 1). This is in keeping with studies linking social deprivation to pedestrian fatalities[10]. A review by Laflamme et al[11] identified 21 studies that found a positive correlation between social disadvantage and pedestrian injury. Pedestrians from poor neighbourhoods may be up to four times more likely to be involved in a collision, and this effect seems to be independent of factors such as population density, age, and education level[12]. Analysis of driveway rollover deaths showed that these are most common in young children aged 18 to 24 months and consistently involved reversing vehicles. Prior studies have shown a preponderance of reversing vehicles in rollover incidents[5]. Reversal alarms and rear-view cameras are a new tool with the potential to make driveway reversing safer. No large-scale data are available in this area although early studies are encouraging[13].

In preventing pedestrian injuries and deaths, one important measure is school road-safety programmes. Although such interventions may improve children's knowledge[14], this does not necessarily translate into better road crossing behaviours[15]. Furthermore, education programmes may be unreliable as they can be overly dependent on the individual teacher delivering them[16]. Thus the development of better education programmes that effectively alter crossing behaviour remains essential. Simple knowledge, such as appropriate crossing location, has a big impact on injury severity and is amenable to classroom learning[17]. Safety training for children using virtual models represents an exciting new prospect in tackling this problem and avoids exposing children to physical traffic hazards[3]. One well established risk factor for paediatric pedestrian injury is the built environment in which the injury occurs. A meta-analysis of previous studies established a direct link between the built environment and risk of pedestrian injury[18]. A number of environmental features (e.g. multiple family dwellings, lack of playgrounds, the presence of major roadways, increased traffic levels and roadside parking) are significant risk factors. In a resource-poor setting, built environment features such as lack of road markings are of relevance[19]. The environmental features that best improve pedestrian safety are the provision of playground/ recreation features and traffic calming[20]. These relatively simple interventions have a significant and lasting impact on improving child pedestrian safety at a local level.

Injury is more likely in non-traffic incidents in environments that lack a physical barrier between the driveway and the play area, with shared driveways, and multiple parking spaces[5]. Adequate child supervision is also of paramount importance in combating the issue. A case-control study conducted in Peru identified the number of streets crossed en route to school combined with lack of supervision as the single best predictors of pedestrian injury[21]. Although parents are aware of the importance of educating their children in road crossing, observational research suggests that they rarely supply explicit instruction to their children when supervising road-crossing[22]. The use of headphones, which is thought to decrease awareness of warning sounds, may represent a safety risk to pedestrians, and in particular adolescent males[23]. The increased use of mobile phones could also have a negative impact on children's road crossing abilities as early research suggests they distract children to a significant degree and may increase their risk of collision[24]. In conclusion, this study found potential for prevention in relation to pedestrian deaths in Irish children, particularly the need to reduce driveway deaths. Preventative measures should include education of parents and caregivers, separation of driveways from play areas (particularly on farms), adequate supervision of children and installation of object vicinity sensors in vehicles.

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Day-Case Tonsillectomy: Practical Solution or Practical Impossibility

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Abstract
The use of day case surgery is on the rise. In order to improve efficiency and reduce cost, it has been proposed that tonsillectomy could be undertaken as a day-case procedure in Ireland. A retrospective, chart-based study was carried out. The medical and social criteria of all patients who underwent tonsillectomy during a twelve-month period were evaluated. Individual, local and national factors were identified and international comparisons were made. Of 161 patients included, 43 (27%) were considered suitable for day case tonsillectomy (DCT). The distance/time criteria from hospital excluded 64% of patients. The diagnosis of obstructive sleep apnoea was the single most common medical reason for exclusion. Support structures were deficient. Local factors must be considered before any policy or targets are developed for DCT. Patient safety is the fundamental tenet. Currently, the infrastructure and the support required for a patient-focused, safe efficient DCT are deficient, and need investment.

Introduction

Tonsillectomy is one of the oldest and most commonly performed surgical procedures. Approximately 3,500 tonsillectomies were carried out in Ireland in 2011[1]. Of those, 73% were carried out on children younger than 16 years of age. Recurrent acute tonsillitis and upper airway obstruction account for the vast majority of cases. Modern tonsillectomy is safe; however, there is a unique set of morbidities associated with post-operative recovery. Although, the majority of these are minor, post-tonsillectomy haemorrhage is one of the most significant and potentially life-threatening complications, with the incidence range between three and twenty percent[2-4]. Upper aero-digestive tract haemorrhage can be very difficult to control, and can rapidly lead to hypovolemic shock and airway compromise. Children in particular, are at risk. Safe management requires an experienced surgical and anesthetic team. Length of in-patient stays for tonsillectomy varies worldwide from a few hours to several days. In Germany, in-patient stay ranges between five and seven days. In Ireland the average length of stay is 1.42 days (range 1.37 – 1.51)[1]. The routine practice in Ireland is to keep the patient overnight, in order to monitor for primary hemorrhage and provide adequate analgesia and recovery time. In many parts of the United Kingdom and the USA, tonsillectomy is performed as a day case procedure, and this refers to the same day discharge of the patients from the hospital following a planned surgical procedure[5]. Strict guidelines to assess a patient's suitability based on medical and social criteria have been published in these countries[6-8]. In 2011, only two percent of tonsillectomies were carried out in Ireland as day cases[1]. On average, approximately 200 cases of tonsillectomy are carried out in University College Hospital Galway (UCHG) every year, most of which are elective admissions, and all require at least one night stay in hospital.

In the current economic situation, there is a significant burden on the national finances from health care. It is economically appealing to introduce day case tonsillectomy (DCT) as routine practice. Figures from 2010 indicate that an in-patient procedure costs 2,895 versus 1,690 for DCT[1]. The Royal College of Surgeons in Ireland (RCSI) and the Health Service Executive (HSE) are actively looking at a number of operations to assess their suitability as day case procedures (basket of 24). Within this basket, there is a target that 75% of procedures should be undertaken as day cases. Tonsillectomy is seen as a potential candidate, as the majority of patients that undergo this procedure are young and healthy, and waiting lists are long (1,400 awaiting surgery 2012)[1].

Methods

University College Hospital Galway (UCHG) is a tertiary referral centre with a busy Ear, Nose and Throat (ENT) department that serves a catchment population of approximately 450,000 people. Patients may travel from as far as Belmullet or the islands off the west coast to have their surgery at UCHG. There can be huge variations in travelling distances and times, depending on geographical location. Following approval from the chairperson of UCHG Ethics Committee, we conducted a descriptive retrospective study of all adult and paediatric patients, who underwent tonsillectomy in UCHG between July 2011 and August 2012. Following an extensive review and comparison of international guidelines (which vary from country to country) medical and social exclusion criteria for day case tonsillectomy were defined. A standard proforma was developed, and information was collected in a systematic manner. PASW Version 18 (SPSS) was used for descriptive statistical analysis of the data.

Results

In total, 161 patients who underwent tonsillectomy in UCHG between July 1st 2011 and August 12th 2012, were included in the study. There were 78 adults and 83 paediatric patients (<16 years old). The age range was three to 65 years (median age: ten years). To determine patients' suitability for day-case surgery, we applied medical and social criteria, which included: patients under

three years of age, or weight less than 15kg, patients with bleeding disorders, or complex medical conditions to include individuals with congenital syndromes, craniofacial syndromes, cardiovascular disease, acute infection or abscess requiring "hot tonsillectomy". According to these criteria (Table 1), 43 (27%) patients were suitable for DCT; 24 (56%) of these patients were adults and 19 (44%) were children; 118 (73%) patients were unsuitable for DCT.

Table 1 List of medical and social exclusion criteria. Data in brackets represent patient numbers/percentages

Medical reasons for exclusion	
• Age less than 3 or over 65	(7/4.4)
• ASA grade more than 2	(3/2)
• Weight less than 15kg	(7/4.4)
• Obstructive sleep apnoea	(18/11.2)
• Bleeding disorder	(1/0.6)
• Trisomy 21	(1/0.6)
• Hypertension	(2/1.2)
• Epilepsy	(2/1.2)
• Autism	(1/0.6)
Social reasons for exclusion	
• Journey to hospital more than 30 minutes	(103/64)
• No access to private car	(0)
• No access to private telephone	(0)
• No access to toilet and suitable washing facilities	(0)
• Unavailability of two adults at home	(0)

The distance/travel time criterion of 40km/30mins from the hospital site of surgery was the main criterion for exclusion; only 58 (36%) of all patients lived within the radius of 30 minute drive or 40km distance; 103 (64%) patients lived further than 40km or 30 minute drive from UCHG; of those, 25 (15%) patients were also unsuitable for medical reasons. The median distance to the hospital was 40 km (range: 1-199 km). Presence of medical exclusion criteria accounted for 14 (9%) patients unsuitable for DCT. The diagnosis of obstructive sleep apnoea (OSA) was the single most common medical criterion for exclusion; other medical criteria included the presence of conditions, such as epilepsy, autism, and Henoch-Schonlein purpura. Based on the American Society of Anesthesiologists (ASA) criteria, majority of patients were ASA Grade 1 or 2. Two patients had a formal diagnosis of hypertension; one patient had a family history of a bleeding disorder. One patient was unsuitable for DCT based on two or more medical criteria.

Of all patients, 126 (78%) patients had no significant post-operative issues, and were suitable for discharge home the following morning, while 35 (22%) patients had post-operative issues that required them to be hospitalised for longer (Table 2). Of those, 25 were adults and 10 were children. The primary reason for the extended hospital stay following tonsillectomy was inadequate pain control (in 16 adults and seven paediatric patients). Other post-operative complications included fever, primary hemorrhage, and vomiting. Two patients developed anesthesia-related complications.

Table 2 Post-operative outcomes

Post-operative outcomes	Number	Percentage
Suitable for discharge following morning	126	78
Unsuitable for discharge following morning due to: (see below)	35	22
Poor Pain Control	22	15
Fever	5	3
Primary Haemorrhage	4	2.7
Anaesthesia Related	2	1.3

Table 3: Recommendation for safe day case tonsillectomy

Recommendations for Safe Day Case Tonsillectomy:	
1.	A dedicated day surgery unit to accommodate ENT procedures.
2.	Early opening hours for admission.
3.	Patient suitability for day-case surgery determined before day of surgery
4.	Clear verbal and written instructions given to patient pre-operatively
5.	Sufficient time allocated for patient's safe recovery
6.	Extended opening hours of day-surgery unit
7.	Post-operative assessment required prior to discharge
8.	Specific verbal and written instruction given to patients regarded pain management, oral intake and management of complications prior to discharge
9.	Facilities for direct patient communication with ENT specialist on call in case of post-operative complications
10.	Facilities for direct admission to ENT unit and assessment by ENT specialist on-call in cases of complications

Discussion

In light of current economic trends within the Irish health services, provision of day-case surgery has become more and more appealing. Many hospitals around the world have adopted policies regarding DCT. An increasing number of surgical procedures are being performed as day cases in Ireland. These include hernia repair, varicose vein surgery, breast lumpectomy and tympanoplasty[9]. Because tonsillectomy is associated with potential airway compromise and the risk of haemorrhage, guidelines exist to assess the suitability of candidates for day case tonsillectomy[6-8]. From the results of our study, only 27% of patients fitted the criteria for DCT, which is relatively low when compared with the rates of DCT in parts of the UK (40% - 80%)[10,11]. However, this figure may reflect different criteria used, as well as the characteristics of the catchment population in our hospital. Our criteria were drawn to reflect geographical location, characteristics of the population served by UCHG, infrastructure and resources available to perform safe day case tonsillectomy. The major factors affecting a patient's suitability were the diagnosis of OSA, presence of other significant medical conditions and the patient's proximity to the hospital, primarily determined by the driving time. Medical criteria reflect the patient's potential to develop peri- or post-operative complications. Therefore, young and healthy patients would be more likely to fulfill the criteria for day surgery. Social criteria reflect the importance of provision of post- operative care in the patient's home, requiring the presence of a responsible adult who would be available to collect the patient from the hospital, provide care for at least 24 hours following discharge, and to drive the patient back to the hospital should the necessity arise. Delays in seeking help can also be avoided if the patient has access to a telephone and private transportation. In the emergency setting, it is unacceptable for the patient to drive himself/herself to the hospital or to use public transport.

