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DISCLOSING TRANSFERS OF VALUE TO DOCTORS AND HEALTHCARE PROFESSIONALS

The Irish Pharmaceutical Healthcare Association (IPHA) representing 47 companies which develop and bring innovative medicines to Ireland have changed their Code of Practice.

From 1 January 2016, IPHA companies will commence publishing on their websites, and potentially on a central platform, details of transfers of value (ToV) to doctors and healthcare professionals.

These will include:

- **Contribution to costs related to events such as registration fees; travel and accommodation**
- **Fees for services and consultancy**

Under Data Protection law, doctors and healthcare professionals must give their consent for individual data to be disclosed.

In the interest of transparency, IPHA is encouraging relevant doctors and healthcare professionals to grant such consent.

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In this Month's IMJ

The prevalence of cardiovascular risk factors in obese children: Carolan et al assessed 59 obese children attending a weight management clinic. They found that the childrens' mean Z scores for BMI, waist circumference, and % body fat were +3.28, +3.98, and +2.75 respectively.

Table 1 Characteristics of Subjects

	Total	Pre-pubertal	Mid-Pubertal/ Post-pubertal
	n=59	n=21	n=38
Age	13.2±3.1	9.5±1.8	14.8±1.8
Gender (% Female/Male)	58/42	38/62	58/32
Weight (kg)	88.9±27.0	62.9±17.0	100.9±20.8
Height (cm)	158.8±15.0	143±12.9	165.5±9.5
Body Mass Index SDS	3.3±0.4	3.4±0.5	3.3±0.5
Body Fat % SDS	3.0±0.8	2.7±0.5	3.2±0.9
Waist Circumference SDS	3.9±0.7	3.9±0.6	4.0±0.8
Systolic BP SDS	0.9±1.0	0.9±0.9	1.0±0.9
Diastolic BP SDS	0.2±0.8	0.4±0.8	0.1±0.8
Triglycerides (mmol/l)	1.2±0.5	1.1±0.5	1.2±0.6
HDL (mmol/l)	1.0±0.2	1.0±0.1	1.1±0.2
Fasting Glucose (mmol/l)	5.0±0.4	4.9±0.3	5.1±0.5
2hr Post OGTT Glucose (mmol/l)	6.3±1.0	6.2±0.6	6.2±1.2
HOMA-IR	4.2±3.0	4.5±0.3	4.7±2.6
HbA1c (%)	4.2±3.0	4.5±0.3	4.7±2.6

Treatment outcome for adolescents abusing alcohol and cannabis: how many reliably improve? Smyth et al describe an outpatient adolescent treatment program for teenagers with alcohol and cannabis abuse problems. The clinic succeeded in the reducing the use of abusive substances but not the elimination of their use. The authors discuss the major challenges when dealing with adolescents.

Table 2: Baseline substance use and motivation among 108 adolescents attending a specialist community based treatment service

	Ever Used (%)	Current Users - Any use in past Month (%)	Mean Days use in past month (SD)	Current Users with High Risk Usea (%)	Motivation among those with 'High Risk' Useb	
					Low or Very Low Problem Recognition (%)	Low or Very Low on 'Taking steps' (%)
Alcohol	104 (96)	95 (88)	7 (7)	42 (44)	35 (97)	29 (78)
Tobacco	100 (93)	90 (83)	27 (7)	80 (89)	NA	NA
Cannabis	98 (91)	87 (81)	20 (10)	77 (89)	57 (83)	43 (62)
Benzodiazepines	49 (45)	23 (21)	9 (8)	21 (91)	13 (68)	11 (61)
Cocaine	59 (55)	19 (18)	5 (6)	15 (79)	9 (75)	5 (38)
Amphetamine	56 (52)	13 (12)	3(5)	13 (100)	10 (83)	6 (50)
Opioids	9 (8)	7 (6)	24 (11)	7 (100)	2 (29)	2 (29)
Hallucinogens	20 (18)	4 (4)	1 (1)	0 (0)	NA	NA
Inhalants	21 (19)	3 (3)	1 (0)	2 (67)	2 (100)	0 (0)
Other substances	14 (13)	10 (9)	5 (9)	4 (40)	3 (75)	2 (50)

Table 1 All Immediate Care courses during the period

	Total Courses				
	Cardiac	Paediatrics	Trauma	Pre-hospital Thrombolysis	Total
2002	6		4		10
2003	8		9		17
2004	12		10		22
2005	11		9		20
2006	17		16	2	35
2007	11		11		22
2008	8	2	8	3	21
2009	11		7	1	19
2010	10	2	8	1	21
2011	8	2	7	1	18
2012	10	2	6		18
2013	9	3	8	1	21
Total	121	11	103	9	244

Immediate care training in Ireland, 2002-2013: A potential link between high uptake rates and effect: Bury et al have examined the GP uptake of intermediate care training programme. During a 12 year period there were 1648 GP attendees who generated 3585 days of attendance. This means that 8% of GPs attend this course annually. The findings confirm GPs commitment to maintaining their skills in the management of life-threatening emergencies.

A review of bed utilization in the west of Ireland: Evans et al have examined the appropriate use of acute hospital beds. In a cohort of 286 patients, 8% (23) were inappropriately admitted. 77% of elective patients were admitted one or more days prior to surgery, which was unnecessary. Evidence of discharge planning was found for 48% of patients.

Table 1 Main ways Inappropriate Admissions could have been Avoided

Main ways admission could have been avoided	No.	%
Access to pre-operative assessment	3	21.4
Own home with GP support (no additional supporting services other than normal access to their GP)	3	21.4
Home with home care package	1	7.1
Home with nursing support	1	7.1
Non acute bed with therapy support (placement in community hospital, residential or nursing care home with direct input from therapy services)	1	7.1
Access to diagnostics	4	28.6
Other	1	7.1

Transurethral resection of the prostate- 'now and then': Dowling et al state that with the advent of a-blocker and 5-a-reductase medication, the number of TURPs performed each year is decreasing. One of the conclusions of this study is that those who develop urinary retention should have early specialist referral. When the 1990 cohort of patients were compared with the 2010 cohort, the latter group had longer periods of catheterization and higher infective complications.

Table 1 Comparison of pre-operative TURP management, presentation, pathology, surgeon experience, anaesthesia and outcomes between 1990 and 2010 patient cohorts

	2010	1990	P Value
Patient characteristics	Patient cohort N =	Patient cohort N = 100	
Mean age	70 years	72 years	0.08
Age range	49-88 years	44-88 years	
UC in situ pre-op	55%	22%	
Mean length of time of UC	65 days (range 2-365)	20 days (range 1-150days)	0.001
α-blocker pre-op	64%	2%	
5-ARIs pre-op 1	9%	–	
Mean length of hospital stay	6 days (range 3-21)	10 days (range 4-21)	0.02
Histology			
Weight resected (mean)	25grms(range 3-100)	23 grms (range 3-65)	
Benign	83%	62%	
Malignant	17% (incidental 9%)	38% (incidental 15%)	
Surgeon			
Consultant performed	54%	53%	
Registrar	46%	47%	
Anaesthesia			
Spinal	82	59	
General	18	41	
Outcome			
Required longterm UC	2	3	
Required longterm CISC	2	–	

Follow-up of infants born to women with Hepatitis B in the National Maternity Hospital: Travers et al assessed the efficacy of the follow-up of infants born to HBV positive mothers. The programme consists of active and passive immunisation of the infant with subsequent serological testing at 8 months of age. The study found that only 18.6% had the recommended testing at 8 months. The authors recommend that a centralized national programme be introduced in order to co-ordinate the service.

Table 1 Results of follow up of infants born to mothers with HBV

Maternal Serology	HBsAg	HBeAg	Anti-HBe
HBV positive women	78	16	62
Live born infants	70	15	55
Sets of twins	2	1	1
Stillbirth	1	0	1
Miscarriage	1	0	1
No record of delivery	8	2	6
Serological follow up	13	3	10
HBsAg tested	12	3	9
HBsAg positive	0	0	0
Anti-HBs tested	12	3	9
Anti-HBs >100	11	3	8
Anti-HBc tested	9	3	6
Anti-HBc positive	7	1	6

Oxytocin is unequally distributed in a bag of normal saline- true or false?: Chummun et al studied the oxytocin concentration in 8 bags after 10 IU was added to 1 L saline in each bag. The findings showed that there was widely fluctuating concentration between the bags. The authors suggest this may in part explain the variable clinical response to oxytocin.

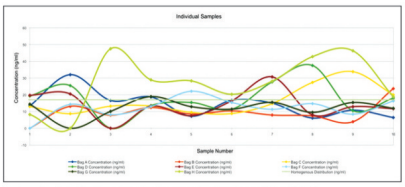
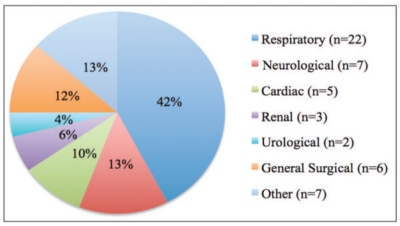
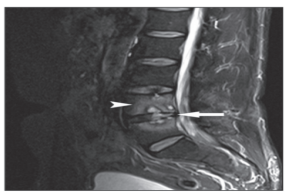
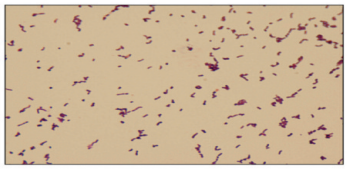


Figure 1 Distribution of oxytocin concentration in each bag (A-H)

Post operative complications in a dedicated elective orthopaedic hospital: Transfers requiring specialist critical care support: Dawson et al report on the patients that have to be transferred out after an orthopaedic procedure. Among 2853 patients there were 51 (1.8%) transfers. The main reason for transfer was respiratory complications. Risk factors include older age and a higher BMI.

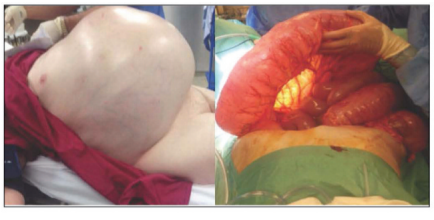






Back pain following lumbar puncture – what's unusual about that?: Sinokrot et al describe a 50 year old male who developed progressive back pain following a lumbar puncture as part of an investigation work up for MS. MRI revealed discitis and osteomyelitis at L4-5. The organism was Propionibacterium acnes. The patient responded well to antibiotics with complete resolution of the back pain.

An unusual cause for massive inflation: Kelly et describe a 69 year old male who presented with massive abdominal distension. The cause was Chagas disease (Trypanosoma Cruzi). He was successfully treated with a temporary ileostomy, and Nifurtimox/Benznidazole.



The Importance of Healthcare Planning

If a healthcare service is unplanned it cannot hope or expect to advance and improve in an expectant manner. Progress, if any, will be unpredictable and haphazard. Spending on health will be reactive rather than proactive. It is inevitable that money will be wasted on low value care, while genuinely effective therapies remain underfunded. Downstream, the money runs out and patients have their treatment denied or deferred. For these reasons, strategy is important. Healthcare strategies are about making the choices that best meet the needs of patients. Healthcare must be mindful about what it is trying to achieve and who is its beneficiary. The overall goal must be the delivery of quality and value for patients. The strategies must be in place at community, hospital and national levels. Leaders in healthcare have, on occasions, concentrated on their research priorities, leaving the clinical care reliant on momentum and reputation. This isn't tenable any longer. The rapid pace of medical advancement and rising patient expectations necessitate a culture of constant review, planned adjustment, and decision-making. The real difficulties are the elimination of duplication services, and the rationalization of inappropriate sites. Practicing doctors should recognize that it is difficult to undertake single-handed care of patients. In the modern era, all doctors should be part of teams. Co-location is a powerful tool for doctors, and the constant daily interaction with colleagues drives change and efficiency.

Value is defined as the health outcomes achieved for patients relative to the costs of achieving them. This is important when making the best decisions against the background of constant financial constraints. Understanding and achieving value is difficult to attain, and many organisations find the process very challenging. Porter and Lee[1] have set down six strategic questions for hospitals, and healthcare services. These are – what is our fundamental goal, what business are we in, what scope of business should we compete in, how will we be different in each business, what synergies can we create across business units and sites, how geographical density is taken into account.

The only way that hospitals can improve the healthcare value for patients is to measure outcomes. Measurement science has grown in importance and complexity over the last decade. It is best if there is measurement alignment between hospitals and that the activity is just collected once. This helps to avoid duplication and 'measurement fatigue'. One of the big challenges is the evaluation of complex care[2]. It is advisable not to place too much emphasis on a single factor such as blood pressure, when the patient has multiple other problems such as arthritis, and diabetes. Community based measures can reap major benefits by reducing hospital admissions and ED attendances. At intervals an outcome measure needs to be reassessed and be removed if it is performing poorly or is unhelpful. The second step is to measure how much it is costing to provide care. Excessive length of hospital in-patient stay, and high admission rates through ED are major drains on expenditure. The third step is to build on the outcome findings. Many patients and their underlying condition fit into categories that can be managed collectively. The patients that don't fit into a particular category, need to be identified at an early stage and managed appropriately with a modified strategy.

A hospital or community service must determine what conditions it is staffed and equipped to treat. It should have a clear profile of the patient population that it is contracted to serve. The formal categorisation of facilities is an important initial step. This varies depending on the size and staffing complement that is available. Some academic US hospitals no longer treat low-risk uncomplicated cases, while their smaller counterparts have ceased complex surgical care. To be effective a service must have sufficient patient volume, adequate staffing levels, the necessary levels of expertise, and the correct infrastructure. In some situations, mergers may be necessary in order to achieve an adequate volume of patients.

Reorganising around value rather than specialties and services is important. This introduces the concept of Integrated Practice Units (IPUs). IPUs aspire to provide a discrete service organized around the patient's medical condition. It consists of a dedicated team of clinical and paramedical personnel who provide full care for the patient. It treats the primary condition and the related complications that can occur with it. IPUs not only provide treatment but also assume responsibility for engaging patients and their families in care—for instance, by providing education and counseling, encouraging adherence to treatment and prevention protocols, and supporting needed behavioral changes such as smoking cessation or weight loss." In order to work effectively, IPUs must have sufficient patient volume, sufficient staff, adequate equipment, and good support services.

Lee in a subsequent interview gave a practical example of an IPU in action. In Seattle, all patients with back pain are seen in the same location by a multidisciplinary team. The patients are seen on the same day or within a few days. Therapy, where needed, is instituted quickly resulting in a substantial reduction in the amount of time lost from work. The programme has resulted in an 80% reduction in the use of radiology.

Healthcare planning is important for all national health services. Key factors are the integration of the primary care, acute hospital care, health and wellbeing, and mental health care sectors. It is being increasingly recognized that many patients will need access to more than one of the work streams over a lifetime. While achieving connectivity across these categories will be challenging, it has the potential to be very beneficial to patients when they are accessing healthcare.

JFA Murphy
Editor

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HLA Testing for Coeliac Disease in Ireland?