Given the wide geographical distribution of the catchment population of UCHG, one of the important social criteria is how far the patient lives and the time it takes the patient to reach hospital. In general, the time/travel distance criterion of 30 minutes has been widely accepted in the UK and other countries as a guideline, while some centres may allow up to one-hour drive from the hospital. The UK guidelines primarily come from major centres in large urban areas where the road/travel infrastructure is generally good. The time-frame of thirty minutes has been derived mainly for safety reasons, particularly in view of paediatric patients, as post-tonsillectomy bleeding can be heavy, and can cause airway compromise. In this setting, time is a critical issue. Therefore knowledge of local infrastructure is important in accessing patient's suitability based on this criterion, to allow timely and easy access to hospital for the prompt management of post-tonsillectomy bleeding. Patients who live further than the 30-minute travelling distance would be considered unsuitable for day case tonsillectomy. Determining a patient's suitability based on the actual distance from the hospital rather than the travelling time, is not acceptable given the poor road quality in some rural areas, despite geographical proximity. In other areas, access to motorway can dramatically reduce the travelling time, even if the patient potentially may live outside the area of the acceptable radius. A degree of local geographical knowledge and common sense is therefore essential in determining a patient's suitability for day-case surgery. While considering hospital infrastructure, geographical location and specific characteristics of the catchment population, we developed a list of recommendations for a patient-focused safe DCT in the Irish healthcare setting (Table 3).

We conclude that the decision to proceed to DCT should be based primarily on patient safety and the availability of internationally agreed surgical resources. Many of the reports on DCT come from highly populated urban areas in the UK and USA. Galway and the west of Ireland, when compared, would have

appeared to have a higher density of rurally located patients. Based on international selection criteria for DCT, only 27% of our patients (31% of all adult and 23% of all paediatric patients) were potentially suitable; with 49% being excluded for social reasons, 15% on both medical and social, 9% excluded based on a single medical criterion. DCT should only be considered where adequate investment has been made in local infrastructure. Support and strict guidelines need to be developed and discussed on a national basis. Local geographical variations appear to be a major contributing factor. Currently, much of the infrastructure and support required for a patient-focused, safe and efficient DCT is deficient, and requires investment and development. This includes establishing dedicated ENT day surgery units with extended opening hours, in order to accommodate patients being admitted early in the day, and provision of sufficient time for post-operative recovery before the closing time.

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Is Primary Prevention of Childhood Obesity by Education at 13-month Immunisations Feasible and Acceptable? Results from a General Practice Based Pilot Study

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Abstract
Prevalence of childhood overweight and obesity remains high in Ireland. In this study an intervention conducted within primary care was evaluated. This involved a structured discussion with parents at the 13 month immunisations with their general practitioner (GP), including measuring weight of the toddler and parental education regarding healthy nutrition and physical activity for their toddler. There was a telephone follow-up interview with parents three months later assessing change in toddler diet/lifestyle. Endpoints assessed included parents' reports of specific lifestyle parameters with regard to the toddler and parental assessment of the usefulness of the intervention. 39 toddlers were studied. Most lifestyle parameters had improved at follow up. Reported fruit and vegetable intake of more than 4 portions per day increased from 20.5% of toddlers at baseline 28.6% at follow up. The number of toddlers abstaining from unhealthy snacks increased from 15.4% to 21.4%. Television watching of more than 2 hours daily decreased from 12.8% to 0%. Supervised exercise of more than thirty minutes per day increased from 69.2% to 89.3%. The majority of parents reported at follow up that they found the intervention acceptable (100%, n = 28) and useful (79%, n = 22).

Introduction

Over 20% of children aged between two and four years old in Ireland are overweight or obese at school entry.[1] The pre-school period is an important time when children learn much about food, they also frequently attend their GP, which may provide opportunities for the primary prevention of obesity.[2] Modification of parental perceptions known to be associated with obesity-promoting behaviours may be a possible obesity prevention strategy.[3] Early community-based interventions have been shown to be effective in reducing body mass index (BMI) at two years.[4] It is known that individuals who become overweight as toddlers and children experience higher levels of morbidity and excess mortality in adult life.[5] The aim of this pilot study was to determine if it is acceptable and feasible to prevent childhood obesity by an educational intervention with parents at the time of 13 month vaccines. It is the first pilot study to our knowledge to examine the effectiveness of this intervention.

Methods

Parents and children attending for 13 month vaccination were invited to participate in the study by waiting room notice, provision of an information sheet and verbal invitation by the GP (Sept-Dec 2012). All consecutive parents were invited to participate. Parents were provided with a baseline survey .Questions were asked by the GP due to possible literacy issues. This survey included questions on the child's eating habits, fruit and vegetable intake, snack intake and consumption of fizzy drinks and fruit juices, several of which were taken from The Healthy Beginnings Australian 12 month Checklist.[4,6] This methodology was subjected to a pilot phase, and results are included. Ethical approval was obtained from the TCD HSE GP Training Scheme Ethics Committee. The study was conducted in two urban practices in Dublin: Practice 1 and Practice 2, located in contrasting socioeconomic areas. Practice 1 has a deprivation index of 10 (most deprived), whereas, Practice 2 has a deprivation index of 7.[7]

Parents were asked about the age of their leaving full-time education as an indicator of deprivation. The child's weight was measured at initial contact by the GP and plotted on the UK-WHO 0-4 centile charts.[8] An information sheet providing guidance on healthy eating and activity in toddlers from Ireland and Australia was given to each parent.[6,9] The child's weight was discussed with the parent. A follow-up telephone survey was conducted three months post baseline. This included the baseline questions to ascertain if any changes were made in parent reported activities, and parents were asked whether the intervention was acceptable and useful. Feasibility was evaluated with respect to the experience of the practice teams.

Results

A total of 39 parent and child dyads were included at baseline, with attrition to 28 at follow up. Reasons for loss to follow-up include inability to contact parents after three attempts, and relocation of the families. The average age of the child at baseline was 13 months. All children were otherwise healthy. A total of 51% of parents were eligible for care under the Primary Care Reimbursement Services (public patients). In Practice 1(i.e. most deprived), average parental school leaving age was 16 yrs; in Practice 2 (i.e. least deprived) it was 22 yrs. At baseline, 26% of children were above 91st centile for weight with 10% of those being above the 98th centile. 51% of children were breast fed at birth: 10% of public patients and 85% of private patients (see Table 1).

Table 1 Socio-demographics

Parameter	Total	Practice 1	Practice 2
Deprivation index	N/A	10 (most deprived)	7 (less deprived)
Age of leaving education	19	16	22
% toddlers ≥91st weight centile at baseline	26%	33% (N=6)	20% (N=4)
Percentage of private patients	49%	11%	86%
Percentage breastfed	51%	22%	71%

Table 2 Results of Toddler Healthy Lifestyle Survey

Lifestyle Parameter	Baseline	Follow-up	T-test
% Fruit and Veg intake of 4 or more portions	20.5	28.6	1.95*
% Abstinence from unhealthy snacks	15.4	21.4	3.95*
% Sugared Fizzy drink intake	0	3.6	3.86*
% Fruit juice throughout day	41.0	25.0	1.87*
% TV watching over 2 hrs	12.8	0	0.47
% Exercise over 30min/day	69.2	89.3	0.97

* indicates significant differences at p<0.05 level

Parental Perceptions of Overweight in Toddlers

90% of parents indicated they believe that it is possible for toddlers to be overweight. 28% indicated that weight is not an important issue with toddlers. 77% of parents reported that they never worry about their child's weight. Of those reporting worry, 20% worry that their child is underweight while 3% worry that their child is overweight; 90% of those parents of overweight children did not worry about their child's weight. All participants surveyed reported they found it acceptable for their GP to raise the link between healthy eating and weight in their child. 72% reported that they were given healthy eating advice for their child from the health service, 86% of these from Public Health Nurse (PHN), 10% from community groups, 3% from both PHN and community groups. No participant reported to receiving previous advice from their GP. 31% reported receiving advice about healthy activity for their toddler, all from their PHN.

Parents Feedback

Parental feedback was elicited using a rating scale from 1 to 5 where 1 was 'not useful at all' and 5 was 'very useful'.79% of parents reported that a GP led discussion on healthy eating was useful or very useful, rating the discussion at 4 or 5. We asked parents to rate the information sheet we used in consultation on the same scale; 68% of parents positively rated it as 4 or 5. We asked parents if the advice encouraged them to improve their child's health and 64% agreed it had done so, while 11% disagreed.

Discussion

The majority of childhood obesity prevention programmes are focused on school-aged children.[2] This is the first Irish study, to our knowledge, to examine the effects of educating parents about childhood nutrition at the time of 13 month vaccines. Our intervention is unique as it is focused on a sample of Irish toddlers, an area which is generating research interest as a possible target for prevention. In addition, there are many research papers addressing GP's attitudes and barriers to childhood prevention, but few GP-led childhood obesity prevention strategies. GP reluctance to engage systematically in this area of care has historically related to their concerns regarding causing upset to parents and children. A recent Irish study reaffirms these concerns among Irish GPs, but among a large sample of parents concurrently studied, whose children had been systematically weighed, 98.6% indicated they found unsolicited weighing, while attending for unrelated health issues to have been helpful.[10] In our study there was no reluctance to weighing toddlers.

A systematic approach to addressing childhood obesity by GPs is required. Repeated studies have shown that parents fail to recognize that their child is overweight.[11,12] High attendance rates in the pre school period by obesogenic families are currently an unexploited opportunity to assist such families by earlier identification of childhood overweight, and to begin to manage the problem as a family issue in a supportive and consistent manner. In our study, 90% of parents believe that toddlers can be overweight but 77% report never worrying about their child's weight. More concerning, 90% of parents of overweight children did not worry about their child's weight. In one previous Irish study 81.8% of overweight children were perceived to be a normal weight by their parents.[12] Given that parents are poor at recognising that their child is overweight, their GP is arguably well placed to assist in reliably identifying childhood overweight and providing suitable and acceptable advice. In this study however, no parents recollected previous advice from their GP. Our study was able to easily avail of the opportunity inherent in a planned vaccination visit at 13 months, which has a national attendance rate of over 90%.[13] We believe the results demonstrate that this is a feasible and ideal opportunity to screen for overweight and to conduct a short intervention.

The current intervention was possible to achieve within a planned consultation. It took approximately 2-3 minutes to discuss the handout with parents, and to plot the child's weight on a centile chart. This can be easily carried out with minimal resourcing. Parents found the intervention acceptable (100%). Most rated the discussion on healthy nutrition and the lifestyle information sheet as very useful. There were differences in results between the practices. In the more deprived Practice 1, 26% of toddlers were watching more than 2 hours of television per day compared to none in Practice 2. We found that self reported lifestyle parameters improved more significantly in Practice 1. The usefulness of the discussion on healthy eating was given a higher average rating in Practice 1 than in Practice 2; 100% rated the intervention very useful in Practice 1 whereas 53% rated it very useful in Practice 2. Many parents in Practice 2 reported that they were already aware of the healthy eating and activity advice that we gave and therefore found it less useful. These differences are likely to be related to the difference in educational attainment of parents between the two practices. This highlights the importance of tailoring education to the practice population and further, it was evident that acceptability was highest in the more deprived environment, where prevalence of overweight is known to be highest.

Limitations of our study included small sample size, limited resources and short follow up period. Responder bias in the survey was partly addressed by having the telephone survey administered by a researcher external to the patient's practice, advising them this was the case, and advising them their responses were confidential, and would only be reported as part

of group responses. Given the scope and duration of the study, it was not possible to ascertain if meaningful reduction in the proportion of the sample that were overweight was achieved, but parent reported changes in nutrition, screen watching and increases in exercise were encouraging. Studies examining secondary intervention have yet to find consistent success in reducing BMI.[14,15] We believe that primary intervention of childhood obesity should be the focus. Previous studies have indicated that a measure of weight at 5 years of age provides a good indication of future health.[16] A recent study evaluating the incidence of childhood obesity in the United States found that overweight 5-year-olds were four times as likely as normal-weight children to become obese with a 9-year cumulative incidence of 31.8% vs. 7.9%.[17] Other research has found that overweight or obese children who were obese as adults had increased risks of type 2 diabetes, hypertension and dyslipidaemia. The risks of these outcomes among overweight or obese children who became non-obese by adulthood were similar to those among persons who were never obese.[18] Given these consequences of childhood obesity, the preschool period appears to be the optimum time for intervention.

In conclusion, these results indicate that educational intervention and review of toddler nutrition and healthy activity at the time of 13 month vaccines is both feasible for GPs and acceptable to parents. This intervention (checking weight and short educational intervention) appears practical in the context of general practice consulting. Parents involved reported it to be a useful intervention. Results include marked improvement reported in key behaviours and lifestyle parameters. These were most evident in the practice with a lower school leaving age among parents. A larger study utilising this methodology is planned, with a view to acquiring a more representative sample, and to evaluate efficacy of the intervention in terms of reducing the proportion of children who are overweight.

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Re-Attenders to the Emergency Department of a Major Urban Hospital Serving a Population of 290,000

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Abstract
The national Emergency Medicine Programme (EMP) in Ireland, defines a re-attender as any patient re-presenting to the Emergency Department (ED) within 28 days with the same chief complaint. A retrospective, electronic patient record audit was carried out on all re-attenders to Connolly ED during November 2012. There were 2919 attendances made up from 2530 patients; 230 patients re-attended a total of 389 times. The re-attendance rate was 13% (389/2919). 63 (27%) were frequent presenters. There was a significantly higher admission rate at second attendance than first (89 (39%) vs 39 (17%), $p<0.001$). 25% (57/230) of patients 'left before completion of treatment' (LBCT) at first attendance (significantly higher than the number at second attendance ($p<0.01$)). 14/57 (25%) of those who LBCT at first attendance required admission at second attendance. 28/89 (31%) of second attendance admissions were failed discharges from first attendance. Reasons for re-attendance are multi-factorial and include both patient and departmental factors.

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Introduction

Re-attenders and frequent attenders to Emergency Departments are differing and distinct groups. However, the care and management of these patients reflect on both the efficiency and the quality of processes within a department. Therefore, the re-attendance rates within a department and the reasons for re-attendance, merit regular audit[1]. A recent study within the emergency department (ED) at Connolly Hospital found that 0.5% of patients made up 4% of attendances within a 1 year period showing that re-attenders have a considerable effect on departmental workload and waiting times[2]. Some Studies have proposed a benchmark of less than 1%re-attendance within 72 hours[3]. The College of Emergency Medicine in the UK state that the rate of unplanned re-attendance is a clinical quality indicator and recommend a re-attendance rate of 1-5%within a 7 day period[4]. In Ireland, the national Emergency Medicine Programme (EMP), defines a defined a re- attender as any patient re-presenting to the ED within 28 days with the same chief complaint[1] as other studies have in the literature[5]. Frequent presenters (FP) to the ED were defined as four or more presentations to ED within the previous year[6]. A previous study carried out in an inner city Dublin ED showed that increasing frequency of attendance was significantly associated with increasing age, male sex, local residence and GMS (free medical health care) eligibility[7]. A British study concurred showing frequent attenders were typically older, male and also that they presented with greater acuity than typical ED patients[8]. This audit was undertaken as part of a quality improvement process within the department to assess both the quantitative and qualitative factors contributing to re-attendances and to explore the patient and departmental related factors contributing to re-attendance.

Methods

A retrospective, electronic patient record audit was carried out on all re-attenders to Connolly ED during November 2012. All adult patients who represented to the emergency department within 28 days with the same presenting complaint. No exclusion criteria were used. Patients were categorized into five major department outcomes: admitted (admission to hospital after being seen by an in-house specialist medical team), discharged (by ED staff directly or after being seen by specialist team), left before completion of treatment (LBCT) (patient left the ED while waiting to be seen either by ED clinician, consulting clinician or before treatment was concluded), refused admission or died in the ED. Data was recorded on Excel and tests of significance for categorical data were calculated using X2(Chi-squared test). For frequent presenters (four or more presentations to ED within the previous year), their first two presentations in November were used. No funding was provided for the study. No conflict of interest was declared by the authors.

Table 1 The age distribution for re-attenders and all patient attendances to the ED during November 2012

Distribution by Age (years)	Re-Attenders November 2012 (n=230)	All Attendances November 2012 (n=2919)
16-39	106 (46%)	1282 (44%)
40-60	64 (28%)	906 (31%)
>60	60 (26%)	731 (25%)
Total	230 (100%)	2919 (100%)

Results

Demographics

There were 2919 attendances in Nov 2012 made up from2530 patients; 230 patients re-attended a total of 389 times. The overall re-attendance rate was 13%. Sixty-three patients (27%) were frequent presenters, that is, attended the ED on 4 or more occasions in 2012. There was no significant difference in gender in re-attenders; 110 (48%) female, 120 (52%) male (p=0.5). The age distribution of the re-attenders was weighted more towards young adults and is shown in Table 1. Times for first presentation to the ED for re-attenders: 43 (19%) presented between 0:00-8:00 hours, 123 (53%) presented between 8:00-16:00 hours and 64 (28%) presented between 16:00-00:00 hours.

Table 2 The outcomes for re-attenders at 1st and 2nd attendance

Outcomes for Re-Attenders	1st Attendance	2nd Attendance	Chi Test
Discharged	130 (56%)	122 (53%)	p=0.45
Admitted	39 (17%)	89 (39%)	P<0.001
LBCT	57 (25%)	17 (7%)	P<0.001
Refused Admission	4 (2%)	1 (0.5%)	p=0.09
Died	0 (0%)	1 (0.5%)	p=0.39
Total	230 (100%)	230 (100%)	

Outcomes

Outcomes for re-attenders at first and second presentation are shown in Figure 1 and Table 2. Patients discharged at first presentation may have been discharged directly by ED staff or may have been referred to a specialty team and discharged by that team. Of the 45 patients initially discharged at first presentation and subsequently admitted at second presentation, 24 (53%) patients were discharged by ED staff and 21 (47%) discharges were by in-house specialist medical teams. Eighty-nine patients were admitted on their second presentation to ED; 28 patients (31%) had been admitted on their first presentation and later discharged.

Frequent Presenters

Frequent presenters formed a large cohort within there-attender population; 63 patients amongst the 230 re-attenders presented on 4or more occasions in 2012. There was no significant difference in gender in re-attenders; 29 (46%) female, 34 (54%) male (p=0.53). The age distribution showed two peaks in the young adult and elderly population; 24 (38%) re-attenders were aged between 16-39 years, 15 (24%) were aged between 40-60years and 24 (38%) were aged greater than 60 years. Figure 2 shows the outcomes for frequent presenters. As with re-attenders, frequent presenters were significantly more likely to be admitted at second attendance than first (43% vs 24%, p=0.02) and significantly more likely to LBCT at first attendance than second (30% vs 13%, p=0.02). There was no significant difference in the number of frequent presenters discharged at first and second attendance (p=0.86).

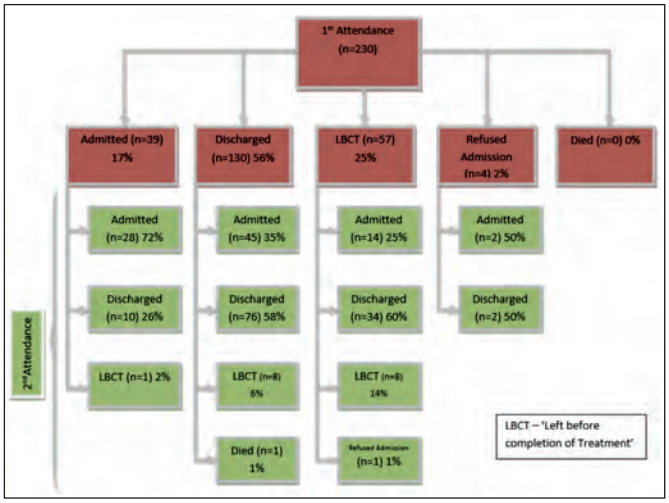

Figure 1 The outcomes for all patients at 1st and 2nd attendance

Discussion

Re-attendances made up 13% (389/2919) of attendances in this one month audit, higher than that recommended by the College of Emergency Medicine[4] and the guidelines recommended by the Irish Emergency Medicine Programme[1]. The College of Emergency Medicine in the UK recommend a re-attendance rate < 5% at 7-days[4]. Irish guidelines recommend that both a 7 and 28 day re-attendance figure is used, until clear international guidelines become available[1]. There was no significant difference in gender (p=0.5) and the majority fell into the younger age brackets, with 74% of those in the study aged under 60 years. This differed from our expectations based on background literature as studies in Ireland have shown that increasing

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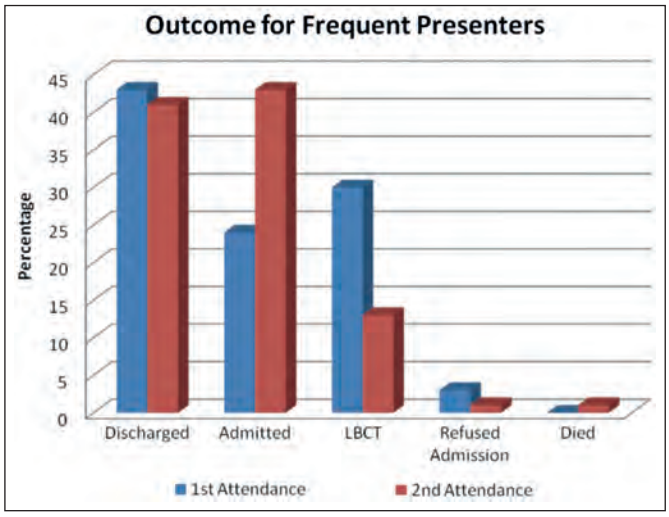

Figure 2 The outcomes for frequent presenters at first and second attendance.

frequency of attendances was associated with increasing age and the male gender[7]. Similar results demonstrated internationally found frequent attendances were significantly associated with patients over 75 years and male gender[9]. Additionally, aging populations have higher levels of chronic disease[10] and chronic obstructive pulmonary disease and heart failure have been significantly associated with frequent attendances[9]. One way to reduce ED presentations in patients with these chronic diseases would be to use a drop in service or rapid access outpatient clinics offered by in-house medical teams. That way patients would have access to appropriate physicians and allied healthcare professionals and targeted interventions could reduce repeated presentations to the emergency department[11].