Recent studies have shown a worldwide prevalence of coeliac disease (CD) of around 1% and one of the highest prevalence rates (1 in 300) has been found in the West of Ireland.[1,2] The incidence of coeliac disease appears to be increasing. For example, a greater than 6-fold increase over a 20 year period was evident in a recent retrospective Scottish study.[3] Children with selective IgA deficiency, Down syndrome, Type I diabetes mellitus and autoimmune diseases are at increased risk of CD. Those with a family history are particularly vulnerable with as many as 1 in 10 first-degree, and 1 in 40 second-degree relatives affected.[1] The presenting features of coeliac disease are heterogeneous. The most commonly described symptoms include diarrhoea, excessive flatulence, weight loss, failure to thrive, abdominal distension, pain, bloating, vomiting and anorexia. Irritability is a particularly consistent finding in symptomatic coeliac disease in childhood and CD can also present with many other systemic symptoms such as iron deficiency, anaemia, fatigue, short stature, abnormal liver enzyme tests, osteopenia and dermatitis herpetiformis. However, it must also be remembered that the vast majority of affected individuals manifest few or no symptoms at all.[1]

The reference standard for the diagnosis of coeliac disease has been the demonstration of histological changes of villous atrophy, crypt hyperplasia and increased intraepithelial lymphocytes in the small intestinal mucosa, as defined by the Marsh criteria.However, the diagnostic criteria for CD have evolved over the past two decades with the availability of newer and better serological assays. The necessity for a confirmatory biopsy in all situations recently has been challenged.[4,5] The European Society for Paediatric Gastroenterology Hepatology and Nutrition (ESPGHAN) guidelines continue to recommend IgA anti-tTG (tissue transglutaminase) antibodies as the first line test in all symptomatic children. However, ESPGHAN now propose that in a genetically (HLA) susceptible symptomatic child with tTG of at least 10 times the upper limit of normal, with a positive anti-endomysial antibody (EmA) result and appropriate response to gluten free diet, a confirmatory small intestinal biopsy is no longer needed.[6] HLA testing (for the HLA DR3-DQ2 and DR4-DQ8 haplotype) of non-symptomatic at-risk patients also is recommended as, in the absence of these haplotypes, coeliac disease is very unlikely. Some national bodies have already introduced these criteria into their CD diagnostic pathway.[7,8]

Against this background, the findings of a large multinational prospective study on the risk of coeliac disease for children with risk HLA haplotypes by Liu et al[9] is of some interest. The TEDDY (The Environmental Determinants of Diabetes in the Young) study group was formed in 2007 for follow up of children at high genetic risk of Type 1 diabetes (T1DM) who were prospectively enrolled at birth in Sweden, Finland, Germany and the USA. Development of CD was a secondary outcome in the TEDDY study as the major HLA genotypes that confer risk of T1DM also impart a similar risk for CD. More than 6000 children carried one of the four HLA genotypes and had serological screening with tTG. The estimated cumulative risks for development of CD autoimmunity (ie. positive tTG antibodies) and overt coeliac disease by 5 years in those with two copies of HLA DR3-DQ2 were 26% and 12%, respectively. Similarly, the risks were 11% and 3% respectively for those with a single copy of that HLA DQ2 haplotype. Both these results were highly statistically significant (p=<.001).[9]

The findings of this study are not truly novel but rather confirm and extend those of previous studies regarding the effects of HLA on the risk of coeliac disease.The authors propose that their results might help inform future studies on population screening. Given that 25% of the children homozygous for DR3-DQ2 in the study cohort developed CD before 5 years of age, on the face of it this suggestion appears not unreasonable. However, it is important to remember that this study did not address many fundamental factors around the appropriateness and effectiveness of population screening. For example, it did not compare the relative effects of the various risk HLA haplotype combinations on the development of coeliac disease within a normal population and did not address issues such as cost effectiveness, efficacy of HLA-based screening compared with other tests or the acceptability of gluten exclusion for screen-positive asymptomatic patients.

HLA-based stratification for screening purposes would pose particular challenges for Irish children because HLA DQ2 and DQ8 are very frequently found in our population.[10] In fact, many practitioners, including our group at the National Referral Centre for Paediatric Gastroenterology, do not use HLA testing in our algorithm for testing in coeliac disease. We continue to rely on targeted testing using tTG antibodies and total IgA (the latter to exclude the false negative results in coeliac patients who have IgA deficiency) where there is clinical suspicion and in at-risk groups. Although CD diagnosis without resorting to biopsy may be considered in very limited clinical circumstances we await the results of prospective studies underway to confirm the reliability of non-biopsy based diagnosis of coeliac disease before embracing this approach more widely.

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The Prevalence of Cardiovascular Risk Factors in Obese Children

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Abstract
Childhood Obesity poses a public health problem in Ireland. Complications associated include metabolic disease and cardiovascular disease risk. Our aim was to determine the prevalence of cardiovascular risk factors in a cohort of obese Irish children. Assessments were performed on obese children attending weight management clinic. Pedometers and self report physical activity questionnaires were administered to each participant to determine physical activity levels. Fifty-nine children (21 prepubertal and 38 pubertal/post-pubertal) were metabolically profiled. Mean±SD of z scores for BMI, Waist Circumference and Body Fat % were +3.29±0.48, +3.98±0.73 and +2.75±0.50 respectively. 43% (n=9) prepubertal and 68% (n=26) pubertal/postpubertal children had at least one other cardiovascular risk factor in addition to obesity. Increased moderate–vigorous physical activity levels correlated with reduced incidence of cardiovascular risk factors. There is a significant prevalence of cardiovascular risk factors among obese pre-pubertal children and pubertal/post-pubertal adolescents attending an Irish obesity clinic.

Introduction

Childhood obesity has become a serious public health concern, particularly in developing countries[1]. Currently 19% and 7% of Irish children are overweight and obese respectively. A multinational study of children aged 13-15 years has shown that Irish adolescents are among the most obese in the world[2]. Obese children and adolescents are at increased risk of early cardiovascular disease and developing conditions such as Type 2 Diabetes Mellitus[3,4]. The prevalence of cardiovascular risk factors among obese Irish children and adolescents is not fully known. A previous study in Irish children demonstrated a significant prevalence of hypertension among boys and that this was proportional to body mass index standard deviation score[5]. The extent of obesity has also been found to correlate with insulin resistance and occurrence of non-alcoholic steatohepatitis in Irish children[5]. Increased cardiovascular disease risk in obesity is mediated by the occurrence of the "metabolic syndrome". The definition of metabolic syndrome in childhood and adolescence is controversial and there are multiple proposed definitions published[6-10]. Each definition has different cut-offs and some use body mass index rather than waist circumference to determine obesity and thus this leads to variable prevalence of metabolic syndrome in childhood depending on the definition utilized. Cardio-metabolic risk factors include hypertension, low HDL, high triglycerides, impaired fasting glucose tolerance and impaired fasting blood glucose in conjunction with obesity. For the purpose of this study we utilize the most recently published age and population-specific thresholds for each of these parameters.

World Health Organisation Guidelines recommend that children and adolescents obtain at least 60 minutes of moderate- to vigorous-intensity physical activity per day. Physical activity levels of Irish children have been reported as suboptimal[11]. Aerobic exercise has been shown to reduce cardio-metabolic risk in obese children and adolescents[12]. The presence of metabolic syndrome components predicts cardiovascular risk. Our objective was to determine the prevalence of these cardiovascular risk factors in obese pre- and post-pubertal children attending our childhood obesity clinic. A further objective was to examine the relationship between measures of weekly physical activity levels and the occurrence of cardio-metabolic risk factors.

Methods

Ethical approval was granted by the Medical Research Ethics Committee, Our Lady's Children's Hospital, Dublin. The parents of all patients gave written informed consent prior to partaking in the study. A cohort of 59 children (21 pre-pubertal, 38 post-pubertal) aged between 6 and 18 years was recruited. All participants recruited in this study were Caucasian. Pubertal status was determined using Tanner staging. Children with no evidence of puberty (Tanner stage 1) were categorized as pre-pubertal. Adolescents in Tanner stage 2-4 were categorized as midpubertal and those with Tanner stage 5 or adult features were categorized as postpubertal. Obese participants were recruited at their initial assessment in the weight management clinic. Any child with a genetic condition or hormone deficiency was excluded from the study. Subjects were categorized as obese if BMI z score was greater than 2. Measurements were recorded in a standardized manner; height in centimetres (Harpenden Stadiometer), weight in kilograms (Tanita BC SMA420) and blood pressure in mmHg (Dinamap). If blood pressure reading was outside established normal range, two further measurements were performed after an interval of 60 minutes. Waist circumference measurements were performed according to guidelines and body fat composition was determined (Tanita BC SMA420). A clinical examination was performed to determine if there was evidence of stigmata of metabolic disease and pubertal staging was conducted in the presence of a chaperone. BMI was computed as weight(kilograms)/height(meter)^2 . Statistical software (LMS growth, British 1990 Growth Reference Data) available from the Child Growth Foundation website was used to calculate Body Mass index, Body Fat composition and Waist Circumference standard deviation scores. Standard deviation score for systolic and diastolic blood pressure were derived from formulae based on age, gender and height published in the report from the National High Blood Pressure Education Program Working Group[13].

Metabolic profiling was performed on subjects who were fasting for 12 hours. An intravenous (IV) cannula was inserted and blood sampling was carried out at baseline for glucose, insulin, c-peptide, HDL and triglycerides. Each participant was administered a standard oral glucose load to stimulate pancreatic cell insulin production. Glucose load (Polycal, Glucose Polymer-Maltodextrin, Nutricia) was administered at 1.75gm/kg with a maximum of 75gm to each participant at 0 minutes. Repeat blood sampling for insulin, glucose via IV cannula was performed at 120 mins. Liver function tests and HbA1c were also determined on each participant. Fasting triglycerides and high-density lipoprotein (HDL) cholesterol abnormalities were adjusted for age 14. Impaired glucose tolerance was defined as a glucose level greater than 7.0 mmol/L but less than 11.1 mmol/L at 2 hours post oral glucose load 15. Homeostasis model assessment for insulin resistance (HOMA-IR) was calculated using the following equation: fasting plasma insulin (μU/L) x fasting glucose (mmol/L)/22.5. Scores ordinarily range from 0 to 15, higher scores indicate greater insulin resistance. The degree of insulin resistance was determined using cut-off points as published by Kurtoglu et al. for participants in the prepubertal and pubertal stage (pre-pubertal: 2.22 in girls and 2.67 in boys/pubertal: 3.82 in girls and 5.22 in boys)[16,17]. For participants in the postpubertal stage, the adult cut-off point of > 2.5 was used[18].

Each subject was offered an Omron Walking Style 3 pedometer which they were requested to wear for 7 days. They were given a

diary sheet to record activities and number of steps per day. This pedometer model has a 7 day recall. A stamped addressed envelope was given to each subject to return pedometer and diary sheet. Each child was offered a Children's Physical Activity Questionnaire (CPAQ) and each adolescent a Youth Physical Activity Questionnaire (YPAQ). These are standardized physical activity questionnaires devised by Ekelund et al[19] that request subjects to record number of minutes spent in various activities ranging from sedentary to vigorous in nature. Reported number of minutes spent in moderate to vigorous physical activity was quantified. Statistical analysis was completed using Graph Pad Prism 6 Software. Data is expressed as mean±standard deviation. We determined differences between groups using student t-test and Mann Whitney U test where appropriate. Correlations were determined using linear regression models and expressed using Pearson or Spearman's rank correlation coefficient, as appropriate. P values were expressed with significance set at <0.05.

Results

Twenty-one children and thirty-eight adolescents participated in the study. Mean age of pre-pubertal children was 9.5±1.8 years (range 6.05-12.24 years) and of mid-pubertal/post-pubertal adolescents was 14.8±1.8 years (range 10.27-17.58 years). Body Mass Index, Body Fat Percentage (%) and Waist Circumference standard deviation score of pre-pubertal children was + 3.4±0.5, 2.7±0.5 and 3.9±0.6 respectively. Body Mass Index, Body Fat Percentage (%) and Waist Circumference standard deviation score of mid-pubertal/post-pubertal children was + 3.3±0.5, 3.2±0.9 and 4.0±0.8 respectively. All participants were obese with a BMI SDS greater than 2.0.

Twelve (20%) participants had systolic blood pressure readings in the hypertensive range (>95th centile for age, sex and height or BP SDS >1.64), 4 of these individuals were pre-pubertal. Six (10.2%) participants had pre-hypertensive systolic blood pressure readings (>90th centile for age, sex and height), 3 of these individuals were pre-pubertal. Elevated blood pressure readings were confirmed with three repeat measurements. Four (19%) pre-pubertal children and 10 (26.3%) mid-pubertal/post-pubertal adolescents had high triglyceride levels and 7 (33.3%) pre-pubertal children and 18 (47.3%) post-pubertal adolescents had HDL levels lower than expected for age. None of the study participants had developed Type II Diabetes Mellitus but 5 (13.1%) adolescents had impaired glucose tolerance. There was a significant level of insulin resistance in both pre-pubertal children and mid-pubertal/post-pubertal adolescents, HOMA-IR was 4.5±0.3 and 4.7±2.6 respectively. Ten participants (16.9%) had biochemical evidence of non-alcoholic steatohepatitis (transaminitis), 3 (14.2%) were pre-pubertal. Abdominal ultrasound confirmed fat infiltration of the liver in 4 post-pubertal participants.

Table 1 Characteristics of Subjects

	Total	Pre-pubertal	Mid-Pubertal/ Post-pubertal
	n=59	n=21	n=38
Age	13.2±3.1	9.5±1.8	14.8±1.8
Gender (% Female/Male)	58/42	38/62	58/32
Weight (kg)	88.9±27.0	62.9±17.0	100.9±20.8
Height (cm)	158.8±15.0	143±12.9	165.5±9.5
Body Mass Index SDS	3.3±0.4	3.4±0.5	3.3±0.5
Body Fat % SDS	3.0±0.8	2.7±0.5	3.2±0.9
Waist Circumference SDS	3.9±0.7	3.9±0.6	4.0±0.8
Systolic BP SDS	0.9±1.0	0.9±0.9	1.0±0.9
Diastolic BP SDS	0.2±0.8	0.4±0.8	0.1±0.8
Triglycerides (mmol/l)	1.2±0.5	1.1±0.5	1.2±0.6
HDL (mmol/l)	1.0±0.2	1.0±0.1	1.1±0.2
Fasting Glucose (mmol/l)	5.0±0.4	4.9±0.3	5.1±0.5
2hr Post OGTT Glucose (mmol/l)	6.3±1.0	6.2±0.6	6.2±1.2
HOMA-IR	4.2±3.0	4.5±0.3	4.7±2.6
HbA1c (%)	4.2±3.0	4.5±0.3	4.7±2.6

Values are expressed as mean ± standard deviation

Table 2: Prevalence of Cardiovascular Risk Factors (CRFs)

	Total	Pre-pubertal	Mid-Pubertal/ Post-pubertal
	n=59 (%)	n=21 (%)	n=38 (%)
High Triglycerides	14 (23.7)	4 (19.0)	10 (26.3)
Low HDL	25 (42.3)	7 (33.3)	18 (47.3)
Hypertension	12 (20.3)	4 (19.0)	8 (21.0)
Impaired Fasting Glucose	2 (3.3)	0 (0)	2 (5.2)
Impaired Glucose Tolerance	5 (8.4)	0 (0)	5 (13.1)
Type II Diabetes Mellitus	0 (0)	0 (0)	0 (0)
High HOMA IR	32 (54.2)	7 (33.3)	25 (65.7)
1 CRF (obesity only)	59 (100)	21 (100)	38 (100)
2 CRFs (1 in addition to obesity)	23 (38)	7 (33.3)	16 (42.1)
3 CRFs (>2 in addition to obesity)	12 (20.3)	2 (9.5)	10 (26.3)

Correlation with physical activity

Thirty-three (55.9%) participants completed the physical activity questionnaire and 31 (52.5%) participants returned pedometers and 7-day diary sheet. There was a significant correlation between average pedometer steps per day measured HOMA IR (Pearson's Correlation -0.35, P=0.04) (Figure 1) and HDL levels (Pearson's Correlation 0.40, P=0.03). There was no significant correlation between other metabolic parameters and average pedometer steps per day. There was also a significant correlation between reported minutes of moderate–vigorous physical activity per week and HOMA-IR (Pearson's Correlation -0.47, P=0.006) (Figure 2), waist circumference standard deviation score (Pearson's Correlation -0.47, P=0.007), triglycerides (Pearson's Correlation -0.48, P=0.007) and HDL (Pearson's Correlation 0.57, P=0.003).

Discussion

The increasing prevalence of cardiovascular risk factors among obese children and adolescents is widely reported. In the United

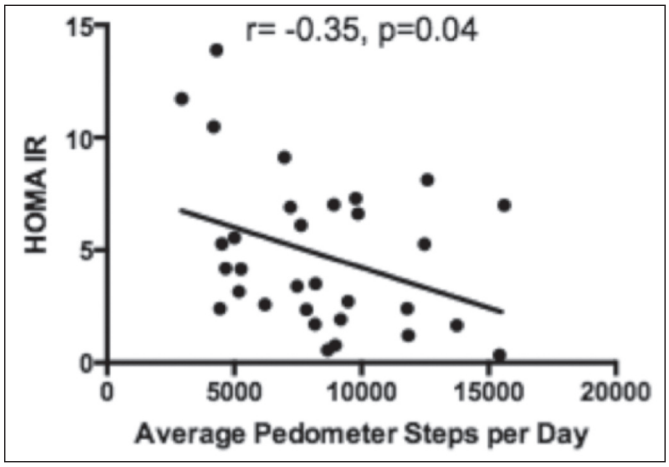

Figure 1 Correlation between average pedometer steps per day and HOMA IR.

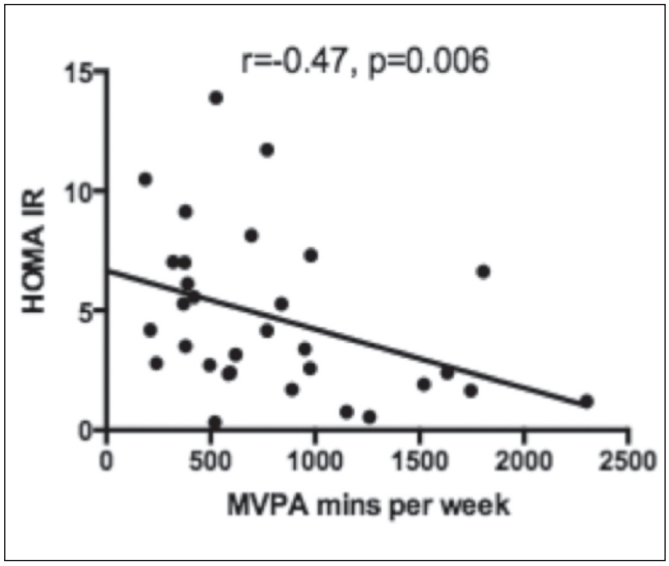

Figure 2 Correlation between MVPA minutes per week and HOMA IR.

States the prevalence rate of metabolic syndrome is 50% in severely obese children and adolescents[10]. The incidence of Type II Diabetes Mellitus in high risk ethnicities such as African-American, Hispanic and Native American now comprises up to 50% of all newly diagnosed Diabetes cases in the United States[20]. In European countries such as the Netherlands, up to 80% of obese children are reported to have at least one metabolic risk factor in addition to obesity[21]. Our objective was to determine the prevalence of cardiovascular risk factors in a cohort of obese children and adolescents in Ireland. In our study we demonstrate that 35 of our 59 (58.3%) participants have at least one cardiovascular risk factor in addition to obesity. Twelve (20.3%) participants met the criteria for metabolic syndrome, 2 were pre-pubertal children. These pre-pubertal children were both female, aged 6.05 and 6.52 years respectively and had BMI SDS scores greater than 3.5. In addition, 54.2% of all children have evidence of insulin resistance as evidence by HOMA-IR above their defined thresholds. In keeping with international reports our cohort of obese children have similar findings of metabolic abnormalities. This is very concerning for future risk of progression to Type II Diabetes Mellitus and premature cardiovascular disease. Obesity is not only associated with cardio-metabolic abnormalities but also with an increased risk of cancer[22]. We have recently shown that key anti-tumour immune mechanisms are reduced in obese children compared to their non-obese counterparts (unpublished data). This cohort of Irish children are now showing evidence of adverse effects from obesity and that these effects are already beginning at an early age, prior to the onset of puberty.

The treatment of childhood obesity is difficult and optimal mode is controversial. There is increasing evidence that physical activity and aerobic exercise can ameliorate the adverse metabolic effects of childhood obesity[12]. The CPAQ and pedometer data on physical activity levels, while not the most accurate or reliable means of assessment, does provide an accessible technique for participants in a hospital clinic setting. We demonstrate that physical activity, and particularly increased time in moderate to vigorous intensity activity, appears to have a positive impact on metabolic paraemeters including reduced triglycerides, reduced HOMA-IR and increased HDL levels. This supports previous studies showing that physical activity needs to be an integral part of the prevention and treatment of childhood obesity. There is a significant prevalence of cardiovascular risk factors among obese pre-pubertal children and pubertal/post-pubertal adolescents attending an Irish obesity clinic. These findings in the younger pre-pubertal child are particularly concerning. The provision of structured childhood obesity management plans are urgently needed to prevent future risk of premature cardiovascular disease.

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Treatment Outcome for Adolescents Abusing Alcohol and Cannabis: How Many 'Reliably Improve'?

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Abstract
Alcohol and cannabis are the primary substances contributing to referrals of adolescents to substance abuse treatment services. Their outcome has not been examined in Ireland. A three month follow-up was conducted in an outpatient adolescent treatment program. We followed up 35 high risk users of alcohol and 55 high risk users of cannabis. Although the high risk drinkers achieved a significant reduction in median number of days drinking (p=0.004), only four (11%) were abstinent at follow up. A further five (14%) achieved a reliable reduction in days of drinking. The high risk cannabis users demonstrated a significant drop in median days of use (p<0.001), although only six (11%) were abstinent at follow up. A further 20 (36%) achieved a reliable reduction in days of use. Calculation of reliable change allows examination of outcomes which fall short of the elusive goal of abstinence.

Introduction

Half of Irish 16 year-olds report alcohol use in the past month and 18% report lifetime cannabis use.[1] Cannabis has become the dominant drug leading to referrals into adolescent addiction treatment services in the past decade.[2,3] Motivation among adolescent treatment attenders tends to be poorer than among adults.[4,5] In large clinical trials examining treatment of adolescent cannabis use, interventions tend to yield reductions in days of drug use of 25-38%.[6,7] Heterogeneity in treatment interventions and in measured outcomes makes it difficult to provide succinct comment on outcome of adolescent alcohol use disorders[8,9] Some interventions show no change, while others report up to 50% abstinence at three months.[9] As abstinence is rarely sustained in adolescents, harm reduction approaches have been proposed.[10,11] It has been argued that evaluations of addiction treatments should measure the proportion of patients who achieve reductions in substance use which are of clinical and statistical importance, but fall short of abstinence. To achieve this, Marsden et al propose more widespread use of statistical methods to measure the proportion of patients who achieve reliable change in their substance use.[12] The aim of this study was to assess the three-month outcomes for patients presenting with high risk alcohol and high risk cannabis abuse following attendance at a specialist outpatient treatment service for adolescents.

Methods

The study setting was a specialist outpatient treatment service for adolescents experiencing substance use problems. The treatment provided included individual counselling and family therapy. While abstinence is encouraged, it is not a compulsory goal. Involvement of parents in assessment and treatment is encouraged but not mandatory. While treatment is tailored to the individual's needs, a basic treatment episode involves about six sessions over two months, with family input into two or three of these. Therefore, for the purposes of this study, we viewed patients who left treatment in an unplanned manner prior to their sixth appointment as having had an 'inadequate dose of treatment'. Psychiatric treatment is offered where comorbidity is identified.

Teenage patients from Dublin were eligible to participate. A baseline clinical assessment (T1) was completed and this was repeated after three months (T2). A Research Ethics Committee approved the study. We utilised a before and after comparison of scores on related measures from T1 to T2. The primary outcome measure was the number of days consuming alcohol and/or cannabis in the previous month, as assessed by the Maudsley Addiction Profile (MAP).[13] We used the ASSIST which provides estimates of substance-related risk.[14] It generates a separate score for each substance being used.

We utilised the recently recommended lower, and more age appropriate, cut-offs for adolescents to identify those with high risk use.[15] The SOCRATES assesses an individual's motivation to change their substance use, examining alcohol and drugs separately, and includes subscales of Problem Recognition and Taking Steps.[16] As data on days and quantity of use were highly skewed, we utilised the Related Sample Wilcoxin Signed Rank Test.

'Regression to the mean' complicates assessment of behaviour change in simple pre/post study designs. Therefore, it is useful to determine the proportion of patients who achieve a 'reliable change' in their baseline substance use.[12] Hageman & Arrindell provide details of the computation involved in identifying individuals who have reliably improved, reliably deteriorated or remained unchanged.[17] The calculations are contingent on estimating an appropriate standard error of the difference (T2 minus T1) from which the required 95% confidence interval for the difference is obtained. The standard error of the difference is derived from the standard deviation of the T1 scores for all participants and the known reliability of the test instrument.[17] Outcomes for substances other than alcohol and cannabis were not examined as small patient numbers greatly limited the utility of any analysis.

Results

There were 143 consecutive eligible patients, of whom 35 did not enter the study (16 patients refused, 14 cases unable to obtain consent from a parent and 5 cases unclear). The demographic details of the 108 participants are presented in Table 1. Past month criminal activity was reported by 51%, with drug selling (30%) and shoplifting (22%) being most common. Table 2 presents information on substances used and proportions using these individual substances in a high risk manner. Excluding tobacco, 49 (45%) patients were identified as having 'high risk' use of more than one substance. Motivation to 'Take Steps' and 'Problem Recognition' were low or very low among the majority of high risk users of each individual substance apart from high risk opioid users. Among those reporting both high risk use of alcohol and high risk drug use, 'Problem Recognition' and 'Taking Steps' subscale scores were each significantly higher regarding the drug problem compared to the alcohol problem (p=0.01).

The median number of appointments attended by patients was seven (Inter-Quartile range [IQR], 5-12). The median number of appointments attended by parents was three, and in 34% of cases parents did not attend any clinical appointments. We conducted follow-up interviews with 87 (81%) participants. The followed-up group did not differ in socio-demographic, substance use or treatment characteristics. Among those

CPD available online at www.imj.ie and questions on page 159.

Table 1. Baseline demographic profile of 108 adolescents attending for specialist community based addiction treatment and route of exit from treatment.

	N (%)	Mean (Range)
Age (years)		16.4 (13-19)
Male	84 (78)	
Living with parents or family	99 (92)	
Ethnic background - white Irish	98 (91)	
Employment status		
In school or college	57 (53)	
Vocational training course	16 (15)	
Working	6 (6)	
Neither working nor in education	27 (25)	
Referral sources		
Family	39 (36)	
Social services	18 (17)	
Probation services	13 (12)	
Mental health services	11 (10)	
GP & other medical services	9 (8)	
Self	7 (7)	
School	6 (6)	
Other	4 (4)	
Previous treatment for an alcohol problem	9 (8)	
Previous treatment for a drug problem	16 (15)	
Route of exit from treatment		
Planned discharge	53 (49)	
Refusal to attend	6 (6)	
Repeated non-attendance	35 (32)	
Referred elsewhere	5 (5)	
Other reason (e.g. moved away, prison)	9 (8)	
Adequate Treatment Intervention*		
Adequate dose of treatment	82 (83)	
Inadequate dose of treatment	17 (17)	

* Patients were defined as having had an adequate dose of treatment if they attended at least six appointments or had a planned discharge prior to their 6th appointment. Nine cases could not be assigned due to missing data.

identified as high risk drinkers, alcohol was their most problematic substance in just 52% of cases based upon ASSIST scores. Among these high risk drinkers, we had follow-up information in 35 (83%) cases. The median days of use reduced from 12 (IQR 6-15) at baseline to 7 (IQR 4-14) (p=0.004). The mean days dropped by 27%, from 11 days per month to 8 days. There was also a significant reduction in the number of standard drinks per month (p=0.007), reducing from a median of 120 (IQR 0-240) to 60 (IQR 24-105).

Calculation of the reliable change index for alcohol indicated that a change in days of use per month of seven or greater was reliable. Only four (11%) of the high risk drinkers were abstinent at follow-up, but a further five (14%) were reliably improved. One person had reliably deteriorated while 25 (71%) were unchanged. Among high risk cannabis users, we had follow-up information on 55 (71%) people. The median days of use reduced from 25 (IQR 15-30) at baseline to 15 (IQR 4-30) and this was statistically significant (p<0.001). The mean days dropped by 32%, from 22 days per month to 15 days. Calculation of the reliable change index for cannabis indicated that a change in days of use per month of nine or greater was reliable. Six people (11%) were abstinent at follow-up and a further 20 (36%) had reliably improved. There were four (7%) patients who reliably deteriorated, while 25 (45%) were unchanged. We grouped together the 26 (47%) high risk cannabis users who were either abstinent or reliably improved to generate a "good outcome group" and the remaining high risk cannabis users were categorised as a "poorer outcome group". There was no statistically significant difference between these groups in terms of gender, referral source, baseline criminal activity, baseline motivation, family involvement in treatment or dose of treatment. A similar examination of outcome for high risk drinkers was not undertaken due to small numbers.

Discussion

Consistent with other Irish treatment settings, polysubstance use was the norm.[3] Motivation was very poor when compared to adult treatment-attending groups.[16] Motivation regarding alcohol problems was particularly poor. Where drug and alcohol problems co-occurred, patients were more motivated to address the drug problem. This highlights the complexity of motivation in real world clinical settings, where patients are very motivated to make some changes while being unmotivated to address other issues. Unfortunately, given the interconnections between alcohol and drug use, a disinterest in addressing problem drinking may impede progress in tackling drug use.[18] Although high risk drinkers reduced their days of drinking and total monthly alcohol consumption, the magnitude of improvement was quite modest. Pharmacological agents to treat alcohol use disorders were not prescribed to this patient group, but some have argued that there is a growing role for these in adolescents.[9]

Only one in nine high risk drinkers achieved abstinence. This illustrates again the elusive nature of this goal in adolescents with significant substance use disorders.[19,20] Our alcohol outcomes are probably poorer than those reported in international, mainly American, studies.[8,9] The cultural context of youth drinking is very different in Ireland, as we have a lower legal drinking age, a decline in actual age of drinking onset, increased adult drinking, and unhealthy drinking is the norm.[21,22] This 'wet' society may impact negatively on the ability of Irish adolescents to recognise their own unhealthy drinking and to change it when they do. Although only one in nine of the high risk cannabis users were abstinent at follow-up, a further one third achieved substantial reductions in their cannabis use. Across the group of high risk cannabis users, the mean days used per month fell by 32% and seems acceptable, falling within the range of other international

Table 2: Baseline substance use and motivation among 108 adolescents attending a specialist community based treatment service

	Ever Used (%)	Current Users - Any use in past Month (%)	Mean Days use in past month (SD)	Current Users with High Risk Usea (%)	Motivation among those with 'High Risk' Useb	
					Low or Very Low Problem Recognition (%)	Low or Very Low on 'Taking steps' (%)
Alcohol	104 (96)	95 (88)	7 (7)	42 (44)	35 (97)	29 (78)
Tobacco	100 (93)	90 (83)	27 (7)	80 (89)	NA	NA
Cannabis	98 (91)	87 (81)	20 (10)	77 (89)	57 (83)	43 (62)
Benzodiazepines	49 (45)	23 (21)	9 (8)	21 (91)	13 (68)	11 (61)
Cocaine	59 (55)	19 (18)	5 (6)	15 (79)	9 (75)	5 (38)
Amphetamine	56 (52)	13 (12)	3(5)	13 (100)	10 (83)	6 (50)
Opioids	9 (8)	7 (6)	24 (11)	7 (100)	2 (29)	2 (29)
Hallucinogens	20 (18)	4 (4)	1 (1)	0 (0)	NA	NA
Inhalants	21 (19)	3 (3)	1 (0)	2 (67)	2 (100)	0 (0)
Other substances	14 (13)	10 (9)	5 (9)	4 (40)	3 (75)	2 (50)

a Categorisation as a 'High Risk' user was determined by the ASSIST questionnaire.
b 13 participants did not complete the SOCRATES Questionnaire
NA = not applicable

outcomes.[6,7] The most comprehensive outcome evaluation of adolescent cannabis dependence was the CYT study, a RCT which compared five outpatient treatment approaches.[4] The adolescents in our study were older, less likely to be in education and reported more frequent alcohol and cannabis use at baseline. In the CYT study, almost one quarter of participants were "in recovery" at three month follow-up but the reduction in mean days of cannabis use was almost identical to that seen here.[7] A recently published large Dutch CBT group therapy study demonstrated that the mean days use per month dropped 27% to 15 days cannabis use per month.[6]

Our study did not identify any patient or treatment adherence characteristics significantly associated with better treatment outcome, but it had limited power to do so. Other studies have found that baseline mental health problems, lower motivation and low treatment adherence are associated with poorer outcome[2] and greater family input improves outcomes.[24] The limitations of this study include the fact that the treatment intervention was not manualised. For ethical and practical reasons there was no control group in this study. Consequently, it is not possible to determine whether this treatment was better than no treatment. However, the use of the reliable change methodology compensates for this deficiency to some extent, by identifying the magnitude of change that is likely to be independent of 'regression to the mean'.[12] Although changes in substance use were reliant upon self report, there is a high concordance between self-reported drug use and toxicology in young people.[25] As the vast majority of the participants fell into the poor motivation category, this reduced our power to detect possible significant associations between motivation measures and outcome. The time gap to follow-up of three months may have been too short for some patients to make substantial changes to their substance use.