The differences found in this study may be a reflection of population trends in the catchment area. Blanchardstown falls into the Dublin West electoral constituency which contains a population growing three times faster than the Irish national average and the average age (30.2) is below the national average (35.6). Additionally, only 3.8% of the Dublin West population is aged 65 years and over compared with 11% nationally[12]. Hence, a younger population with differing reasons for re attendance. Previous studies would suggest that increasing frequency of attendance was significantly associated with "out of hours" attendance, that is, attendance between the hours of 1700 and 09007. However, this study demonstrated that 107 (47%) presented between 16:00 and 08:00 and in fact the majority 123(53%) initially presented between 08:00-16:00. This is an unusual finding as the department's highest staffing levels are between 08:00 and 16:00 hours. Other departmental factors such as overcrowding and long waiting times need to be considered. There was a significantly higher admission rate at second attendance than first (39% versus 17%, $p<0.001$). This may have been due to worsening pathology between first and second presentations. Alternatively, a missed clinical diagnosis at first attendance or fear of missed diagnosis leading to overly cautious admissions at second attendance may have been responsible. Possibly, given the current bed shortages and hospitals working at maximum capacity there is a pressure on doctors for only 'essential' admissions[13]. Thus, in some cases a safe 'trial of out-patient management' is attempted at initial presentation and can result in re-attendance with partially treated or worsening pathology. This may explain why 31% of second attendance admissions had previously been admitted at first attendance and their discharge was unsuccessful. Worryingly, 25% (57/230) of patients LBCT at first attendance (significantly higher than the number at second attendance ($p<0.01$)). This figure is much higher than the 5% recommendation set by the Emergency Medicine Programme in Ireland. Other departmental factors such as staff levels, staff skill mix and long waiting times may need to be examined to determine their role in to re-attendance rates. Moreover, 14/89 (16%) of second attendance admissions were patients who LBCT at first attendance. Efforts must be made to reduce the number of patients who leave before completion of care as this poses potential clinical risk.

Frequent presenters were significantly more likely to be admitted at second attendance than first ($p=0.02$). There were also more likely to 'leave before completion of treatment' at both first and second attendance compared with the overall group (30% v's 25% and 13% v's 7%). Similar reasons for higher second attendance admission would apply to frequent presenters and possibly with more emphasis on an increased fear of missed diagnoses compared with non-frequent attenders. The higher rates of 'LBCT' cannot solely be attributed to departmental or patient factors but rather a blend of the two. Frequent presenters also tend to access more community based services such as general practitioners, social workers, addiction councillors, psychiatric and community welfare services. Reasons for this and their increased ED presentations was attributed to poorer mental health, lower levels of perceived social support and thus, services not meeting the needs of this psychosocially vulnerable group[14]. As well as psychosocial vulnerability, alcohol misuse and dependence can significantly contribute to the frequency of emergency department presentations and so improving access to drug and alcohol services could help reduce re attendance rates[15]. Furthermore, evidence suggests that individualised care plans designed by a multi-disciplinary team can significantly reduce ED attendances for frequent presenters[16]. Whilst initially creating more work, this ' difficult-case' management programme is effective at reducing the number of ED visits and importantly, improves the care delivered to this group of patients[16].

Due to its design, this audit has a number of limitations. The method of data collection used a computer-based capture where by re-attenders were labelled by representing within 28 days with the same presenting complaint. Re-attenders were flagged at their second attendance. Hence, by using November, re-attenders whose first presentation was in October were included and those whose second attendance was in December were missed. Therefore, this reduces the accuracy of the data. The study included 230 re-attenders over a one-month period. Hence, significant patterns and trends may not be apparent with such a small sample size. For more accuracy, a one year audit would be necessary and ideally multi-centered. Reasons for re-attendance are multi-factorial and include both patient and departmental factors. We have analysed only a few of these factors and more detailed research must be undertaken to examine exact reasons for patient return and therefore highlight preventative measures we can implement.

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Major Cost Savings Associated with Biologic Dose Reduction in Patients with Inflammatory Arthritis

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Abstract
The purpose of this study was to explore whether patients with Inflammatory Arthritis (IA) (Rheumatoid Arthritis (RA), Psoriatic Arthritis (PsA) or Ankylosing Spondylitis (AS)) would remain in remission following a reduction in biologic dosing frequency and to calculate the cost savings associated with dose reduction. This prospective non-blinded non-randomised study commenced in 2010. Patients with Inflammatory Arthritis being treated with a biologic agent were screened for disease activity. A cohort of those in remission according to standardized disease activity indices (DAS28<2.6, BASDAI<4) was offered a reduction in dosing frequency of two commonly used biologic therapies (etanercept 50mg once per fortnight instead of weekly, adalimumab 40mg once per month instead of fortnightly). Patients were assessed for disease activity at 3, 6, 12, 18 and 24 months following reduction in dosing frequency. Cost saving was calculated. 79 patients with inflammatory arthritis in remission were recruited. 57% had rheumatoid arthritis (n=45), 13% psoriatic arthritis (n=10) and 30% ankylosing spondylitis (n=24). 57% (n=45) were taking etanercept and 43% (n=34) adalimumab. The percentage of patients in remission at 24 months was 56% (n=44). This resulted in an actual saving to the state of approximately 600,000 euro over two years. This study demonstrates the reduction in biologic dosing frequency is feasible in Inflammatory Arthritis. There was a considerable cost saving at two years. The potential for major cost savings in biologic usage should be pursued further.

Introduction

Biologic agents have revolutionised the management of patients with inflammatory arthritis, particularly rheumatoid arthritis (RA), psoriatic arthritis (PsA) and ankylosing spondylitis (AS). They have been proven to greatly improve disease activity, reduce or prevent joint damage and help patients to continue in employment. The drugs are extremely expensive. The annual spend worldwide on Tumour Necrosis Factor (TNF) inhibitors in RA has been estimated at 18 billion euro. In Ireland, the cost of treating one patient per year at the licensed dosage with the most commonly used agents etanercept or adalimumab is approximately 13,500 euro. The state bears this cost except for those on the Drug Payments Scheme who currently contribute a maximum of 1728 euro per annum. With a population of 4.6 million the cost in the Republic of Ireland is approximately 130 million euro annually. It is clear therefore that any sustained reduction in biologic dose or dosing frequency could lead to major cost savings. Other potential advantages of reduced dosing include reduced side-effects such as infections and possibly demyelinating disease. Reducing either the dose or the dosing frequency of biologic agent in those whose inflammatory arthritis is in remission or with low disease activity (LDA) has been shown to be feasible in a number of small studies[2-9]. The aim of this study was to reduce the dosing frequency of biologic agents in those whose inflammatory arthritis was in remission and to calculate the associated cost savings at two years.

Methods

This prospective single-centre, observational, non-blinded non-randomised study commenced in 2010. Patients with inflammatory arthritis including seropositive or seronegative rheumatoid arthritis, psoriatic arthritis and ankylosing spondylitis attending the biologic clinic at our hospital were screened for disease activity. A cohort of those in remission on Etanercept or Adalimumab (defined as Disease Activity Score (DAS) 28 <2.6 or Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) <4) for at least six months prior to study entry was offered a reduction in biologic dosing frequency – etanercept 50mg once per fortnight instead of weekly or adalimumab 40mg once per month instead of fortnightly.

After obtaining consent, those willing to participate were assessed for disease activity at 3, 6, 12, 18 and 24 months following the reduction in dosing frequency. During the two year period of observation patients with a single flare of disease activity were permitted to remain on the reduced dosing frequency. The flare was treated with one intramuscular injection of MethylPrednisolone 120mg. If there was a further flare the frequency of biologic administration reverted to the licensed frequency. Those with a single flare but whose inflammatory arthritis was in remission at two years were considered to have remained in remission. Demographic data including gender, age, disease duration, duration of biologic agent, disease type, biologic administered, concomitant methotrexate and concomitant NSAID use were collected. DAS28 and health assessment questionnaire (HAQ) was calculated for patients with seropositive rheumatoid arthritis, seronegative rheumatoid arthritis and psoriatic arthritis. BASDAI and BASFI (Bath Ankylosing Spondylitis Functional Index) were calculated in patients with Ankylosing Spondylitis.

Cost saving was calculated as the difference in cost between the

CPD available online at www.imj.ie and questions on page 31.

Table 1 Baseline characteristics	
Number of patients	**79**
Age, years (SD)	49.5 (14.1)
Gender	
Male	51.9% (n=41)
Female	48.1% (n=38)
Disease duration	7 years (1-40)
Seropositive RA	44.3% (n=35)
Seronegative RA	12.7% (n=10)
Ankylosing Spondylitis	30.4% (n=24)
Psoriatic Arthritis	12.7% (n=10)
Percentage on Etanercept	57 (n=45)
Percentage on Adalimumab	43 (n=34)
Duration of anti-TNF use	31mths (12-72mths)
Concomitant methotrexate use	53.2% (n=42)

SD=standard deviation RA=rheumatoid arthritis, anti-TNF (anti-tumour necrosis factor)

actual amount of biologic agent used compared with the cost if the licensed dosage had been used for two years. Statistical analysis was performed using SPSSv20 for windows. Descriptive statistics were used for demographic data. Paired sample T test was used to compare DAS28, HAQ, BASDAI and BASFI scores at 0, 3, 6, 12, 18 and 24 months. The primary outcome was the percentage of patients who remained in remission at two years following a reduction in biologic dosing frequency.

Results

Seventy nine patients were recruited. All patients had inflammatory arthritis and had been in remission for a minimum of 6 months prior to recruitment. Demographic data is shown in Table 1. Mean age was 49.5 years. Mean duration of inflammatory arthritis was 7 years. (Range 1-40). Fifty seven per cent (n=45) had a diagnosis of rheumatoid arthritis, of whom 78% were seropositive and 22% seronegative. Thirteen percent had psoriatic arthritis (n=10) and 30% ankylosing spondylitis (n=24) (Figure 1). Fifty seven percent (n=45) were taking etanercept and 43% (n=34) adalimumab.

Mean duration of anti-TNF therapy prior to dose reduction was 31 months (range 12-72). Forty one per cent (n=33) were on biologic monotherapy. Fifty three per cent (n=42) were taking concomitant methotrexate while 6% (n=4) were taking an alternative DMARD including salazopyrin or leflunomide. Using paired sample t-tests in SPSSv20, in those who stayed in remission, no significant difference in DAS28, HAQ or BASDAI scores from baseline to 24 months was identified. ($p<0.05$). The percentage overall of those in remission fell over two years of follow up from 83% (n=66) at 3 months, to 75% (n=59) at 6 months, 61% (n=48) at 1 year and 56% (n=44) at 2 years (Figure 2).