As motivation tends to be quite low, especially for alcohol use disorders, services should assess it at the outset of treatment and target poor motivation where it does exist. Although the average reductions in substance use were modest, and broadly in line with international studies, the proportion of patients who achieved abstinence was low. It is important that patients, parents, referrers and funders of adolescent drug and alcohol services have realistic expectations of treatment.

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Immediate Care Training in Ireland, 2002-2013: A Potential Link Between High Uptake Rates and Effect

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Abstract
Recent data suggest GPs contribute to successful resuscitation of cardiac arrests in the community. This paper examines uptake of Immediate Care training by GPs over a 12 year period. Data was collated on all courses and attenders (2002-2013). 244 cardiac, trauma and paediatric courses were held with 4247 attendances by 2069 individuals, including 1790 (86.5%) doctors. Of these 1648 (92.1% of all doctors) were GPs or GP registrars who generated 3585 days of attendance (84.4% of the total); 1270 attended more than one course. Between 2006 and 2013, an average of 219 (range 186-261) GPs/GP registrars attended at least one course each year, representing around 8% of all GPs in Ireland. A subset of these GPs has been shown to have a significant success rate in cardiac arrest care; there may be links between uptake of training and the clinical effectiveness of care provided.

Introduction

The role of general practice in the management of cardiac arrest in the community is increasingly well recognised[1]. Our group recently reported five-year data from the MERIT (Medical Emergency Responders Integration and Training) Project in which 495 GPs in Ireland reported 272 cardiac arrests with resuscitation attempts, with return of spontaneous circulation in 32% and discharge from hospital in 18.7%[2]. MERIT is a structured development of an established general practice training programme in Immediate Care. From 2006, investment by the Health Service Executive, Pre-Hospital Emergency Care Council and Department of Health enabled the provision of standardised defibrillators, training and support to GPs throughout the country. The MERIT study and others have identified the key roles of local availability, willingness to provide care in an emergency and appropriate training and equipment as key components of the general practice contribution to the care of cardiac arrest in the community[3-7]. Little information has been published on the uptake of training in emergency care by GPs in Ireland or elsewhere. This paper reports the uptake of Immediate Care training by GPs and other doctors in Ireland during the period 2002-2013. Information on the frequency and types of Immediate Care training undertaken by GPs provides significant insight into the capability of general practice to contribute to the care of key emergencies in the community. This is particularly relevant in countries like Ireland or Scotland in which scattered remote and rural communities often depend on primary care resources in emergencies, before the arrival of scarce ambulance service resources. The availability of a database of initial Immediate Care training and training updates which extend for more than a decade is an important resource in providing such insights. It may also provide insights into the broader issue of uptake of Continuing Medical Education opportunities by GPs.

The framework of Immediate Care training at the Centre for Emergency Medical Science has been reported previously[8,9]. One-day courses are provided in cardiac, trauma, paediatric and anaphylaxis care to Advanced Life Support scope of practice. Course content is practical, skills oriented, is based on current international best practice and is linked to national Clinical Practice Guidelines[10,11]. Course content focuses on care in community settings and is delivered in close collaboration with ambulance service practitioners. Other courses are available to Basic Life Support scope of practice but are not reported here. Courses are primarily oriented and promoted to general practitioners but are also open to practice nurses and registered Advanced Paramedics. Ireland has approximately 2,500 GPs who provide comprehensive care within a mixed public-private model of care for a population of approximately 4.3m people[12]. Specialist training in general practice is four years in duration; the final two years are spent in training general practices by GP registrars (approximately 120 per year during this period). Continuing medical education is a core requirement for all GPs registered with the Medical Council of Ireland but limited data is available on the uptake of the many types of CME available[13,14].

Methods

Course participants are asked to provide basic demographic and professional data when registering for courses. Attendance data for all Immediate Care cardiac, trauma and paediatric courses carried out by CEMS from 2002 to 2013 were collated and analysed to explore attendance, courses undertaken, professional characteristics of those attending and patterns of repeat attendance. Missing data is reported at relevant points. Ethics approval was granted by the Human Research Ethics Committee, UCD.

Results

Course registration data is available for the 12 year period 2002 to 2013. Table 1 summarises the numbers and types of individual courses. In all, 244 cardiac, trauma and paediatric courses were held during the period, with 4247 attendances by 2069 individuals; 2117 (49.9%) attendances were at cardiac and 1816 (42.8%) attendances at trauma courses. Of those attending, 1790/2069 (86.5%) were registered medical practitioners, 126/2069 (6.1%) were registered nurses and 50 (2.4%) were registered Advanced Paramedics. 1648 individuals were GPs / GP registrars (79.7% of all attendees and 92.1% of all doctors). GP registrars made up 541/1648(32.8%) of all GPs attending. Of 1648 GPs, 1270 (76.1%) attended more than one course and only 378 (22.9%) had attended a single course. GPs generated 3585 days of attendance over the period (84.4% of the total, mean 299 days per year). Of the 1263 GPs who specified, 55%were female. Of the 1204 GPs who specified, 406 (33.7%) qualified before 1991, 299 (24.8%) qualified between 1991 and 2000, 490 (40.7%) qualified between 2001 and 2010 and 9 (0.7%) qualified after 2010. Figure 1 indicates individual doctor

Table 1 All Immediate Care courses during the period

	Total Courses				
	Cardiac	Paediatrics	Trauma	Pre-hospital Thrombolysis	Total
2002	6		4		10
2003	8		9		17
2004	12		10		22
2005	11		9		20
2006	17		16	2	35
2007	11		11		22
2008	8	2	8	3	21
2009	11		7	1	19
2010	10	2	8	1	21
2011	8	2	7	1	18
2012	10	2	6		18
2013	9	3	8	1	21
Total	121	11	103	9	244

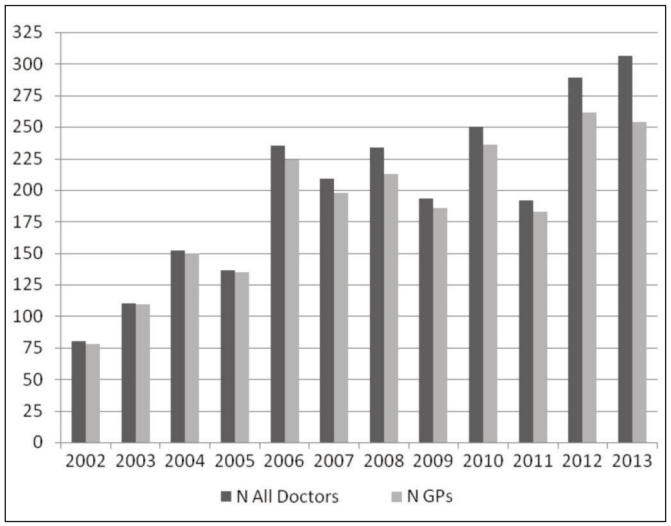

Figure 1 Numbers of doctors / GPs completing at least one course in each of the years 2002-2013

attendance by year and demonstrates the high proportion of GPs among doctors taking these courses.

Of the 1790 doctors taking part, 460(25.7%) attended one course, 976 (54.5%) attended two courses and 320 (17.9%) attended three to five courses; 34 (1.9%) doctors attended between six and 17 courses. Of note, between 2006 and 2013 (the operating period for MERIT), this averaged 219 GPs or GP registrars (range 183-261) attending at least one course per year, approximately 8% of all doctors working in general practice in Ireland. Of the 1648 GPs, 419 (25.4%) were identified as GP leads for the MERIT practices in which they work. Three distinct groups are included among the 419; those who attended an IC course between 2002 and the date of joining MERIT (N=137, 32.7%), those who joined MERIT on the date of their first course (N=241, 57.5%) and those who joined MERIT before attending their first course (N=41, 9.8%). MERIT GPs are more frequent attenders at IC courses (mean = 2.8 courses) than non-MERIT GPs (mean = 1.8 courses). Additional information was provided by 1359 doctors, of whom 958 (70.5%) are currently (2014) on the Medical Council's Specialist Register, 318 (23.4%) are on the General Division and 77(5.7%) are on the Trainee Specialist Division. Of these, 947 provided their speciality; 910 (96.1%) were general practitioners; 17 other disciples are represented among the remainder.

Discussion

This study provides a 12 year overview of participation by GPs in a specific CME activity in Ireland. It demonstrates that around 8% of all GPs in the country participate in these courses each year and that many GPs take multiple types of courses; they also repeat training, sometimes on many occasions. The data indicate the broad spread of participants across the life cycle of general practice - GP registrars make up almost a third of course participants, participants are spread across several decades of years of qualification and around 70% of participants had entered the Medical Council's Specialist Register by 2014. This suggests career long engagement by GPs with care of emergencies in the community and the potential for training to match evolving needs. The data suggest the high level of ongoing commitment by GPs to the provision of emergency care in their communities, an activity which is not routinely contracted for or remunerated by any health services agency in the country. Cardiac and trauma training are the most popular areas, indicating the focus of clinical demands on GPs. Although Immediate Care training has been available in Ireland since the late 1980s, MERIT's establishment in 2006 provided, for the first time, integration between training, standardisation / funding of equipment and data collection on clinical incidents. From 2006 onwards, this study indicates a high and sustained level of engagement by GPs with Immediate Care training, suggesting that such integration may have a positive effect on the involvement of GPs in this work. It is also noteworthy that a third of the participants in MERIT had already attended IC courses in the four years before the structured framework was launched. MERIT GPs also attend courses more frequently than non-participants in MERIT. Many GPs attending these courses were not associated with MERIT and therefore received none of the structural and academic supports provided by MERIT; it is impressive that in the absence of such supports, those GPs continued to train in this area and, in many cases, to provide practice defibrillators from within their own practice resources.

The clinical effectiveness of continuing medical education has been explored in general practice as in other disciplines; however limited evidence is available to link CME completion with improved clinical performance. A 2012 Cochrane Systematic Review of the effectiveness of audit and feedback concluded that small but potentially important improvements might occur in professional performance[15]. In 2013, Bird et al reported improved diabetes care in the US, following implementation of an education programme among family physicians[16] and Butler et al reported a highly effective intervention to reduce inappropriate antibiotic prescribing[17]. However, links between CME and care in emergencies have not been demonstrated to date. The MERIT five-year data published in 2013 on the involvement of GPs from this population in cardiac arrest care in the community shows a significant level of Return of Spontaneous Circulation (ROSC) and discharge from hospital. The high level of uptake of training by the same population of GPs suggests a positive impact from training undertaken by GPs on the clinical care they provide. It is also noteworthy that the clinical data from MERIT reported higher levels of involvement by GPs in remote and rural areas in the management of cardiac arrest than their urban counterparts. While the current study does not have information on practice locations for those attending training, the locations of courses over the 12 year period strongly suggests that GPs in rural areas of Ireland attend more courses and attend more frequently. This may again suggest a link between training uptake and clinical effectiveness.

Further research will explore the availability and use of defibrillators in both MERIT and non-MERIT practices and examine the drivers for practice involvement in the care of cardiac arrest in local communities. The potential strengthening of links between GPs and the National Ambulance Service in a more co-ordinated response to cardiac arrests is currently underway; the identification of enablers (and barriers) for GPs to participate in such schemes is essential and is the basis of ongoing research. This study suggests enthusiastic, sustained uptake of relevant training by GPs throughout the country, even without such structures. This study demonstrates a high level of sustained commitment by Irish GPs to developing and maintaining their skills in the care of life-threatening emergencies.

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A Review of Bed Utilisation in the West of Ireland

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Abstract
To ensure efficient use of Irish acute hospitals, the study aimed to assess the appropriateness of admission and days of care. The Appropriateness Evaluation Protocol (AEP) was applied to a stratified random sample of 286 medical and surgical, elective and non-elective patients from four acute hospitals in the west of Ireland. A total of 23 patients (8%) were inappropriately admitted. Of these, 15 (65%) could have been avoided. Of the 34 elective/booked admissions, seven (21%) were inappropriate in terms of location of surgery criteria. Over three quarters of elective patients (77%) were admitted one or more days prior to surgery which was not justified for 13 (57%) of these patients. Over a quarter of days of care (n = 73, 26%) were inappropriate. Evidence of discharge planning was found for 48% of patients. The study provides a benchmark to monitor progress. Existing policies and programmes should be implemented and monitored.

Introduction

Ireland's older population has experienced significant growth. The CSO have projected that those over 65 years will increase from 532,000 in 2011 to 1.4 million by 2046.[1] As a result, forecasts estimate that there will be a 60% increase in demand for acute hospital services by 2020.[2] It is therefore vital that acute services make efficient use of their resources. In Ireland, the Health Service Executive (HSE) has developed performance indicators based on the appropriateness of acute hospital admission and days of care. The study aimed to monitor performance of four acute hospitals in the west of Ireland in terms of these indicators to identify any shortfalls and gaps.

Methods

Hospital utilisation was assessed using the Appropriateness Evaluation Protocol (AEP); a validated tool that assesses appropriateness of admission and days of care.[3] This has been used in a number of other Irish studies.[2,4] It contains a list of objective criteria that require a patient to be in an acute hospital. All four acute hospitals within counties Galway, Mayo, and Roscommon were selected. For each hospital, a random sample of medical and surgical, elective and non-elective patients were selected from patient lists for the day of the study from the patient administration system. Sample size calculation was based on the total number of medical and surgical beds for each hospital. As with previous Irish studies,[2,4] a sample of 50 patients was selected for hospitals with less than 100 patients (Merlin Park Regional Hospital, Portiuncula Hospital), 75 for hospitals with 100-299 patients (Mayo General Hospital;), and 125 for hospitals with over 300 patients (University Hospital Galway). This provided statistically representative data (95% confidence interval for proportions). Trained staff administered the protocol over a four day period in April 2012 (one day for each participating hospital). Reviewers followed a code of confidentiality with anonymised data analysed using IBM SPSS Statistics V20. Independent T tests and Pearson's Chi square was utilised to analyse key patterns.

Results

Profile

Of the 286 patients included in the study, 153 (54%) were male and 131 (46%) were female. The mean age was 68.97 years (male = 68.58, female = 69.60) with almost two thirds (64%) over 65 years of age. There were no significant differences in mean age by gender (independent t test, t = -.525, p = 0.600). A total of 185 (65%) patients were medical with 99 (35%) surgical.

Source of Referral

Over a third of referrals (n = 107, 38%) were from GPs. Other sources of referral included self referrals (n = 54, 19%) outpatients (n = 44, 16%), other hospitals (n = 20, 7%), private clinic (n = 4, 1%) and 'other' (n = 54, 19%). A variety of referrals classified as 'other' including elective (n = 10, 4%), ambulance (n= 5, 1%), accident and emergency (n = 6, 2%), and medical assessment unit (n = 5, 2%).

Appropriateness of Admission

A total of 263 patients (92%) were classified as appropriate and 23 (8%) as inappropriate hospital admissions. There were no significant differences in the appropriateness of admission between medical or surgical (χ^2 = 0.024, df = 1, p = 0.877), or by source of referral (χ^2 = 0.692, df = 2, p = 0.708). A larger proportion of those admitted for elective surgery were inappropriate admissions (18% compared to 7%). These

CPD available online at www.imj.ie and questions on page 159.

differences were statistically significant (Fishers Exact Test, p = 0.047). For appropriate admissions, the main AEP criteria met was for intravenous medication (n = 151, 53%) and for fluid replacement (n = 103, 36%). These were the only criteria met for 65 patients (23%). Of the inappropriate admissions, 15 (65%) could have been avoided if other treatment was given. The main treatments that would have avoided admission (Table 1) included the access to diagnostics (n= 4, 29%), and access to pre-operative assessment (n = 3, 21%), and for the patient to stay at home with support via normal access to their GP (n = 3, 21%).