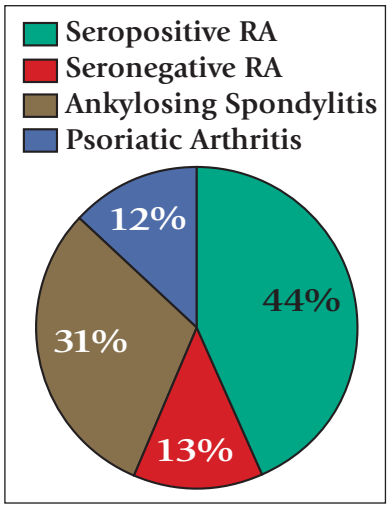

Figure 1 Disease distribution

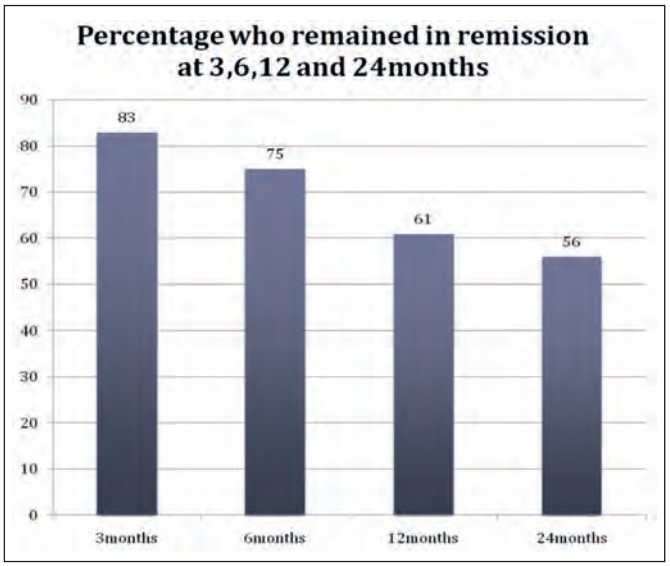

Figure 2

Discussion

This study provides further evidence that biologic dose reduction is feasible in Rheumatoid arthritis, Psoriatic arthritis and Ankylosing Spondylitis. A number of studies, both prospective and observational, have in recent years shown significant proportions of patients remaining in remission between 1 and 2 years after dose reduction[2-9]. The studies have in general used the two most commonly prescribed sub cutaneous biologic agents, Etanercept and Adalimumab.[1,3-8] They include relatively small numbers of patients but consistently show a pattern of remission maintenance. The rate of remission maintenance varies with the type of inflammatory arthritis, and in general appears lower in rheumatoid arthritis. In Ankylosing Spondylitis approximately 70 to 80 percent appear to remain in remission, with figures of 60 to 70% in Psoriatic Arthritis and 30 to 40% in Rheumatoid Arthritis. In our study the percentage overall of those with Inflammatory Arthritis maintaining remission fell from 83% at 3 months to 56% at 2 years. Only one other study has a two year follow up and it is clearly possible that the percentage maintaining remission would fall further with time.

In Rheumatoid arthritis the percentage of patients achieving remission with standard licensed doses of biologic agents is relatively low at 30 to 40%[1]. As a result, some studies focus on the attainment and maintenance of low disease activity (LDA) where patients show substantial reduction in disease activity without achieving remission. Maintenance of low disease activity following biologic dose reduction has been demonstrated in a prospective, randomized trial, the PRESERVE study[2]. In this large trial involving 834 patients, 80% of those initially achieving LDA with standard dose Etanercept for 6 months maintained LDA despite reducing the dose of the drug by 50% for a further year. The percentage maintaining LDA was not significantly different compared with the group that remained on the standard dose of Etanercept for the full 18 months. It may therefore be possible to dose reduce in those with substantial clinical benefit but not remission, without loss of benefit. The question of possible differences in radiographic joint damage between standard and lower dose biologic agent in RA has shown conflicting results. Tada et al found higher rates of joint damage in those on lower dose Etanercept despite similar responses in terms of clinical benefit[3]. However Raffeiner et al showed identical capability to arrest radiographic joint damage with standard and reduced doses of Etanercept[4].

Our study has a number of limitations. The sample size is small and includes patients with 3 types of inflammatory arthropathy. There was no control group in which biologic doses were not reduced. We chose to maintain those with one flare of Inflammatory Arthritis on the reduced dosing frequency where a single dose of MethylPrednisolone 120mg settled the flare. This was a 'real world' decision as it would have seemed excessive to effectively double patients' biologic dose back to the licensed dose on account of what was frequently a brief flare. While this study included Etanercept and Adalimumab, dose reduction may be possible with other anti-TNF agents and other biologic agents with different targets and mechanisms of action such as Tocilizumab, Abatacept and Rituximab. While the advent of biosimilars should reduce biologic cost by 20-30 percent, the cost of dose reduction offers the potential for savings of at least a similar magnitude[5]. The cost implications of successful dose reduction are considerable. Major cost savings have already been

shown in dose reduction studies.[4,6,7] The dose frequency reduction in our study resulted in an actual saving in a small cohort of 600,000 euro at 2 years. The estimated annual cost of sub cutaneous biologic agents for Inflammatory Arthritis in the Republic of Ireland is approximately 130 million euro. At an average cost of 13,500 euro per patient per annum this suggests there are c.10,000 patients with IA on these agents. It is known that in excess of 50% of those with Ankylosing Spondylitis or Psoriatic Arthritis can achieve remission with standard dose biologics while up to 70% of patients with RA achieve remission or Low Disease Activity on standard doses. If it was possible for example to successfully dose reduce 25% of those with Inflammatory Arthritis on biologic agents the savings could amount to tens of millions of euro at one year.

This study suggests reduction in biologic dosing frequency is feasible in inflammatory arthritis. It resulted in considerable cost saving at two years. A substantial proportion of patients (56%) remained in remission at two years. A reduction in biologic dosing frequency should be considered in patients with Inflammatory Arthritis in remission or with low disease activity in Rheumatoid Arthritis.

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Locally Advanced Rectal Cancer: A Cooperative Surgical Approach to a Complex Surgical Procedure

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Abstract
Single stage en bloc abdominoperineal resection and sacrectomy, with a myocutaneous flap closure is a relatively uncommon procedure. Our case study of a 77 year old man with a locally invasive rectal adenocarcinoma highlights the complex intraoperative management of such a patient.

Case Report
A 77 year old man presented with intermittent constipation for 3 weeks with ongoing perianal discomfort following long periods of sitting. Colonoscopy and subsequent staging investigations diagnosed a T4 N2 M0 primary rectal adenocarcinoma, 5 cm above the pectinate line, with peri rectal lymphadenopathy and invasion of the adjacent sacrum. Neo-adjuvant chemoradiotherapy preceded surgical intervention. Please refer to Figure 1 for MRI imaging of the lesion. Definitive surgical management comprised of an en bloc abdominoperineal resection with sacrectomy and a myocutaneous flap for closure of the resulting defect. On the morning of surgery, an epidural catheter was initially placed at the T9 level for post-operative analgesia. Bilateral prophylactic ureteric stents were sited under direct vision by the urologist. A draining nasogastric tube and urinary catheter were also sited. The procedure began with the patient in supine position, with a lower midline laparotomy incision by colorectal surgeons. Following dissection through the anterior abdominal wall and dissection of the left paracolic gutter, the colon was transacted at mid-sigmoid level and an end stoma formed. Dissection in the total mesorectal excision planes was undertaken to the distal rectum. Orthopaedic input then commenced with an anterior approach to the sacrum where the tumour was adherent to the caudal aspect of S3. An osteotomy was performed at mid S3 level. Metal markers were positioned on the anterior sacrum to guide the osteotomy for the perineal approach, thus ensuring en bloc resection. The abdomen was subsequently closed in layers and a peritoneal drain placed.

The patient was moved to a prone position, supported on a Toronto frame for commencement of the perineal approach. Perineal dissection in the antero-lateral planes extended to the sphincters and posterior extents of the bladder and prostate. Pre-operatively, based on radiological imaging, en bloc resection was planned to include S4 and S5 nerve roots bilaterally. Free dissection of the left S3 nerve root was carried out, however, the right S3 nerve root was seen to enter the tumour and unfortunately also had to be removed en bloc. The osteotomy was completed at mid sacral level and the sacrum was mobilised en bloc with the rectum and colon. Please refer to Figure 2 for a

perineal view, post en bloc resection. The resulting large perineal defect was closed by plastic surgeons using a gluteal transposition flap. The gluteus maximus was split parallel with the direction of muscle fibres, the flap inserted into the defect and fixed with a 2-0 absorbable suture. A perineal drain was sited prior to closure.

The patient was transferred to the intensive care unit in satisfactory condition and remained in hospital for 28 days. In the immediate post-operative period, no neurovascular deficit was clinically detectable in the lower limbs and the patient remained haemodynamically stable. The abdominal and perineal drains were removed on post-operative days 8 and 16 respectively.

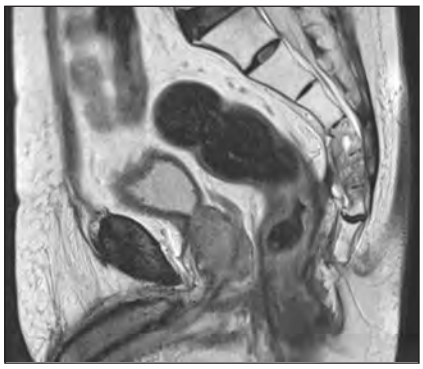

Figure 1

Saggital View Showing Rectal Tumour with Sacral Infiltration

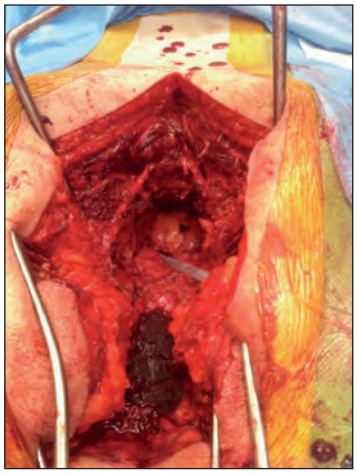

Figure 2

Perineal View Post En Bloc Abdominosacrectomy

Independent mobilisation, without aids, was achieved prior to discharge. Post-operative complications included an episode of fast atrial fibrillation and two failed trials of urinary voiding on post-operative days 11 and 21. The patient experienced urinary incontinence without any sensations of urgency. Intermittent self catheterisation training was undertaken prior to discharge.

Discussion

Primary rectal cancers initially present as locally advanced tumours in up to 10 percent of cases, however, they rarely involve the sacrum. The only potentially curative option in these cases is abdominosacral resection.[1] Although a high-risk procedure, it is associated with a relatively low mortality in select patients.[2,3] Overall 5-year-survival rate is estimated to be less than 30 percent.[1] Higher survival rates are associated with primary, rather than recurrent, rectal cancers.[4] It is a technically challenging procedure with a documented high risk of complications, requiring intraoperative specialist input from colorectal, orthopaedic, urological and plastic surgeons. Higher levels of sacrectomy necessitate resection of higher spinal nerves and therefore correlate with an increased incidence of post-operative rectal, bladder and sexual dysfunction.[5]

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Metachronous Adenocarcinoma of the Remnant Oesophagus 15 years following Multimodal Therapy

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Abstract

A 53-year-old man underwent neo-adjuvant chemo-radiotherapy and a 2 stage oesophagectomy for a junctional oesophageal tumour in 1996. In March 2012, a metachronous oesophageal tumour was identified, 7cm above the anastomotic margin, on a background of non-inflamed squamous mucosa. He is currently being managed with chemo-radiotherapy. Oesophageal cancer is associated with a historically poor survival rate, with primary concerns being local recurrence or death from disseminated disease. This case highlights the challenges which must be faced, as treatment strategies improve and consequently survival rates increase.

Introduction

Recent advances in the surgical and multimodal management of oesophageal cancer may improve cure rates and survivorship[1,2]. Metachronous tumors may be a risk in long-term survivors, and for oesophageal cancer this may reflect a field change, chronic duodenogastric reflux consequent on the resection and reconstruction, or the effect of treatment, in particular radiation therapy. We report a case of adenocarcinoma of the remnant oesophagus post multimodal therapy, and discuss the possible aetiological factors and management considerations.