Appropriateness of Elective Admissions

Of the 34 elective/booked admissions, 27 (79%) were classified as appropriate in terms of location of surgery criteria. The main criteria met was the requirement for general or regional anaesthesia lasting more than 90 minutes (n = 15, 44%), surgery of an internal organ (n = 15, 44%), and the need for post-operative care (n = 8, 24%). The seven cases that were deemed to be inappropriate in terms of location of surgery did not meet any of the listed criteria. Examination of these cases indicated that there were no documented criteria that made them different to other cases having the same procedures within the particular specialities. In terms of timeliness of surgery, seven patients (23%) had surgery on the day of admission with 23 (77%) admitted one or more days prior to surgery. The delay in surgery was not justified for 13 (57%) of these patients.

Table 1 Main ways Inappropriate Admissions could have been Avoided

Main ways admission could have been avoided	No.	%
Access to pre-operative assessment	3	21.4
Own home with GP support (no additional supporting services other than normal access to their GP)	3	21.4
Home with home care package	1	7.1
Home with nursing support	1	7.1
Non acute bed with therapy support (placement in community hospital, residential or nursing care home with direct input from therapy services)	1	7.1
Access to diagnostics	4	28.6
Other	1	7.1

Appropriateness of Day of Care

The appropriateness of the care received on the day of the study was examined for each patient. A total of 213 patients days of care (75%) were appropriate, with 73 patients (26%) days of care classified as inappropriate. There were no significant differences in the appropriateness of days of care between medical or surgical (χ^2 = 0.016, df = 1, p = 0.899), or elective and non elective patients (χ^2 = 0.467, df = 1, p = 0.494). For appropriate days of care, the main criteria met was the requirement for parenteral therapy (n = 119, 42%), close medical monitoring (n = 76, 39%), intake and output measurement (n = 75, 26%) and respiratory care (n = 37, 13%). Parenteral therapy was the only requirement on the day of care for 38 patients (13%). In terms of the inappropriate days of care, Table 2 shows that the main factors delaying discharge were waiting for a consultant decision to discharge (n = 13, 18%), investigations or the results of investigations (n= 12, 16.4%), and a rehabilitation/step down bed (n = 7, 10%). In addition, Table 3 shows that the main discharge choices that would help reduce length of stay were the provision of a non acute bed with (n = 14, 19%) and without (n = 9, 12%) therapy support, and access to assessment/diagnostics (n = 10, 14%) and care for the patient at home via normal access to their GP (n = 9, 12%).

Evidence of Discharge Planning

Evidence of discharge planning (discharge date recorded) was found for 48% (n = 136) of patients with no significant differences between medical or surgical (χ^2 = .809, df = 1, p = 0.368), or elective and non elective patients (χ^2 = 2.725, df = 1, p = 0.099).

Table 2 Main Factors Delaying Discharge for Inappropriate Days of Care

Main factors delaying discharge	No.	%
Consultant decision to discharge	13	17.8
Review/assessment by other Consultant	1	1.4
Review/assessment by other health professional	5	6.8
Investigations or result of investigations	12	16.4
Transfer to other acute facility	1	1.4
Nursing home bed	2	2.7
Rehabilitation bed (specifically designated – e.g. National Rehabilitation Hospital)	7	9.6
Home care package	4	5.5
Needs further monitoring	2	2.7
Continuing IV antibiotics	2	2.7
Awaiting/having further treatment	4	5.5
Needs isolation with nursing care	1	1.4
Social work referral	1	1.4
Other	3	4.1

Table 3 Discharge Choice that would Reduce Length of Stay for Inappropriate Days of Care

Discharge choices	No.	%
Own home with GP support (no additional supporting services other than normal access to their GP)	9	12.3
Home with home care package	4	5.5
Home with nursing support	3	4.1
Home with therapy support	2	2.7
Non acute bed with therapy support (placement in community hospital, residential or nursing care home with direct input from therapy services)	14	19.2
Non acute bed without therapy support (placement in community hospital, residential or nursing care home; no direct input from therapy services)	9	12.3
Access to assessment/diagnostics	10	13.7
Palliative care	1	1.4
Awaiting bed in another acute facility	1	1.4
Nursing home or long term care	1	1.4
Rehabilitation bed (specifically designated – e.g. National Rehabilitation Hospital)	1	1.4
Other	6	8.2

Discussion

At the time of the study over two thirds of medical and surgical, elective and non-elective patients admitted to the hospitals in the study were over 65 years of age. With the older population projected to more than double by 2046,[1] appropriate utilisation of acute services is important if future demands on services are to be met. On admission to hospital, 8% of medical and surgical patients in the study did not require admission in terms of AEP criteria.[3] This level is lower than that found in the HSE in 2007 (13%),[2] and in the study area in 2010 (12.5%, unpublished data), and lower than that found in the HSE South (20%).[4] It is encouraging that a downward pattern has emerged. In terms of the reasons for inappropriate admissions, almost two thirds could have been avoided if alternative services were available, demonstrating significant scope to reduce inappropriate admissions. Key services include non acute services (e.g. non acute beds, home based supports), access to diagnostics, and pre-operative assessment. Many of those appropriately admitted in terms of AEP criteria could also have been treated in the community if services were developed. For example, 23% were admitted for intravenous medication and /or fluid replacement and did not require any other treatment. Whilst these treatments have traditionally been provided by acute hospitals, they can also be given in a non acute setting. Treatments can be administered by health professionals or self administered at home.[5] Chapman et al[6] for example report that outpatient parenteral antibiotic therapy (OPAT) has become

established in several countries and is cost effective. OPAT has now been established in HSE West and it is anticipated that this will lead to more efficient hospital utilisation. The need for community based services can also be seen in examining days of care. Of the days of care classified as inappropriate (27%), over a quarter were waiting for a less acute or step down facility elsewhere, with 16% only requiring parenteral therapy.

In examining elective admissions, seven (21%) were inappropriate terms of location of surgery criteria and could have been admitted as day cases. This compares to 11% for the Hospital Group in 2010 (unpublished data); 25% in the HSE South,[4] and 37% in the HSE nationally (2007).[2] Although comparisons are difficult due to small sample size (34 patients), the results are promising. However, in terms of timeliness of elective surgery admission, there remains significant scope for improvement with only 23% of surgery taking place on the day of admission. Over three quarters were admitted one or more days prior to surgery. In 57% of these patients, this delay was not justified. This pattern is similar to that experienced in 2010 (unpublished data). In Ireland, bed pressures have led to admissions the day before surgery to avoid cancellation.[2] To address such issues, the Model of Care for Elective Surgery was developed in 2011 as part of the HSE National Clinical Programme in Surgery.[7,8] Key elements include pre-admission assessment, day surgery, day of surgery admission, and discharge planning. Although there has been a 7% reduction in average length of stay from 2011-2013, 47% of hospitals have not met targets for day of surgery admission,[8] suggesting a need to review the Programme's implementation.

Having a structured discharge plan can reduce length of stay and readmissions.[9] It is disappointing that evidence of discharge planning was only found in less than half the patients in the study (48%). The HSE has developed a code of practice for integrated discharge planning (HSE, 2008). Although this has been introduced in all the hospitals in the study, the results highlight a need for it to be fully implemented and monitored. Ensuring that acute hospitals are utilised appropriately will lead to improved quality of care for all patients attending. The results provide a benchmark to gauge the impact of future developments. Improving services will require a whole systems approach, looking at issues within hospitals and the interaction between hospitals and community services. Policies and programmes have been developed and it is only through implementation that any progress can be made.

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Transurethral Resection of the Prostate – "Now and Then"

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Abstract
The number of transurethral resections of the prostate (TURP) performed each year is decreasing. The aim of this study was to assess a cohort of patients undergoing TURP and compare this to one twenty years earlier in terms of procedure, complications and outcomes. A retrospective comparative analysis of one hundred consecutive TURPs performed in 2010 was compared to one hundred cases performed in 1990. Fifty-five (55%) had a urinary catheter (UC) in situ pre-operatively in 2010 compared to 22 (22%) in 1990. The length of catheterisation time was significantly longer in 2010 compared with 1990 (average 65 days vs 20 days). Infective complications occurred in six (6%) patients in 2010 and three (3%) in the 1990 cohort. Patients who had UCs in situ pre-operatively for longer periods had a higher rate of infective complications and more serious complications. This highlights the importance of early specialist referral for patients diagnosed with urinary retention.

Introduction

With the widespread introduction of a-blocker and 5- a-reductase inhibitor medications for the treatment of benign prostatic hyperplasia (BPH), the number of transurethral resections of the prostate (TURP) performed each year is decreasing[1]. Recent studies demonstrate that 5- a-reductase inhibitors can reduce the lifetime risk of acute urinary retention and the need for BPH-related surgery[2]. TURP is a core urology training procedure but the number of TURPs being performed by current urology trainees is decreasing. A recent publication by Gill et al revealed a recent decline in the numbers of TURPs being performed annually by urology trainees in the UK as assessed by logbooks[3]. The aim of

CPD available online at www.imj.ie and questions on page 159.

this study was to examine the changing face of TURP by examining a contemporary cohort of Irish patients undergoing TURP and compare this to one twenty years earlier.

Methods

A retrospective comparative analysis of one hundred consecutive TURPs performed in a single university teaching hospital between September 2010 and June 2011 was undertaken. This was compared to one hundred cases performed twenty years earlier, between January and November 1990. Patient factors recorded included: age, whether surgery was elective or precipitated by urinary retention with a urinary catheter in situ, length of time the catheter was in situ, any use of a-blockers or 5- a-reductase inhibitors, and duration of hospital stay. The operating surgeon was recorded as consultant or urology trainee (either specialist registrar or registrar grade). The type of anaesthesia administered was documented. Weight of the resected prostate tissue was recorded along with the final histopathology. Complications in the immediate or delayed post-operative period were recorded as well as late events occurring following discharge. A successful outcome was defined as satisfactory voiding following the procedure without the need for an indwelling urinary catheter. Where required, a paired T-test was performed to determine statistical significance. Significance was defined as $P<0.05$.

Results

Patient characteristics are outlined in Table 1. Only 45% of men in 2010 underwent elective TURP surgery as over half (55%) of the men had a urinary catheter in situ pre-operatively. In comparison 80% of men underwent elective surgery in 1990 when only 20% of men had a urinary catheter in situ pre-operatively. The average length of time which urinary catheters were in situ pre-operatively was significantly longer in 2010 compared with 1990 (average 65 days vs 20 days, P=0.001). Those patients with a UC in situ pre-operatively in the contemporary group were examined in more detail. Clinical information was available on 48 of these patients. Twenty-four patients (50%) were referred from outside institutions (a total of nine institutions) and their catheter was in situ for an average of 126 days (range 3-390 days). Nineteen patients (39%) were catheterised in our institutions' emergency department and they had a UC in situ for a mean of 5.8 days pre TURP. Five patients (10%) were catheterised in our outpatients department and underwent surgery within an average of 27 days (range 2-63). The mean hospital stay for a TURP in 1990 was 10 days (median 9 days) which was longer than the mean stay of 6 days (median 5 days) in 2010. The longest hospital stay was 21 days in both groups.

Table 1 Comparison of pre-operative TURP management, presentation, pathology, surgeon experience, anaesthesia and outcomes between 1990 and 2010 patient cohorts

	2010	1990	P Value
Patient characteristics	Patient cohort N = 100	Patient cohort N = 100	
Mean age	70 years	72 years	0.08
Age range	49-88 years	44-88 years	
UC in situ pre-op	55%	22%	
Mean length of time of UC	65 days (range 2-365)	20 days (range 1-150days)	0.001
α-blocker pre-op	64%	2%	
5-ARIs pre-op 1	9%	–	
Mean length of hospital stay	6 days (range 3-21)	10 days (range 4-21)	0.02
Histology			
Weight resected (mean)	25grms(range 3-100)	23 grms (range 3-65)	
Benign	83%	62%	
Malignant	17% (incidental 9%)	38% (incidental 15%)	
Surgeon			
Consultant performed	54%	53%	
Registrar	46%	47%	
Anaesthesia			
Spinal	82	59	
General	18	41	
Outcome			
Required longterm UC	2	3	
Required longterm CISC	2	–	

Regarding medical therapy for BPH, none of the patients in 1990 were taking 5-a-reductase inhibitors and only 2% were taking a-blockers pre-operatively. Of those two patients on a-blockers, surgery was precipitated by acute urinary retention (AUR). In contrast, in 2010, 19% of men were taking 5- a-reductase inhibitors and 64% were on a-blockers pre-operatively. The mean weight of prostate resected in 1990 was 23 grams (median 29 grams, range 3-65 grams) and was not statistically different than the mean weight of 25 grams in 2010 (median 30 grams, range 3-100 grams), (P=0.7). There was a much higher incidence of adenocarcinoma recorded on pathological reports in 1990 (38%) than in 2010 (17%). The mean weight of prostate resected by consultant urologists was 28.7 grams compared to 23.7 grams by trainees. A higher proportion of patients had spinal anaesthesia in 2010 (82%) as compared with 1990 (59%).

Table 2 Complications observed post TURP in 1990 patient cohort and 2010 patient cohorts

Complication	2010	1990
Sepsis post TURP (1 HDU admission*)	3 (n)	2 (N)
Epididymo-orchitis	2	1
Scrotal abscess *	1	-
Pulmonary embolism	1	-
Deep venous thrombosis	-	1
Bladder perforation (open repair)*	1	-
Spinal headache	1	1
Transfusion required post-op	1	4
TURP syndrome	-	1
Bladder neck incision required within 6 mths	-	1
Re-do TURP required within 6 mths	-	2
Clot retention requiring re-admission	1	2
Bleeding requiring return to theatre	1	-

*denotes Clavien Dindo scale complication grade III or higher complication

Regarding outcome, the majority (>95%) of patients in both groups voided successfully without the need for a urinary catheter. Five patients in the 2010 cohort failed to void with three requiring a long-term catheter and two were required to perform self intermittent catheterisation. Three patients in 1990 required a long-term urinary catheter. Table 2 outlines the post-operative complications. The commonest complication observed was sepsis which occurred in three patients in 2010 and two patients in 1990, all requiring intravenous antibiotics. In two cases, E Coli was cultured on urine and blood cultures; in the other three cases no causative organism was detected. Three patients were diagnosed with epididymo-orchitis in the post-operative period with only one patient requiring readmission for intravenous antibiotics. One patient developed a scrotal abscess which required incision and drainage. Only one case of TURP syndrome was recorded, this patient underwent a 46 gram resection in 1990, for which HDU admission was not required. Two patients experienced thromboembolic complications; one pulmonary embolism in 2010 which required warfarin therapy for six months and one deep venous thrombosis (DVT) in 1990 requiring warfarin for three months. Three patients in the 1990 cohort required a repeat surgical procedure for bladder outlet obstruction within six months; one bladder neck incision for bladder neck stenosis and two repeat TURPs.

Clot retention requiring readmission in the post-operative period was seen in three patients (one in 2010 and two in 1990). One patient in the 2010 group required a return to theatre to deal with ongoing bleeding. None of these patients had risk factors for bleeding (not on anticoagulants, normal coagulation profile and weight resected was less than the mean). Upon examining the complications encountered in patients from outside institutions with longer periods of catheterisation, 21% (5 of 24) of these patients developed complications, two were grade IIIb and two grade IV (Clavien Dindo scale)[4]. Two patients (8%) who were catheterised in our institution had complications, both were grade II.