Case Report

The patient first presented in 1996 to St. James's Hospital. He had dysphagia and weight loss, on a background of long standing

gastro-oesophageal reflux disease (GORD), and an adenocarcinoma was diagnosed in the lower third of the oesophagus. Endoscopic ultrasound and Computed Tomography (CT) staged him as T3N0M0, and he was treated with neoadjuvant therapy (5-Flouro Uracil, Cisplatin, and 40 Gy/ 15 fractions radiation) prior to a 2-field oesophageal resection[3]. The pathologic stage was ypT3 ypN0 with microscopic involvement of the proximal margin.

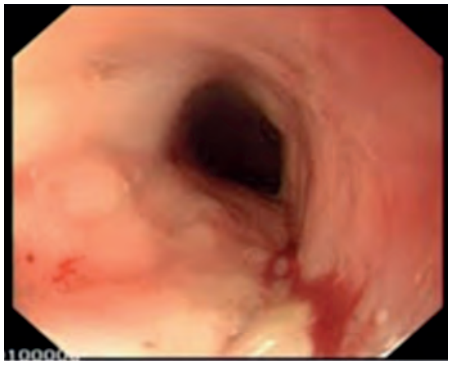

Figure 1

Endoscopic image post dilatation of stricture at 20cm. Note irregular mucosa just below stricture

The patient underwent annual endoscopy for follow up. He remained clinically well for fifteen years after his initial surgery when he represented with dysphagia. An endoscopy revealed a stricture at 20cm (Figure 1). This was non traversable with a 9mm endoscope and balloon dilatation was performed with a 15mm balloon. On advancing the endoscope beyond the stricture post dilatation, the oesophago-gastric anastomosis was visualised a further 7 cm distally and was normal in appearance, with a well demarcated neo-squamo-columnar junction and no Barrett's oesophagus. Biopsies of the stricture were obtained, and revealed an adenocarcinoma. Previous biopsies 1 year beforehand had shown inflammation only. A Positron Emission Topography-CT (Figure 2) showed tracer uptake in the oesophageal remnant but no nodal or metastatic spread. The diagnosis was a metachronous adenocarcinoma of the oesophageal remnant. The case was discussed at our multidisciplinary meeting, and options included surgery with jejunal, colonic interposition, or a pharyngo-laryngo-oesophagectomy, or alternatively chemo-radiotherapy using the Herskovic regimen[4]. The latter was decided on, and he received 50 Gy radiotherapy in combination with Cisplatin and 5-FlouroUracil. At one year following treatment he is clinically, endoscopically and radiologically tumour-free.

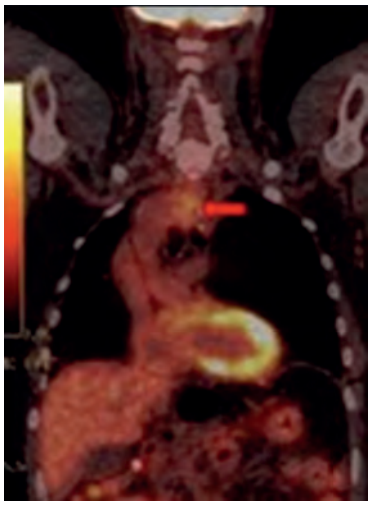

Figure 2

PET CT showing increased uptake above carina (Arrow) corresponding with endoscopic and histological findings

Discussion

This case is unusual in several aspects. First, a 15 year disease-free survival for residual disease (R1 resection) is extremely rare. For stage 3, in total, the 5 year survival is approximately 15 per cent.[5] Second, on re-presentation, the natural assumption was that he had recurrence of his original tumour, and advanced disease was predicted. However, endoscopically this tumour was 7cm proximal to the anastomotic margin. Third, chronic duodenogastric reflux occurs post-oesophagectomy predisposing to development of specialised intestinal metaplasia (SIM) and metachronous cancer (the risk being 2-5% in long-term follow up), however in this patient tumour arose on a background of non-inflamed, squamous mucosa, with no evidence of Barrett's SIM.[6-8] The tumour may have simply arisen de novo, with no identifiable aetiological factors. The history of radiation therapy would seem the most likely aetiological factor here, given the absence of known genetic factors. There are many reports of radiation-induced carcinomas, although squamous cell cancers predominate, association with adenocarcinoma risk is well described[9]. One study describing the incidence of adenocarcinomas arising in patients who received abdominal irradiation for childhood malignancies showed the risk was significantly increased, with a standardized incidence of 10.9 as compared to the US general population[10].

In conclusion, although many factors may underlie the risk of his second adenocarcinoma, late radiation carcinogenesis is the most likely significant factor. This raises the question of follow-up, and makes us reflect upon the most appropriate surveillance programmes for these patients post oesophagectomy for oesophageal carcinoma in a modern era where results have improved and the management is increasingly multimodal.

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In-Hospital Stroke: Characteristics and Outcomes

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To receive CPD credits, you must complete the questions online at www.imj.ie.

Abstract
In-hospital stroke (IS) made up 6.5% of strokes recorded in the Irish National Stroke Register in 2012. International research has demonstrated poorer outcomes post IS compared to out of hospital stroke (OS). We aimed to profile all IS and OS over a 22 month period and compare the two groups by gathering data from the HIPE portal stroke register. The study site is a primary stroke centre. IS represented 11% (50/458) of total strokes with over half (27/50, 54%) admitted initially with medical complaints. IS patients had a significantly longer length of stay (79.2 +/- 87.4 days vs. 21.9 +/- 45.9 days, p<0.01) and higher mortality (13/50 vs. 39/408, p<0.01). Patients in the IS group were also less likely to receive stroke unit care (1/50 vs. 136/408, p<0.01). This study demonstrates the significant morbidity and mortality associated with IS and highlights the need for efforts to be made to optimize identification and management of acute stroke in this cohort.

Introduction

Stroke can be viewed as the neurological manifestation of systemic disease, and is commoner in patients with complex medical backgrounds and multiple medical comorbidities[1], especially cardiovascular disease. In-hospital stroke (IS), occurring after a patient is admitted to hospital for another reason, makes a significant contribution to total stroke morbidity and mortality[2]. The extent of this can be underestimated in hospital activity data, where admission diagnosis is usually recorded as the primary diagnosis. IS tend to be more severe than out of hospital stroke (OS)[3]. Despite this, it is somewhat under-represented in clinical research. Much of the published literature on IS focuses on strokes occurring in the post-operative period, especially post coronary or carotid revascularization[4], with the incidence of post-operative stroke reported generally as 0.05-7%[5]. In 2012, 6.5% of strokes recorded in the Irish National Stroke Register were listed as inpatient strokes. Optimal management of IS is often compromised by the fact that patients may be post-operative or have significant medical comorbidities, either of which may preclude intravenous thrombolysis, or inhibit subsequent treatment and rehabilitation. Even when a subject with IS is thrombolysed, they tend to have worse outcomes compared to thrombolysed OS patients[6]. We aimed to profile all in-hospital and out of hospital stroke patients over a 22 month period from September 2011 to June 2013, and compare the two groups.

Methods

We gathered data from the HIPE portal electronic stroke register, including baseline characteristics and data on aspects of their care, as well as outcome data. Data on all patients diagnosed as having a stroke and admitted to the hospital are recorded on the database. Data for ICD-9 Classifications I61 (primary intracerebral haemorrhage) and I63 (Cerebral Infarction) were included. Data for TIA and Subarachnoid haemorrhage were not included as many of these subjects presenting to the Emergency Department (ED) are not admitted, but are either referred to outpatients or to neurosurgical services. This data was then compared to data from patients admitted after having a stroke out of hospital with the same classifications. The study site is a 1000 bedded university teaching hospital. It is a primary stroke centre, providing 24-hour thrombolysis for acute stroke and an acute stroke unit, as well as unselected general medical and surgical take. It is a national tertiary referral centre for multiple specialties including cardiothoracic surgery, oncology and oncology surgery. Proportions of patients in IS and OS groups were compared using Chi Square Statistics.

Results

Characteristics

IS represented almost 11% (50/458) of total strokes during the study period. There were no statistically significant differences in age and gender between groups (Table 1). There was a lower number of haemorrhagic strokes in the IS group (1/50, 2%) compared with the OS group (28/408, 7%) (p = 0.18). 26% (13/50) of the IS group were identified as having atrial fibrillation on admission compared with 21% (84/408) (p=0.38) of the OS group. 27/50 (54%) of the IS group were admitted initially with medical complaints. The most common presenting symptom was breathlessness (8/27), followed by falls (6/27) and chest pain (3/27). 23/50 (46%) were post-operative, with seven strokes post cardiac surgery. Over one third (18/50) of the IS patients had a known malignancy prior to the stroke. If we consider post-operative stroke and haemorrhagic stroke as a contraindication for intravenous thrombolysis, 25/50 (50%) of stroke in the IS group was not amenable to this treatment.

Stroke Care

The median length of stay in the IHS group was 79.2 +/- 87.4 days, compared with 21.9 +/- 45.9 days in the OS group (p < 0.01). The thrombolysis rates in the IS and OS groups were 1/50 (2%) and 51/408 (13%) respectively (p = 0.03). 2% (1/50) of the IS group received care in the acute stroke unit, compared with 33% (136/408) in the OS group (p<0.01).

Outcomes

There was a statistically significant higher mortality in the IS group (26%, 13/50) compared to the OS group (10%, 39/408) (p<0.01). Patients in the IS group were less likely to be discharged home also (Table 1).

Table 1

	In-hospital Stroke	Out of hospital Stroke	p Value
Female Sex	29/50	185/408	0.09
Age (Years)	73.84 +/- 11.7	72.15 +/- 13.5	0.40
Mean LOS (Days)	79.2 +/- 87.4	21.9 +/- 45.9	<0.01
Thrombolysed	1/50	51/408	0.03
Stroke Unit Care	1/50	136/408	<0.01
Atrial Fibrillation	13/50	84/408	0.38
D/C Home	25/50	264/408	0.04
RIP	13/50	39/408	<0.01
D/C Nursing Home	5/50	20/408	0.13

Discussion

This study demonstrates the significant morbidity and mortality associated with in-hospital stroke in an Irish hospital. Previous international studies have demonstrated that stroke in-hospital tend to be more severe with a lower likelihood of intravenous thrombolysis and increased risk of requiring nursing home care[7]. Our study found similar poor outcomes with IS patients having significantly higher mortality rates and significantly less chance of being discharged home. There are some limitations to this study which need to be noted. In general this study is retrospective but the data collection is prospective and organized. Despite this however it is possible that some in-hospital strokes were not recorded because they may not have been recognized or reported by the primary team. Also unfortunately we do not have data on specific measures of stroke severity, such as the NIHSS, to compare the two groups.

The population served by the study site is elderly and underprivileged and as such, may have higher levels of chronic medical illness than seen elsewhere. This may lead to higher rates

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of IS than one would normally expect, especially given that the majority of IS followed medical admission rather than operations or invasive procedures. Additionally the number of IS may be influenced by the fact that the study site is a tertiary centre for oncology and cardiothoracic surgical services and our data certainly reflects this. Conversely the study site does not have on-site neurosurgical services so some cases may be transferred to another site for neurosurgical input and not recorded in the HIPE database. This may partially explain the low rates of haemorrhagic stroke seen in the study. Despite the absence of delay to presentation, previous studies have shown that assessment for thrombolysis can take longer in IS compared to OS[8]. While protocols are often in place to streamline acute stroke management in the ED this is often not the case in the inpatient ward setting, potentially creating unnecessary delay in acute care. Also, nursing and other care staff on surgical or general wards are less likely to be experienced in the recognition of early stroke signs and provision of acute stroke care.

While intravenous thrombolysis may be contraindicated in the post-operative setting, and almost 50% of the IS group were post-operative, intra-arterial options such as thrombectomy may present an alternative method for revascularization[9]. Enhanced awareness of, and access to, such services may impact positively on thrombolysis rates in this cohort. In the context of the Irish health service, currently acute strokes are often redirected away from smaller hospital EDs to permit acute interventions and stroke unit care. These hospitals will continue to have in-hospital strokes however and it is unclear whether they have the expertise or capacity to manage these patients. Perhaps there may also be a role for redirecting IS in a similar manner, or for the development of standardized protocols and policies for optimal management. Efforts should be made to optimize identification of acute stroke in this cohort and enhance care for patients post in-hospital stroke with the aim of improving outcomes in this group.

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Mouth, Head & Neck Cancer Awareness Campaign

Sir

A campaign to promote awareness of mouth, head and neck cancer in Ireland began in 2010. This campaign was initiated primarily by a group of cancer survivors, the Irish Dental Health Foundation, Irish Cancer Society and the university dental schools in Cork and Dublin. The first Mouth Cancer Awareness Day (MCAD) was held at the Cork and Dublin Dental University Hospitals in September 2010. In order to make the free examinations more accessible throughout the country, the Irish Dental Association became a partner in the campaign in September 2011.

The objective was to further increase awareness in the general public and the dental profession. To date, 70% of dental practices countrywide have offered free mouth cancer examinations in addition to the two dental schools in 2010, '11, '12 and '13. Mouth, Head & Neck Cancer Awareness Ireland (MHNCAI) has promoted increased public and professional awareness of the warning signs of this disease, stressing the importance of early referral for these patients. We, of course, stress that a check for changes in the oral soft tissues is provided at every dental visit but increased awareness in the public arena means that individuals seek help early. Self examination is also encouraged and supported. Early detection of mouth cancer will result in better treatment outcomes - early detection saves lives. On MCAD, mouth cancer check-ups and information are provided free of charge in dental practices around the country. The two Dental Hospitals, as well as providing check-ups, have provided support and immediate follow-up for any cases considered to be urgent by the examining dentists. As a result of this campaign, we have established a clear referral pathway. Since the campaign began, approximately 20,000 free examinations have been carried out and 22 cases of oro-pharyngeal cancer have been detected. More importantly perhaps, awareness of this 'Cinderella cancer' has been significantly increased in the general public and in the dental profession. The challenge now is to increase awareness in the medical and other healthcare professions. The favourable media response, which has been the oxygen of this campaign, has been a very important part of the success of this initiative. The partnership is convinced that an awareness day, rather than a week or a month, has been a key factor in attracting media coverage. Recent statistics indicate a rise in the incidence of mouth, head and neck cancer in the UK.

In September 2013, a number of dentists in the UK participated in Mouth Cancer Awareness Day and we made our data collection and information material available. Our experience in Ireland has

Table 1 Mouth Cancer Awareness Days (MCAD) in Ireland 2010 - 2013

	2010	2011	2012	2013	Total
Patients examined in Dublin Dental University Hospital	1660	435	Referrals from GDP	Referrals from GDP	2095
Patients examined in Cork Dental University Hospital	1340	568	301 MCAD and Referrals from GDP	404 MCAD and Referrals from GDP	2613
Patients examined in General Dental Practice	NA	6764	4460 (701 gdp registered)	3758 (602 gdp registered)	14,982
Urgent referrals *	123	Urgent 83 *GDP referrals	Urgent 23 *GDP referrals	Urgent 80 *GDP referrals	
Biopsy completed	32	18	7	9	76
Cancer diagnosed	6	13	2	1	22

*NOTE: Urgent referrals are recorded as patients seen in DDUH & CDUH and patients referred to DDUH & CDUH on the emergency phone line immediately following the MCAD. Further GDP referrals were received by various clinicians via multiple pathways over a protracted period of time and it was not possible to accurately track these referrals as related to the MCAD.

shown that this campaign has not only saved lives and increased awareness about this disease but has also highlighted the important role of the dentist as oral physician. The most recent MCAD (Ireland) was on Wednesday 17th September 2014. There were three new cancers diagnosed in the Dublin Dental University Hospital and these are being treated.

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Irish Cancer Society, Dental Health Foundation, Irish Dental Association and MHNCAI Group.

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The Critical View of Safety in Laparoscopic Cholecystectomy: Towards A National Consensus

Sir,

Laparoscopic Cholecystectomy (LC) is one of the commonest operations performed by surgeons today. Despite the decreasing incidence of bile duct injury (BDI) since the introduction of LC, it still remains a major complication today[1]. The commonest cause of BDI is misidentification of the anatomy of Calot's Triangle. A technique of identification of this anatomy, called the critical view of safety (CVS), was first described by Strasberg et al. in the mid-nineties and has been shown to significantly reduce the incidence of BDI[1-3]. Despite its success, it has failed to gain universal acceptance and the infundibular approach to dissection is still being taught today.

Currently in Ireland, there are no national guidelines or protocols in place for performing or training laparoscopic cholcystectomy. This prompted us to carry out an anonymous postal questionnaire in order to determine the level of anatomical knowledge and application of the CVS among Irish general surgeons. The questionnaire was sent to all general surgeons practising in the Republic of Ireland (N=187). We received 95 completed questionnaires which represented a response rate of 51%. Of the 95 responders, 91% (n=86) perform laparoscopic cholecystectomy. From this group, 80% (n=69) perform emergency or urgent LC and 55% (n=47) perform more than 50 LC's per year. When performing LC, the critical view of safety was the sole method used by 31% (n=27) of surgeons, 2% (n=2) of surgeons use the infundibular approach alone, 54% (n=46) use both techniques and 13% (n=11) use neither technique. Surgeons who did not use either technique and were involved in training surgical residents accounted for 12% (n=10) of the group. Finally, those who do not use either technique and perform emergency/urgent LC's accounted for 12% (n=10) of the total.

These results represent a "snapshot" of the anatomical approaches currently used and taught by general surgeons in Ireland when performing laparoscopic cholecystectomy. While the majority of surgeons (n=73, 85%) practice either technique or both, it is worrying that 13% (n=11) do not use or understand either technique. It is also significant that while 82% (n=64) demonstrate the CVS when training surgical residents there are 5% (n=4) who teach the infundibular technique alone and 13% (n=10) who teach neither technique. Current literature advocates the critical view of safety as the most effective method of reducing morbidity and mortality associated with laparoscopic cholecystectomy[2,3]. Recent practice guidelines by the European Association of Endoscopic Surgery (EAES) recommended the critical view of safety as the most effective approach to prevent BDI[4]. Despite this there are currently no national guidelines or protocols in place with regard LC. We believe the CVS approach to LC should be integrated into national guidelines and should be mandatory, in particular in training of surgical residents.

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Westermark's Sign of Pulmonary Embolism – Well Known but Frequently Overlooked

Sir

Pulmonary embolism (PE) is frequently a difficult diagnosis because of non-specific symptoms that can lead to misdiagnosis[1]. We report a patient with PE successfully diagnosed and treated, whose CXR showed Westermark's sign of pulmonary embolism. Westermark's sign is distal oligaemia in the affected area of the lung due to a reduction in size of vessels distal to a PE[2]. It has a low sensitivity (14%) and high specificity (92%) for the diagnosis of pulmonary embolism[3]. Its high specificity for PE makes it a sign well worth being aware of and in this case described its early recognition may led to early treatment and to prevention of cardiovascular insult.

A 35 year old male, with a non-smoking history was admitted from emergency department (ED) for care of shortness of breath and right sided chest pain, which he had noticed first two days ago. His father had died of a PE at the age of 65 years. Two days prior to admission he had presented to the ED for care of right calf swelling, which had been present 6 days. Subcutaneous low molecular weight heparin therapy had been commenced and an outpatient ultra sound venous Doppler examination had been arranged to assess for deep veins thrombosis. On admission his blood pressure was 130/95 mmHg, heart rhythm was regular with heart rate of 105 bpm, his temperature was 36.0 C, respiratory rate was 22 breaths/minute (while breathing room air) and his capillary oxygen saturation was 98%. Examination was unremarkable, except for 3cm difference in calf girths – 41cm on the right and 38cm on the left. Sinus tachycardia was evident on electrocardiogram with no other signs of suggestive of PE. His plasma D-dimer level was elevated at 15.702ng/ml (reference range is <500ng/ml). Partial pressure of oxygen 13.5kPa while breathing room air. CXR showed slight prominence of the proximal hilar vessels and reduction of the right lung vascularity (Westermark's sign). A large embolus in the right main pulmonary artery, involving both upper and lower lobe segmental branches was evident on CTPA. An ultrasound Doppler of the right leg revealed a large thrombus in the right superficial femoral vein. Within few hours the patient experienced symptomatic hypotension and tachycardia leading to transfer to the intensive care unit (ICU) and bedside transthoracic echocardiography. Consistent with PE, this examination revealed acute right ventricular dilatation, and moderate tricuspid regurgitation. Intravenous thrombolytic therapy was instituted promptly and over the next few days the patient's haemodynamic instability resolved and he was discharged on warfarin therapy six days after admission.

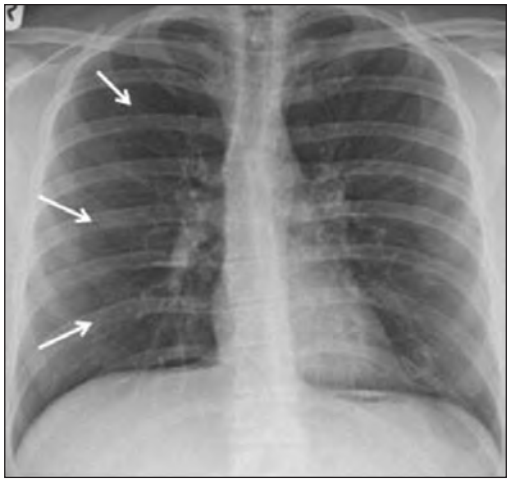

Figure 1

CXR showing Westermark's sign - distal oligaemia in the right lung (marked with white arrows)

Westermark's sign is usually subtle and probably most often noted in retrospect after the diagnosis has been made by CTPA. It has a low sensitivity (14%) and high specificity (92%) for the diagnosis of pulmonary embolism[3]. Its high specificity for PE makes it a sign well worth being aware of and in this case described its early recognition may led to early treatment and to prevention of cadiovascular insult.

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Potential Pitfalls with the Treatment of Acquired Methaemoglobinaemia

Sir,

We read with interest the article by Nee and Fitzgerald.[1] We welcome the call for continued vigilance for methaemoglobinaemia (MetHb) secondary to amyl nitrite abuse; however we would like to emphasise some potential pitfalls associated with the management of acquired MetHb.