Discussion

The indication for TURP has changed dramatically over a twenty year period. Over half of patients in the contemporary cohort had a UC in situ prior to TURP. All of these patients had failed a trial of

voiding prior to surgery. Following an episode of acute urinary retention, it is now standard practice to give a trial of voiding following a1-blockade, allowing the patient to return to normal voiding in up to 60% of cases[5]. In our 2010 cohort, 75% of men with a catheter in situ pre TURP had failed treatment with a-blocker medications. This is similar to that reported by Izard et al in 2011 who found that the majority of patients undergoing TURP had failed medical therapy and many (43%) had a urinary catheter in situ prior to surgery. They also demonstrated that the number of patients undergoing TURP in Canada decreased by 60% from 1988 to 1998[6]. Due to emerging antibiotic resistance, sepsis post TURP is now a considerable concern. Many community acquired Escherichia coli strains are resistance to commonly prescribed antibiotics[7]. Murphy et al reported a septicaemia rate of 1.2% in a series of 1,604 TURPs. They found that the absence of appropriate antibiotic cover and the presence of pre-operative urinary infection precipitated septicaemia post TURP[8]. Our institution has previously published a technique of direct antibiotic sensitivity testing (DST) of pre-operative urine samples and prior to catheter removal. Utilising this technique in a series of 102 TURPs resulted in septicaemia in only 1 patient[9]. Unfortunately due to budgetary constraints, such a practice is no longer possible. This, along with the increasing emergence of antibiotic resistance and length of catheterisation periods, likely explains why our observed rate of sepsis is higher compared to some published historical series.

A recent large multi-institutional publication demonstrated that an indwelling catheter for longer than 3 days duration was associated with increased morbidity and prolonged hospital stay for adverse events[10]. In a retrospective review of over four thousand patients, Chen et al demonstrated a higher incidence of septicaemia in patients who had AUR pre TURP than those without an episode of AUR[11]. The length of catheterisation time prior to TURP in 1990 in our study was significantly shorter (20 days vs 65 days) compared to 2010. Patients referred from outside institutions had a significantly longer catheterisation period than those patients catheterised in our emergency or outpatient department (126 days, 6 days and 27 days respectively). This may reflect delays in referral or waiting times for outpatient visits. Many of these patients were managed in the community with a catheter and underwent more than one failed trial of voiding prior to referral. This highlights the lack of urology resources in the Republic of Ireland. The rate of bladder neck stenosis post TURP in our series (0% in 2010 and 1% in 1990) is comparable to that previously published by Sikafi et al, who over an 11 year period reported a bladder neck stenosis rate after prostatectomy of 0.86%[12]. The introduction of medical therapy for symptomatic BPH has resulted in a decrease in the number of TURPs performed now compared to twenty years ago.

A total of 28,240 TURPs were performed in Ireland between 1995 and 2008. The number of TURPs performed during this period decreased annually by 1,494[13]. As a consequence, urology trainees are performing less TURPs than those in the past. Given this, we sought to determine if this has had an impact on the procedure, outcomes and complications. In terms of prostate tissue resected, the procedure remains unchanged over twenty years. Given that the majority of patients who undergo TURP now have failed medical management, one may expect that these prostates would be larger. This was not in case in our series. The increasing use of 5-ARI medications may have resulted in a decrease in the prostate volume of those men undergoing TURP. Combined therapy has been shown to reduce the risk of BPH-related surgery in men with prostate volumes > 42 cc.[14]. The largest resection in our entire study was 100 grams which was in the 2010 cohort. No patient underwent conversion to open prostatectomy. The widespread use of prostatic specific antigen (PSA) testing has resulted in a stage migration of prostate cancer in recent years[15]. This is evident from our study results. In our 1990 cohort, 38% of the pathology reports demonstrated evidence of prostate cancer. At this time many of these patients subsequently underwent bilateral orchidectomy, either at the time of TURP or in the post-operative period. This, along with required staging investigations contributed to the longer length of patient stays in that era.

We conclude that despite maximum medical therapy for BPH, a significant cohort of men will still require a TURP. In our contemporary series, those patients who had urinary catheters in situ pre-operatively for longer periods had a higher rate of infective complications and more serious complications. This highlights the importance of early specialist referral for patients diagnosed with urinary retention in the community and we consider that acute urinary retention should be treated as an emergency.

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Follow Up of Infants Born to Women with Hepatitis B in the National Maternity Hospital

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Abstract
Infants born to women with hepatitis B virus (HBV) are at risk of vertical transmission. This risk is significantly reduced with correct post-natal treatment. After initial perinatal management and neonatal treatment, these infants receive subsequent follow up HBV immunisations at two, four and six months. These infants then require post vaccination serological testing. This review was conducted to determine the number of infants born to mothers with HBV in the National Maternity Hospital who had appropriate post vaccination serological testing. There were seventy–eight HBV infections identified antenatally in the years 2010 and 2011 resulting in seventy live born infants at our institution. Thirteen (18.6%) infants had evidence of post vaccination serological testing. This is below international rates of follow up. There is an urgent need for a centralised national programme to ensure adequate follow up and management of all infants born to women with HBV in Ireland.

Introduction

Infants born to women with acute hepatitis B infection or chronic carriers of hepatitis B virus are at risk of acquiring hepatitis B infection by vertical transmission. Without treatment, the risk of acquiring HBV perinatally is 70-90% in infants of women who are both hepatitis B surface antigen (HBsAg) positive and hepatitis B e antigen (HBeAg) positive. The risk of acquiring HBV infection is 5-20% in infants of women who are HBsAg positive but HBeAg negative[1]. Infants infected with HBV have a 90% risk of developing chronic infection with a 15-25% risk for premature death from cirrhosis or cancer of the liver[2]. It is estimated that between two and three hundred HBsAg positive women give birth in Ireland per year. There is currently no nationally agreed policy with regard to the management of these women and their infants. In the National Maternity Hospital (NMH) pregnant women are screened for hepatitis B infection as part of routine antenatal care. The risk of vertical transmission of HBV is decreased through antenatal serological screening and subsequent treatment of infants postnatally[3]. Perinatal transmission of HBV infection can be prevented in approximately 95% of infants with appropriate treatment. During delivery of the infant exposure to maternal blood is avoided as far as possible e.g. by avoiding use of fetal scalp electrodes and fetal blood sampling. The newborn infant is then routinely bathed in the delivery room. Following careful disinfection of the skin with alcohol, babies born to mothers who are HBsAg positive receive Hepatitis B Immunoglobulin (HBIG) via intravenous injection and HBV vaccination via intramuscular injection to provide both passive and active immunisation respectively. This treatment should be provided within 12 hours of delivery[2]. The practice in NMH is to provide treatment as soon as possible after delivery. All children then receive additional HBV vaccines at two, four and six months as part of the national immunisation schedule. Infants of mothers with hepatitis B require HBV serology at least 2 months after completion of this vaccination course to monitor response to treatment.

In the National Maternity Hospital, upon infant discharge, a letter is sent out to the registered GP requesting HBV serological testing at 8-10 months of age. Serum should be tested for HBsAg to exclude infection and anti-HBs to check for immunity[4]. If HBsAg is positive it is recommended to refer the infant to a Paediatric Infectious Diseases Physician. The Immunization Guidelines for Ireland state that an anti-HBs level > 10 mIU/ml is accepted as protecting against HBV. A booster of hepatitis B vaccine is recommended for low responders (levels between 10 and 99 mIU/ml) as infants born to mothers with active HBV infection are at increased risk of infection. It is recognized by the authors that international bodies including the Centers for Disease Control and Prevention (CDC) do not recommend a booster for all low responders. This may reflect a more conservative approach to the management of infants with hepatitis B in Ireland. It is expected that these infants are at increased risk of exposure to hepatitis B in the future from household contacts with known hepatitis B. An anti-HBs level greater than 99 mIU/ml indicates a good response to vaccination and these infants require no further action. This aim of this audit was to determine the number of infants born to mothers with HBV that had appropriate serological follow up.

Methods

The National Maternity Hospital microbiology database was used to determine the number of HBV notifications in the years 2010 and 2011. The hospital patient administration system (PAS) was then used to identify infants born to these women. At the National Virus Reference Laboratory (NVRL) each sample from a patient is given a unique bar-coded label on receipt of the specimen. All patient demographics are linked to this unique number and entered onto the laboratory information system (LIS). The LIS can be interrogated using specific patient search parameters to identify all laboratory records linked to that patient. In relation to the current study, this enabled the LIS to be searched for evidence of follow up samples from this patient cohort and the investigations performed. All following tests, using the Abbott Architect platform, the Architect HBsAg Qualitative II, the Architect anti-HBs and Architect anti-HBc were utilized. When necessary, additional assays for anti-HBs and anti-HBc were used to confirm the presence of low levels of anti-HBs or anti-HBc. This study was approved by the National Maternity Hospital Ethics Committee.

Results

There were seventy-eight HBV notifications in NMH over the two year period. The seventy-eight HBsAg positive women delivered seventy live-born infants at our institution. These included two sets of twins. One woman had a miscarriage and there was one infant stillborn. Fifteen of these infants would be considered high risk (HBeAg positive). There was no record of delivery for eight of the women with HBV notifications. Of the seventy live-born infants, there was evidence of post vaccination serological testing in

Table 1 Results of follow up of infants born to mothers with HBV

Maternal Serology	HBsAg	HBeAg	Anti-HBe
HBV positive women	78	16	62
Live born infants	70	15	55
Sets of twins	2	1	1
Stillbirth	1	0	1
Miscarriage	1	0	1
No record of delivery	8	2	6
Serological follow up	13	3	10
HBsAg tested	12	3	9
HBsAg positive	0	0	0
Anti-HBs tested	12	3	9
Anti-HBs >100	11	3	8
Anti-HBc tested	9	3	6
Anti-HBc positive	7	1	6

thirteen (18.6%) infants. Three of these infants were in the high risk category. One of the thirteen tested infants was not tested for HBsAg. None of the twelve infants tested for HBsAg were positive. One other of the thirteen tested infants was not tested for anti-HBs. Of the twelve infants tested for anti-HBs,one infant had evidence of low response, although this infant was considered immune. Nine infants were tested for anti-HBc and seven of these infants were anti-HBc positive. The age at which infants were tested ranged from seven months to twenty-five months. The mean age at which infants were tested was ten and a half months.

Discussion

There was no evidence of post vaccination serological follow up in the majority of infants delivered to mothers with HBV in NMH during this time period. If we include only those women who had confirmed delivery of infants in NMH this shows that 13/70 (18.6%) had evidence of follow up. This is below international rates of follow up. The figure for post vaccination serological testing in the United States is over sixty three percent[2]. In the Netherlands this figure is higher again at eighty percent of children followed up with testing[5]. Post vaccination serological testing is important for guiding further management of infants born to mothers infected with Hepatitis B by allowing identification of infected or at risk infants[2]. In total four out of the thirteen (30.8%) infants tested had the correct tests performed at the correct time. The recommended tests of HBsAg and Anti-HBs were carried out in eleven out of thirteen infants tested. One infant was tested for HBsAg while not being tested for Anti-HBs. Another infant was tested for Anti-HBs but not for HBsAg. Among those tested, one infant out of thirteen had evidence of low response, although this infant was considered immune. The median seroprotection following a completed vaccination schedule in infants born to mothers with hepatitis B is as high as 98%[6]. Eight infants were tested for anti-HBc but this test is not considered a necessary part of follow up. This test usually reflects passive transplacental transfer of maternal IgG anti-HBc.

The age at which infants were tested although often exceeding the recommended time period on the standard letter sent to GPs of between eight and ten months, was still mostly within the time frame for testing according to the CDC of between 9 and 18 months[2]. Eleven of the thirteen infants were tested between eight months and twelve and a half months. One infant was tested just before seven months of age. The CDC does not recommend testing within one month of the completion of the standard HBV vaccine series. Detection of anti-HBs at this age may occur on account of the HBIG administered in the neonatal period. Testing at the recommended time improves the likelihood of detecting late HBV infection[7]. One infant was tested just before twenty-five months of age which is older than the recommended age and puts the infant at risk of either a delay in diagnosis of HBV infection or a delay in recognition of non-response to vaccination. It was noted that eight of the seventy eight women identified through antenatal screening did not deliver in NMH. It is unknown whether these women delivered infants in another hospital inside or outside of Ireland. This may be an indication that the group of women involved may reflect a highly mobile population. This possibility would create challenges for follow up of infants. GPs may not be informed of changes in address of infants in this group should they move elsewhere. Many of the women identified through antenatal screening are from countries where HBV is endemic[8]. As clinicians it is important to ensure that these patients understand the instructions that are provided with regard to follow up of their infants. This may include both written and verbal instruction in their first language and the use of patient held vaccine records. Such strategies may improve adherence to recommended follow up[9,10].

In Ireland, in spite of recommendations[11], there is no national program for screening of pregnant women for HBV infection or the follow up of infants born to mothers with HBV. It is estimated that between two to three hundred women with HBV deliver at risk infants in Ireland each year. About 50 of these infants would be considered highest risk for vertical transmission (maternal HBeAg positive). It is known that even with optimal treatment there remains a risk of transmission of HBV[12]. Although it is not possible to quantify harm in this audit, there is a potential that some children may develop hepatitis B infection or have non-response to vaccination and be at risk of acquiring hepatitis B infection in the future. Follow up of these infants has evolved on an ad hoc basis. The low level of serological testing identified in this study indicates that the current system for follow up of these infants relying on primary care is not working. It must be noted that this is a single centre study with limited generalisability. As there is currently no unified approach to follow up of infants born to women with hepatitis B in Ireland, it is probable that the method of follow up of infants in NMH is different from other units in the country who may have their own local policies.

There is a need for a centralised national programme to ensure adequate management and follow up of all infants born to mothers with HBV[13]. Resource implications would include the employment of a full-time nurse to ensure follow up occurs as per the Immunisation Guidelines for Ireland. Quality improvement programs could include family reminders, education, provider reminders and community coordination[14]. Accuracy and completeness of perinatal Hepatitis B infection reporting can help progress to eliminate HBV transmission[12]. Intensified follow up programs of at risk children have been shown to improve the completion of post vaccination serological testing[15]. The recent step towards the creation of a National Strategy and Protocol for Management of Infants Born to Mothers with Hepatitis B Infection is a welcome development. However, without supervision of such recommendations at a national level it is likely that many infants will remain at risk of hepatitis B infection.

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Accidental Ingestion of Magnetic Spheres in Children

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Abstract
Magnetic foreign body ingestion can have a very serious sequale if multiple or combined with another metal object inside the abdomen. We report 2 cases of ingestion of rare-earth magnets with a very different consequences. This adds to the world's literature on this topic.

Introduction

Magnetic foreign body ingestion has been reported worldwide in case reports and case series reaching up to 30 patients[1-9]. There is a paucity of exploration of this problem in the Irish literature.

Case Report

We report two children who attended a university affiliated children's hospital in Ireland. First is a 3-year old boy who was transferred from his regional medical centre due to history of ingestion of unknown number of magnetic round objects he gathered from his elder sibling's toy. Some of them were passed in the stool and collected by mother. At presentation to our institution patient had some abdominal pain and discomfort as well as history of vomiting. Two plain abdominal radiographs were taken 48h apart (Figure 1 and 2). They revealed stationary position of foreign bodies just to the right of L3 vertebral body. Laparotomy was undertaken that showed one magnet in the transverse colon with the other one in the first loop of jejunum. Second loop of jejunum was interpositioned between them. Magnets created enough force to erode all involved walls of bowel (4 perforations altogether). They were found eventually in the sigmoid colon. Bowel perforations were repaired and patient made an uneventful recovery and was discharged on the 9th post-operative day.

Second patient was a 9-year old female who ingested 2 similar magenetic spheres while attempting to see how would she look like with a lower lip piercing. She was asymptomatic on presentation and serial radiographs (48h apart) showed good progress of foreign bodies through gastrointestinal tract. They were retrieved from the stool 5 days after ingestion.