Acquired MetHb can arise following exposure to pharmaceutical and chemical agents; topical anaesthetic agents (e.g. benzocaine, procaine, lidocaine, prilocaine), medications (e.g. dapsone, chloroquine, primaquine, nitrites such as nitroglycerine), drugs of abuse (amyl nitrite, cocaine, mephedrone), chemicals (e.g. anilines, aminophenols), household products (naphthalene) and some hair dyes. Patients have persistent cyanosis despite oxygen therapy, tachypnoea, low pulse oximetry and "chocolate brown" coloured arterial blood. The decision to treat with methylene blue is based on clinical findings and blood concentrations; i.e. when [MetHb] is >30% for healthy adults or [MetHb] >10% for those with underlying risk factors including young or old age, cardiac disease, cerebrovascular, pulmonary or embolic disease, anaemia or sepsis. Typically, patients improve quickly following methylene blue administration but additional doses may be required. The side effects of methylene blue include restlessness, dyspnoea,

gastrointestinal upset, sweating, anaphylaxis and blue-grey skin discoloration which can resemble cyanosis. Methylene blue becomes toxic at high doses causing haemolytic anaemia and worsening MetHb.[2] Methylene blue is a potent monoamine oxidase inhibitor and interactions with serotinergic agents can cause serotonin syndrome. This interaction is not widely recognised however serotonin syndrome has occurred following the administration of methylene blue doses as low as 1.75mg/kg.[3] Clinicians should take a thorough drug history (including prescribed and over the counter pharmaceuticals, herbal medicines and drugs of abuse) from patients with acquired MetHb who require methylene blue treatment. Patients should be monitored for serotonin syndrome characterised by a triad of neuromuscular excitation, autonomic CNS excitation and altered mental status.

It is important to appreciate the potential pitfalls with oxygen saturation measurements and the inaccuracies of oximeters. Due to inherent limitations, a conventional pulse oximeter (detecting light at two wavelengths) is inadequate for measuring oxygen saturations in the presence of MetHb as it can only detect oxyhaemoglobin and reduced haemoglobin. Pulse oximeters will give falsely low results with [MetHb] <20% and falsely high readings with [MetHb] >70%. To complicate matters further, when methylene blue is administered, pulse oximeters will give a misleadingly low value.[2] A co-oximeter is the instrument of choice as it measures light absorption across a minimum of 4 wavelengths and can distinguish between oxyhaemoglobin, reduced haemoglobin and the dyshaemoglobinemias (MetHb, carboxyhaemoglobinemia and sulfhaemoglobinemia). In the emergency setting, a useful calculation is the oxygen saturation gap which refers to a 5% difference between either (i) the oxyhemoglobin concentration from an arterial blood gas measurement and the oxyhemoglobin measurement from pulse oximetry or (ii) between the calculated oxygen saturation from a blood gas machine and the measured value from a co-oximter. A gap of >5% is a significant indicator of MetHb.[4]

Critical assessment of patients with acquired MetHb is needed to pre-empt potential complications with the administration of methylene blue.

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Impact of Changes in Canadian Postgraduate Training on the Irish Health Service

Sir,

Over the past year, there have been significant changes in the application for postgraduate medical training in Canada. With over 726 Canadians studying in Irish medical schools in 2012/2013[1] (13% of the Irish medical students), it is of vital importance that we understand how these changes will impact the Irish health system. The changes will impact in several different capacities including: recruitment of new students, training of current students and altering postgraduate training applications in Ireland. The first step for in acquiring postgraduate training in Canada is completing the Medical Council of Canada's Evaluation Exam (MCCEE), a multiple choice exam covering major areas of clinical medicine and surgery. Recently, the Medical Council of Canada has allowed students to write the MCCEE up to 20 months before they graduate, a change from having to be in their final year of study. This change was made to facilitate the introduction of the National Assessment Collaboration Objective Structured Clinical Exam (NAC-OSCE). The NAC-OSCE is now mandatory for the majority of training positions in Canada. To register for the NAC-OSCE, an applicant must have received a passing result in MCCEE, which was the motive for the recent changes. As a direct result of these changes, students must sit the NAC-OSCE in September of their final year and the MCCEE by early March of their penultimate year in order to be eligible to apply for post-graduate training programs in Canada.

It has long been appreciated that the Irish medical education system relies heavily on income generated by international medical students tuition fees[2]. While creating a self-sustainable system is of the utmost importance[3]. In the interim it is crucial that the Irish health system adapts to facilitate Canadians studying in Ireland to match to a training program, whether in Canada or Ireland. Failure to do this will lead to sharp drop in Canadian applicants to Irish medical schools, a practice that is already being scrutinized[4]. In addition, these changes directly influence the quality of life of current fourth/fifth year students in Ireland. While historically Irish medical schools have been supportive of students going through this process, the recent changes will require their support more than ever. These students will be writing final year equivalent exams 18 months before they graduate, while completing clinical rotations at the same time, in addition to acting as contributing members of the University and surrounding community. Medical schools need to begin to consider how they can assist and support these students through a very difficult and stressful process.

In conclusion, the recent changes to the Canadian postgraduate training application process will have a direct and immediate effect on over 13% of current medical students in Ireland. These effects coupled with the response from Irish medical faculties will not only be evident at several stages of medical education but will also play a role in the future enrolment numbers of Canadians in the Irish Medical education system.

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An Audit of Urinary Tract Infections in Very Low Birth Weight Infants – What Are We Missing?

Sir,

Urinary Tract Infections (UTIs) are a leading cause of bacterial infection in infants and the National Institute of Clinical Excellence recommends that UTIs are actively sought in paediatric patients.[1] Their incidence ranges from between 0.1- 2.0% in full-term newborns, increasing to a reported 25% in preterm and very low birth weight (VLBW) infants.[2-4] The urinary tract is an extremely rare source of infection in the first 72 hours of life and thus routine urine culture in this population is deemed unnecessary.[4] Conversely, UTIs frequently present with late-onset sepsis (LOS) in the VLBW population[1,2] and urine culture is an essential element of a complete sepsis evaluation in this cohort.[1,3] Despite a high incidence of UTI, urine culture is frequently neglected in Neonatal Intensive Care Units (NICUs)[3] as obtaining a clean-catch sample is time consuming and the use of invasive second-line collection methods is limited by fear of complications and medical staff procedural inexperience. Identifying the source of infection will influence subsequent radiological investigations[1] and ensure appropriate treatment.[2]

In our centre, a Level 3 NICU, we sought to determine the frequency with which urine culture was included in septic work-ups (SWU) performed in VLBW infants after 72 hours of life. 120 consecutive charts of VLBW infants born between January 2012 and April 2013 were retrospectively reviewed. 116 SWUs were performed on 61 (50.8%) VLBW infants. Infants requiring SWU after 72 hours of life had a mean completed gestational age of 26.8 weeks, a mean birth-weight of 932 grams and 31/61 (50.8%) were males. Sources of infection are outlined in Figure 1. Forty-two (36 %) evaluations resulted in treatment with intravenous antibiotics for a minimum of five days. Eleven infants, with a median C-reactive protein (CRP) of 44 mg/l, were treated with intravenous antibiotics for infection without an identified source. Seven of these patients did not have a urine culture performed. The majority of SWUs, 82/116 (70.7%), omitted a urine culture and 7/14 (50%) SWUs included a CSF culture without a urine culture. Urine samples were obtained using a clean-catch technique. Candida species were isolated in three urine samples from patients with staphylococcus aureus sepsis, Klebsiella Oxytoca sepsis and suspected Necrotizing Enterocolitis. It is likely the candida growths signalled UTIs but they were not the source of LOS.

This audit highlights that urine culture is frequently omitted from sepsis evaluations in VLBW infants, in line with previous studies that referenced suboptimal urine collection in such patients.[3] Furthermore, VLBW infants frequently have invasive CSF cultures while non-invasive urine cultures are overlooked. UTI was not identified as a source of sepsis in any infant, suggesting that there was a failure to diagnose this common cause of LOS. To improve detection rates of UTI, we recommend promoting awareness of UTI as a potential source of LOS in the NICU.

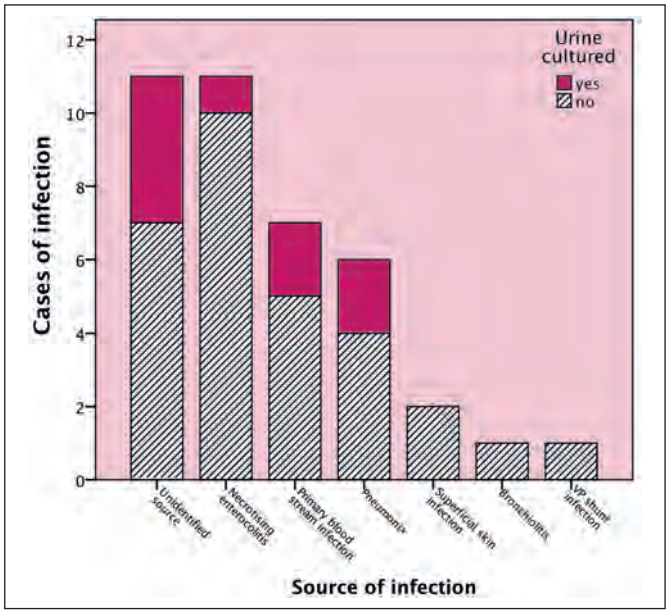

Figure 1 All episodes of infection reported by source

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Pedestrian Deaths in Children - Potential for Prevention

K Hamilton, W Macken, C McGarvey, TG Matthews, AJ Nicholson. Ir Med J. 2015; 108: 8-11.

Question 1
The total number of child pedestrian deaths was

a) 40
b) 45
c) 50
d) 55
e) 60

Question 2
The male preponderance was

a) 62%
b) 64%
c) 66%
d) 68%
e) 70%

Question 3
The number of deaths in the 1-4 year age group was

a) 18
b) 20
c) 22
d) 24
e) 26

Question 4
The number of deaths in residential driveways was

a) 4
b) 6
c) 8
d) 10
e) 12

Question 5
The proportion of fatalities occurring at week-ends was

a) 43%
b) 45%
c) 47%
d) 49%
e) 51%

Major Cost Savings Associated with Biologic Dose Reduction in Patients with Inflammatory Arthritis

CL Murphy, S Awan, M O Sullivan, S Chavrimootoo, C Bannon, L Martin, T Duffy, E Murphy, M Barry. Ir Med J. 2015; 108: 20-2.

Question 1
The annual worldwide spend on tumour necrosis factor (TNF) inhibitor medication (Euros) is

a) 12b
b) 14b
c) 16b
d) 18b
e) 20b

Question 2
The annual cost of TNF inhibitor medication (Euros) in Ireland is

a) 110m
b) 120m
c) 130m
d) 140m
e) 150m

Question 3
The number of patients in the study with inflammatory arthritis was

a) 77
b) 79
c) 81
d) 81
e) 83

Question 4
The mean age of the study group was

a) 49.5 years
b) 50.5 years
c) 51.5 years
d) 52.5 years
e) 53.5 years

Question 5
The number of patients with rheumatoid arthritis was

a) 41
b) 43
c) 45
d) 47
e) 49

In-Hospital Stroke: Characteristics and Outcomes.

R Briggs, R McDonagh, O Mahon, J Harbison. Ir Med J. 2015; 108: 24-5.

Question 1
The total number of strokes in the study period was

a) 438
b) 448
c) 458
d) 468
e) 478

Question 2
The number of inpatient strokes (IS) was

a) 40
b) 45
c) 50
d) 55
e) 60

Question 3
The mean length of stay of IS patients was

a) 76.2 days
b) 77.2 days
c) 78.2 days
d) 79.2 days
e) 80.2 days

Question 4
The mean length of out of hospital strokes were

a) 19.9 days
b) 21.9 days
c) 23.9 days
d) 25.9 days
e) 27.9 days

Question 5
The number of deaths in the IS group were

a) 7 deaths
b) 9 deaths
c) 11 deaths
d) 13 deaths
e) 15 deaths

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