Discussion

Ingestion of non-food objects is common in young children[2,3]. Unless objects are large or sharp they usually pass through digestive system without consequences[1]. Several exceptions include powerful rare-earth magnets and button batteries. A single foreign object would not cause any harm on its own. In combination with a second magnet or other metallic object it can cause severe damage inside the abdominal cavity including perforations, obstruction and striangulation. Death has been reported in the US after a 20-month old child was brought to a hospital in irreversible shock[1]. All patients with suspected or known magnetic foreign body ingestion should have an antero-posterior and a lateral abdominal radiographs. In case of any doubt as to the number or position of the foreign bodies and in case of all symptomatic patients a contact with local paediatric surgery department is advised[3,4,10]. The danger of magnetic object ingestion is not widely known among medical professionals in Ireland. This paper draws attention to this rare[4] but morbid and potentialy lethal condition. This adds to international literature on the matter. When in doubt a clinician should consult their local

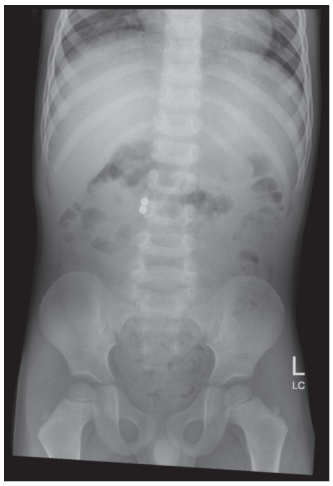

Figure 1 First abdominal radiograph of a 3-year old boy.

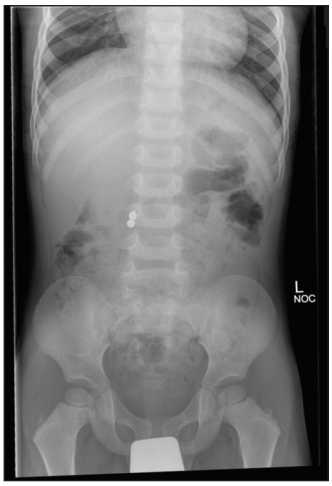

Figure 2 Same patient 48h later. Radiograph shows no change in foreign body position - just to the right of L3

paediatric surgery department. Toys containing strong rare-earth magnets should have a clear and visible warnings regarding the dangers associated with their ingestion. Young children should not be allowed to play with such toys or have an unsupervised access to them.

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An Unusual Cause for Massive Inflation

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Abstract
Chagas disease is a rare condition but with an increasing incidence. Megacolon is a known sequelae. Surgical management remains the only disease modifying treatment option; with variable long-term success. We highlight an interesting case to emphasize attention to this rare condition as a differential diagnosis in any patient presenting with massive intestinal dilatation.

Introduction

Worldwide the most common cause of megacolon is due to an infective process (Trypanosoma cruzi)[1]. With increasingly global integration, infective causes of megacolon are more prevalent in developed countries[2]. Surgery is the only disease modifying treatment option. Surgical management has had innumerable modifications over the years with the intention to improve outcomes[3].

Case Report

We report a sixty-nine year old gentleman that presented with a one-week history of abdominal distention, nausea and absolute constipation. A grossly distended abdomen was noted on initial plain radiography. Subsequent computerized tomography (CT) scan showed massive dilatation of both the colon and rectum without evidence of a focal transition point. Interestingly, on further review of the patient's history, he had spent a significant amount of time living in South America. The possibility of trypanosomal infection was considered. Cardiac investigations (echocardiogram) did not detect any abnormality. Additionally, barium swallow showed no involvement of the upper gastrointestinal tract. A conservative management approach was refractory. Due to long-standing colonic atony the prospect of elective bowel resection was discussed with the patient. Four months later, he was electively admitted for a total abdominal colectomy and ileorectal anatsomosis. The colon and rectum were grossly distended at surgery with no transition point (Figure 1). Day-eight post-operatively the patient developed severe lower abdominal pain. CT scan observed no collection, but a significant volume of free air was detected. The patient was returned to theatre for exploration. A small area of necrosis along the suture line was primarily repaired and a defunction ileostomy fashioned. Recovery was uneventful thereafter. Ileostomy was reversed three-months later, and at twelve-month review he had made a full recovery.

Histopathology observed an eosinophil rich, transmural inflammation of the distal colon, and though T.cruzi was not identified, this was felt to be the causative factor. Additionally, immunohistochemistry with neuronal markers showed thinning of the nerve fibres with prominent residual ganglion cells in the outer plexus in keeping with T. cruzi infection.

Discussion

Carlos Chagas first described Chagas disease in 1909[6]. The causative agent is the protozoan T. cruzi, which is transmitted by insects. It is endemic in parts of South America, but not confined to this region[2]. Increasing migration patterns have made it a worldwide issue[5]. More than 18-million people worldwide have T cruzi, with an estimated 20,000-deaths annually[1,3]. Acute T. cruzi though largely asymptomatic, can have flu-like manifestations with varying severity, typically subsiding within eight-weeks. Less than 5% of patients die acutely[1]. Approximately, 30% of patients develop a chronic infective state, with long asymptomatic phases

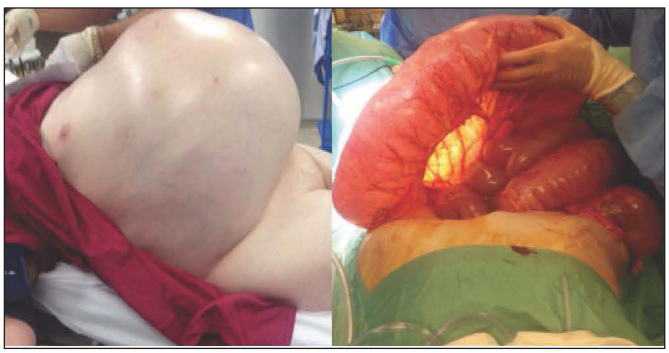

Figure 1 Findings at surgery – On the left just before laparotomy and on the right - Diffuse massive dilated large bowel

without electrocardiographic or radiological abnormalities[7]. Major morbidity and mortality relate to the development of cardiac and mega-syndromes. 4.5% develop a mega-syndrome (megacolon or megaoesophagus) characterized by gross dilatation and thickening of their walls[5]. Irreversible destruction and depopulation of the intra-mural intestinal nervous system with loss of coordinated motility results in progressive constipation, eventually resulting in faecal impaction and/or volvulus[8]. Diagnosis is through direct demonstration of a parasite in human tissue/blood, which is only detectable in the acute phase[1]. Alternatively, antibody testing and/or enzyme-linked immuno-sorbant assays are required[1]. Treatment of Chagas disease is difficult with limited success. Anti-trpanosomal drugs (Nifurtimox/Benznidazole) have been utilized, but cytotoxic effects limit their generic application[9]. Ultimately, drug therapy has been largely unsuccessful with little evidence to show they halt progression of cardiac or digestive tract pathology[9]. Surgical management is a significant challenge, as the dilated organ distorts anatomy making dissection and ligation of vessels difficult[3,10]. The two most commonly used procedures include the low anterior resection and the Duhamel-Haddad technique (2-stage technique). The latter remains popular in South America[7]. Despite the technique, recurrence remains an appreciable concern with a lack of long-term follow-up data.

In conclusion, this case highlights a rare condition, and the importance of clinical suspicion when a patient presents with massive organ dilatation and a history of tropical travel.

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Oxytocin is Unequally Distributed in a Bag of Normal Saline – True or False?

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Abstract
Oxytocin infusion used in labour can sometimes be left hung on the stand for many hours. There has been no study to determine if oxytocin is equally distributed throughout the infusion bag and if the distribution stays the same with time. We postulated that there may be settling of the molecules such that oxytocin concentrates at the bottom of the infusion bag. Eight infusion bags were prepared by mixing 10 IU of oxytocin in 1 litre of normal saline. The infusion bags were hung on infusion stands for 8 hours after which 10 samples of 100 mls of the solution from each bag were taken in different containers and the concentration of oxytocin calculated using oxytocin specific Enzyme Immunoassay (EIA) in the different samples. No statistically significant correlation between the oxytocin concentration and the sample number was observed (p-value = 0.738). There was no obvious relationship between oxytocin concentration and the sample number in each bag. There was no evidence to suggest that a linear oxytocin concentration gradient develops in a bag of normal saline over an 8-hour period. In fact the distribution appears to be random and unequal.

Introduction

Oxytocin is a hormone produced by the posterior pituitary gland. It has a number of peripheral actions mediated by specific oxytocin receptors. The peripheral actions of oxytocin include uterine contractions during labour, excretion of milk during breast-feeding, role in sexual arousal, wound healing and behavioural control.[1] The uterine contracting properties of oxytocin were discovered by British pharmacologist Sir Henry Hallett Dale in 1906.[2] The milk ejection property of oxytocin was described by Ott and Scott in 1910[3] and by Schafer and Mackenzie in 1911.[4] In 1953, the chemical structure of oxytocin was elucidated almost simultaneously by DuVigneaud and associates in the United States and Tuppy in Austria. In the following year, DuVigneaud was able to synthesize oxytocin and, in 1955, Boissonnas evolved a method of manufacturing synthetic oxytocin on a commercial scale.[5] In regards to parturition, synthetic oxytocin is used for induction and acceleration of labour, delivery of the placenta and management of postpartum haemorrhage. The three ways of administering the drug are intravenous injection, intramuscularly and as an intravenous infusion.[6] Oxytocin has been given as an intravenous infusion for induction and, in cases of labour dystocia, to accelerate labour.

Labour dystocia is characterized by slow, abnormal progression of labour. It is diagnosed based on delays in cervical dilatation.

Approximately one fifth of human labours have dystocia.[7] In the majority of cases of labour dystocia, there would be a response to oxytocin infusion as indicated by an increase in uterine contraction and change in cervical dilatation. However in some cases, even though there is an initial response to the infusion, the cervix fails to dilate fully and delivery by cesarean section is required. Explanations the above scenario, include problem with the passage (cephalopelvic disproportion), passenger (abnormal fetal lie or presentation) and power (inefficient uterine contraction and possibility of lactic acid accumulation which tires the uterine muscle and therefore lessens the efficiency and strength of muscle activity).[8,9] Our theory was based on a more simplistic assumption.

In the National Maternity Hospital, intravenous infusion of oxytocin is prepared by mixing 10 IU of syntocinon to 1L of 0.9% saline. A giving set is connected to the bag which is then hung on a stand. The infusion is started at a rate of 30 mls/hour with increments of 30 mls/hr every 15 minutes to a maximum of 180mls/hour aiming for a maximum of 7 contractions in 10 minutes for primips and 5 for multips. Sometimes, oxytocin infusion has to be stopped due to abnormal CTG or overcontraction leaving the infusion bag hung on the stand for many hours. There has been no study to prove that the concentration of oxytocin is equally distributed throughout the infusion bag and if its distribution stays the same with time. We postulated that with time, there may be settling of the molecules such that most of the oxytocin concentrates at the bottom of the infusion bag. This would mean that most of the oxytocin would be infused within the first few hours. This may explain why in some cases, there is an initial response to oxytocin where the cervix changes in consistency/ dilatation but fails to dilate fully despite hours of oxytocin infusion. Our aim was to test this theory.

Methods

Eight infusion bags were prepared by mixing 10 IU of Syntocinon in 1 litre of 0.9% saline. Giving sets were connected to each infusion bag and the solution run to the tip of the giving set. The bags were labeled A –H. The infusion bags were then hung on infusion stands, which were placed in a quiet room to prevent disturbance of the bags. They were left at room temperature for 8 hours. After 8 hours, 10 samples of 100mls of the solution from infusion bag A were taken in 10 different containers by opening the tap of the giving set. They were labeled A1- A10. This was repeated with the other infusion bags and the containers were labeled B1- B10 up to H1- H10. The concentration of oxytocin was then calculated using oxytocin specific Enzyme Immunoassay (EIA) in the different samples. The EIA kit uses polyclonal antibody to oxytocin to bind, in a competitive manner, the oxytocin in the sample. Following reagent preparation and assay procedure as per the protocol supplied with the kit, the enzyme reaction produces a yellow colour, which is read on a microplate reader at 405nm. The intensity of the bound yellow colour is inversely proportional to the concentration of oxytocin in the sample. The measured optical density is used to calculate the concentration of oxytocin. We tested 8 infusion bags as it provided enough total samples to fill all the plates on the EIA kit. We collected the samples after 8 hours as it is a realistic length of time for labouring women to be on oxytocin.

Results

Casual inspection of the raw results failed to show any discernible pattern. The distribution of oxytocin concentration in each bag A-H is shown in Figure 1. It shows a widely varying oxytocin concentration from each sample in each bag without any obvious pattern. One would expect the distribution to be a straight line (homogenous distribution line in Figure 1) across at 17ng/ml. This is based on the fact that 12.5 IU of oxytocin is equivalent to 21.4 mcg[10], and when 10 IU of oxytocin is mixed to 1L of 0.9% saline, it would give a concentration of 0.017mcg/ml (17ng/ml) which should have been detected in all sample had there been an equal distribution throughout the bag. When the oxytocin concentration is plotted against the sample number (1-10) for all infusion bag (Figure 2), there is still no obvious correlation between the sample number and the oxytocin concentration. The data was formally analysed with R version 2.11.1. Pearson product-moment correlation coefficient between oxytocin concentration and sample number was 0.34 (p-value = 0.74). This indicates a statistically insignificant positive correlation between oxytocin concentration and sample number.

Discussion

Labour dystocia is a common indication for delivery by cesarean section. There is continuing research into the causes and treatment of labour dystocia. In majority of cases, labour dystocia is corrected with oxytocin infusion. Our theory that oxytocin may settle at the bottom of an infusion bag was an important possibility to confirm or refute. However, the results of our experiment do not support our hypothesis that oxytocin settles to the bottom of a bag when left hanging for prolonged periods of time. The data actually displays a very weak, statistically insignificant increase in oxytocin in later samples. More importantly, our experiment shows a widely fluctuating concentrations of oxytocin between the samples in each bag. This is an interesting and possibly clinically relevant observation. It could explain why some labour responds immediately to oxytocin infusion, while others require few hours of oxytocin infusion before changes in cervical dilatation is noted. The erratic concentration measured may indicate that the distribution of oxytocin in a bag of normal saline is actually random and unequal. However, these results should be interpreted carefully as one would expect a constant or smoother gradation in oxytocin concentration. Further research needs to be conducted with careful attention paid to assay accuracy and reproducibility to definitively answer whether oxytocin concentration varies in a bag of saline allowed to settle for a prolonged period of time.

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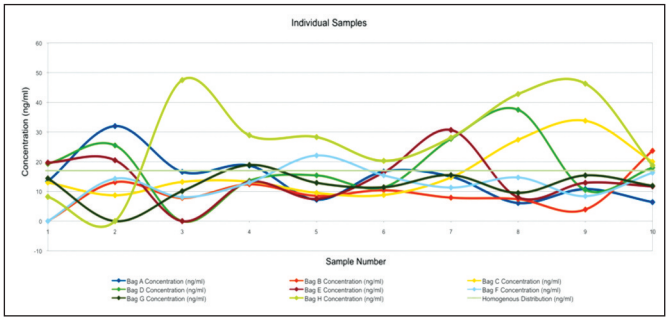

Figure 1 Distribution of oxytocin concentration in each bag (A-H)

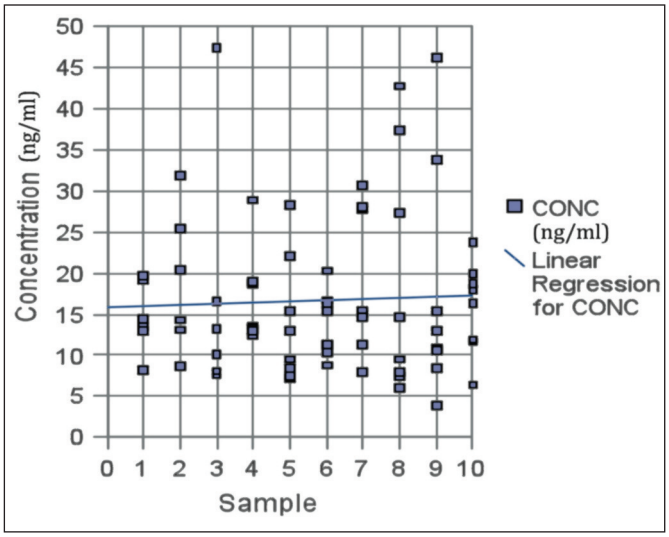

Figure 2 Variation of oxytocin concentration in each sample (1-10) for all infusion bag

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Post Operative Complications in a Dedicated Elective Orthopaedic Hospital: Transfers Requiring Specialist Critical Care Support

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Abstract
We aim to report our experience with out of hospital transfers for postoperative complications in a stand-alone elective orthopaedic hospital. We aim to describe the cohort of patients transferred, the rate of transfer and assess the risk factors for transfer. Patients were identified who were transferred out of the hospital to another acute hospital for management of non-routine medical problems. Patient data was collected relating to age, BMI, ASA, type of surgery, nature of the complication, timing and the outcome of transfer. In 2012, 2,853 inpatient surgical procedures were carried out, 51 patients (1.8%) developed a postoperative complication that required out of hospital transfer. Mean age of patients transferred was 67 (12-86) years, mean age of the overall case mix 58 years (0-96) (p=0.01). 37.7% of the overall case mix of surgeries was made up of primary hip and knee arthroplasty procedures, these patients made up 63.7% of patients transferred out (p=0.001). Mean BMI recorded was 31.7 (22-48) compared to the mean BMI of the total arthroplasty case mix of 28.8 (20-44) (p=0.02). 59% of all patients at our institution were ASA category II or III. 76% of patients transferred were ASA category II or III (p=0.005). We can conclude that patients requiring transfer are typically older. Arthroplasty patients are more likely to require transfer than patients undergoing other orthopaedic procedures. Among the arthroplasty cohort transferred patients will typically have a higher BMI than average. Patients with ASA category II or III make up nearly three quarters of those patients transferred. The mean age of patients transferred is typically older by 9 years.

Introduction
For traditional reasons throughout the UK and Ireland dedicated elective orthopaedic surgical units have traditionally existed as stand-alone units, separate from acute hospitals, often on a separate site. Such separation or ring fencing of elective surgical services has been shown to be advantageous in terms of reduced rates of surgical site infection[1,2] as well as improved productivity[3]. There remains a number of inherent disadvantages however associated with these separate units. Limitations may arise in the delivery of high dependency care, imaging facilities and specialist nursing for example. These limitations can be especially pronounced where the unit is on a separate site. In particular where postoperative complications require specialist critical care support, out of hospital transfer will be required. At our institution in 2012, 2,853 inpatient surgical procedures were carried out. Anaesthetic cover is provided from Monday to Friday on a nine to five basis with a four bed high dependency unit. Out of hours medical and orthopaedic cover for HDU and all wards is provided by an in-house orthopaedic registrar. We aim to report here our experience with out of hospital transfers for postoperative complications in a stand-alone elective orthopaedic hospital. We aim to describe the cohort of patients transferred, the rate of transfer and assess the risk factors for transfer.

Methods
A retrospective review of all postoperative complications recorded at our institution for the year 2012 was carried out. A number of sources for data are available. A prospective database of all surgical complications is maintained and followed up by a dedicated clinical nurse specialist and this was reviewed for the study. The Hospital In-Patient Enquiry (HIPE) database and the hospital electronic clinical records system were also reviewed. Patients were identified who were transferred out of the hospital to another acute hospital for management of non-routine medical problems. A chart review of all patients who were identified as having been transferred out of the hospital was carried out. Patients were individually followed up and the receiving institutions contacted in order to determine the ultimate outcome of the patient transfer. Only patients who developed postoperative or perioperative complications were included in the study. Patients undergoing rehabilitation at the hospital were excluded. Complications were defined as any deviation from the normal postoperative course as described by Dindo et al[4,5]. Patient data was collected relating to age, BMI, American Society of Anesthesiologists (ASA) Physical Status Classification System category, the type of surgery, the nature of the complication, the timing of the complication, the day of the week of transfer, the outcome of the transfer. This data was further compared to data and patient demographics relating to the overall case mix of surgeries carried out at the hospital. Statistical analysis was carried out using SPSS software (v16.0, IBM Corporation).

Results
In 2012 a total of 2,853 inpatient surgical procedures were carried out at our centre. 51 patients (1.8%) developed a postoperative complication that required out of hospital transfer.

The mean age of patients transferred was 67 (12-86) years compared to the mean age of the overall case mix of 58 years (0-96) (p=0.01). A breakdown by systems affected is shown in Figure 1. The most common reason for transfer arose where there was a clinical suspicion for a pulmonary embolism. 17 patients were transferred for this reason. More than 50% of transfers took place on Friday, Saturday or Sunday. The mean time of transfer post op was 4.1 days (0-48). Figure 2 demonstrates the overall make-up of the inpatient case mix by surgery type at our institution over 2012 compared to the make up by surgery type of patients transferred. Where 37.7% of the overall case mix of surgeries was made up of primary hip and knee arthroplasty procedures, these procedures made up 63.7% of patients transferred out (p=0.001). A similarly significant difference exists comparing revision arthroplasty where 5.1% of the overall cases were revisions, 13.7% of the transfers were revisions (p=0.002). Of the group of arthroplasty patients transferred the mean BMI recorded was 31.7 (22-48), this compared to the mean BMI of the total arthroplasty patients treated at Cappagh 28.8 (20-44) (p=0.02). An analysis of ASA categories revealed that 59% of all patients undergoing surgery at our institution were of ASA category II or III. 76% of patients transferred were ASA category II or III, a significantly higher proportion (p=0.005).

Discussion

This study aims to give some indications as to the rates, likely causes and risk factors related to out of hospital transfers for postoperative complications in a stand alone elective orthopaedic unit. We have demonstrated that at our institution the rate of out of hospital transfers for postoperative complications for the year 2012 was 1.8%. This compares favourably with similar rates of around 2% described by the Royal College of Surgeons of England for postoperative complications[6]. There is a move internationally towards ring fencing and separating elective surgical services from emergency and acute services[6,7]. Where emergency and elective facilities are shared, studies have demonstrated high rates of surgical procedure cancelations[8] and increased rates of surgical site infection and hospital acquired infections[1,2]. Such ring fencing can take place on shared sites where independently viable wards have been demonstrated to have tangible benefits. It is common throughout the UK and Ireland for elective orthopaedic units to exist as stand alone institutions separated geographically from their associated acute institutions. The inherent disadvantage associated with this is that when postoperative complications arise, requiring higher-level specialist input, out of hospital transfer is required to an appropriate unit. The ultimate goal in delivering elective orthopaedic care will be optimal patient care, whether through a ring-fenced unit sharing a site with an acute hospital or whether through a unit geographically separated from specialist acute services. Appropriate patient selection and optimisation in the context of the facilities available is the key to successful outcomes and minimising postoperative complications. To this end at our unit there exists a dedicated preoperative assessment process run by the department of anaesthetics. For each patient a risk evaluation can be carried out in order to anticipate the likelihood of complications. In particular we can determine, given these likely risks or otherwise and given the specialist acute facilities available, whether our institution is the most appropriate centre in which to carry out the procedure. Data reported from the Australian Incident Monitoring Study supports such a process, where one study found that 11% of 6,271 critical incidents following surgery were attributable to inadequate preoperative evaluation[9].

We can conclude from this study that patients requiring transfer are typically older. Arthroplasty patients are more likely to require transfer than patients undergoing other orthopaedic procedures. Among the arthroplasty cohort transferred patients will typically have a higher BMI than average. Unsurprisingly, patients with ASA category II or III make up nearly three quarters of those patients transferred. Postoperative complications affecting the respiratory system account for the majority of reasons for transfer (42%). The mean age of patients transferred is typically older by 9 years than the mean age of the inpatient surgical cases cohort.

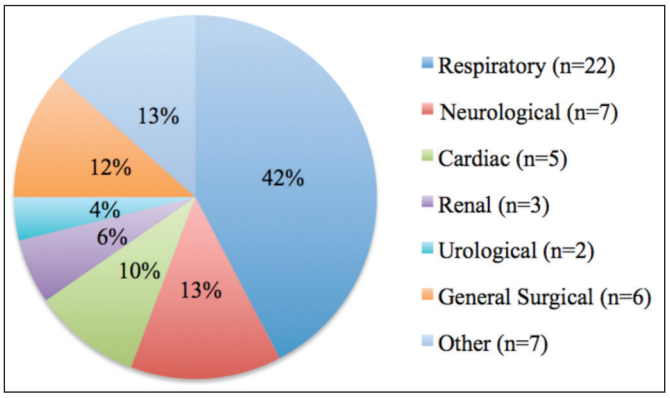

Figure 1 Reasons for transfer by systems affected

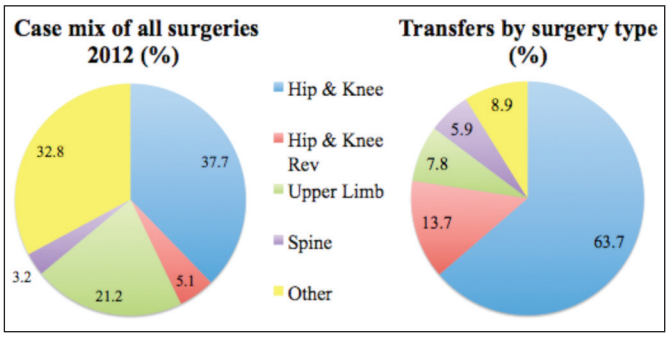

Figure 2 Transfers by surgery type

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Back Pain Following a Lumbar Puncture – What's Unusual About That?

Sir

A 50 year old male presents with progressive back pain. Osteomyelitis and discitis are rare but important complications of minimally invasive procedures such as bedside lumbar puncture. It is imperative to consider P. acnes as the pathogen in the setting of instrumentation.

Case Report

A 50-year old gentleman presented with persistent lower back pain several weeks after testing for Multiple Sclerosis. Several attempts at bedside lumbar puncture (LP), performed under sterile technique, had been unsuccessful, after which CSF was obtained under fluoroscopic guidance. The patient had no immediate complications after the procedure. Four weeks later, he developed progressive worsening back pain. He denied fevers or any bowel or bladder symptoms. His neurological exam was intact. Flexion and extension of his right and left hip elicited pain in the lower back. MRI of lumbar spine demonstrated changes consistent with acute discitis and osteomyelitis at the L4-L5 level with extension of the inflammatory process to involve the adjacent vertebral endplates where destructive changes were evident (Figure 1a). Three sets of peripheral blood cultures were sterile after 7 days incubation. Fluoroscopic guided biopsy was obtained from L4-L5 disc space. Gram staining of the aspirate revealed pus cells; organisms were not seen. Bacterial culture plates were negative after 48 hours incubation; however, Propionibacterium acnes was isolated from anaerobic culture after extended incubation (Figure 1b). The isolate was sensitive to both penicillin and linezolid. Treatment with intravenous benzyl penicillin, followed by an oral taper of amoxicillin was commenced. The patient's back pain and lower limb symptoms improved with treatment.

Discussion

Propionibacterium acnes (P. acnes) is part of the normal skin flora and is typically responsible for inflammation associated with acne. It is an anaerobic Gram-positive bacillus and requires extended incubation. It is an organism of low virulence, which is often non-pathogenic and isolation from culture frequently represents contamination. However, P. acnes has been associated with a wide range of infections, often linked to surgical procedures or foreign bodies. A case series of 23 delayed infections after spinal instrumentation has reported that P. acnes was responsible for greater than half of the cases[1]. Diagnosing P. acnes infection can be difficult because of late and non-specific manifestations and the associated difficulty in differentiating contamination from true infection. MRI is the most sensitive means of confirming early diagnosis[2]. Lumbar puncture has been reported as a risk factor for spondylodiscitis due to P. acnes in two cases[3,4]. In both cases, infection resolved with antibiotic therapy. Management of osteomyelitis includes symptomatic therapy, immobilization for some patients, adequate drainage of purulent material, and prolonged antibiotic therapy consisting of parenteral administration of antibiotics for at least 4-8 weeks and in some cases even longer. Treatment programs must be adjusted for the sensitivities of microorganisms recovered from bone cultures obtained by needle aspiration or surgery or from blood cultures[5]. We postulate that the L4-L5 osteomyelitis in this patient was a consequence of the lumbar puncture. This highlights the importance of explaining the risk of infection when consenting patients for lumbar puncture and investigating persisting symptoms following the procedure.

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Figure 1a

Sagittal short-tau inversion recovery (STIR) sequence through the lumbar spine. This demonstrates abnormal high signal, similar to fluid, within the L4-5 disc space (arrow). The process extends into the adjacent end plates which are eroded and there is associated vertebral bone marrow edema (arrowhead).

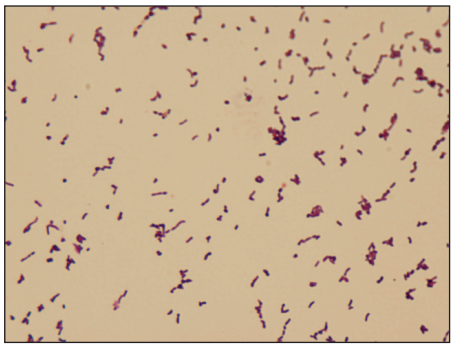

Figure 1b

Gram stain of P.acnes showing Gram positive bacilli.

Acknowledgements

C McMahon, Department of Radiology, St Vincent's University Hospital.

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Another Case of Lemierre's Syndrome

Sir,

We read with interest the excellent article by Dr Morariu and colleagues that appeared in the IMJ[1]. Their case of Lemierre's Syndrome clearly illustrated the complication of septic thrombophlebitis of the internal jugular vein. A previous case at our institution demonstrated another well documented complication of septic emboli in a patient with the classical radiological and clinical features of Lemierre's syndrome[2]. The 30 year old female patient presented to our institution with pleuritic chest pain. In the preceding weeks she was treated for a sore throat with antibiotics and anti-inflammatories by her General Practioner. On admission she was pyrexic, tachypnoic with a leucocytosis and raised CRP. Similar to the case described by Dr Morariu a contrast enhanced CT neck demonstrated thrombosis of the left internal jugular vein. In addition an adjacent abscess posterior to the cricoid was present in our patient. A CT thorax also demonstrated multiple cavitating parenchymal lesions, consistent with multiple septic emboli (Figure 1). Our case and that described by Dr Morariu highlight the importance of establishing the diagnosis of Lemierre's Syndrome promptly in these patients to limit the associated septic embolic complications.

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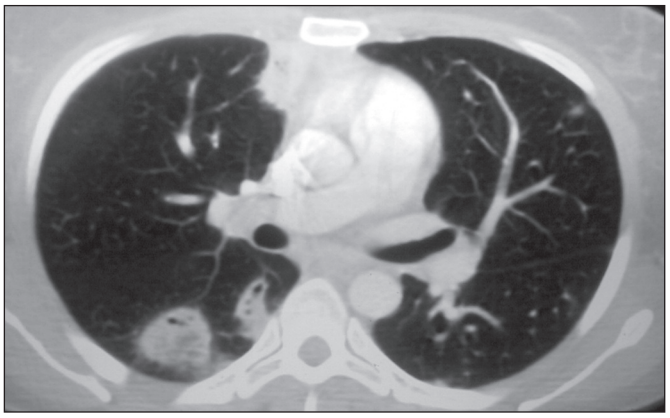

Figure 1 Multiple cavitatory parenchymal lesions consistent with septic embolic lung involvement

Genetic Tales

Sir,

Genetic diagnoses do not always happen in a clinic or as a result of a blood test. We describe how two relatively rare genetic diagnoses were made in unusual circumstances, one by self-diagnosis, the second by pattern recognition in a public space. At a recent meeting of the Irish American Pediatric Society in Charleston NC, eminent cardiologist and discoverer of Noonan Syndrome, Jacqueline Noonan, spoke of a man who wrote to her having made a self-diagnosis of Noonan syndrome: a characteristic configuration of facial features including a webbed neck and a flat nose bridge, short stature and heart defects[1]. Dr Noonan arranged to meet this 65 year-old man and personally validated him as perhaps the oldest confirmed, and first ever self-diagnosed, case of Noonan syndrome.

Another story was recalled by a Professor of Medical Genetics. A young woman, on a ferry boat trip, was approached by a harried young man who told her to "hurry up, we are all ready to leave". When the young girl's sister intervened, it turned out the man was supervising a Prader-Willi Syndrome (PWS) Association day-outing and inadvertantly mistook the young lady for one of his clients. Upon returning home, a genetic consultation and testing confirmed that the young lady did indeed have PWS, explaining her plump short stature and mild learning difficulties during her schooldays.

These anecdotes serve to remind us of the underdiagnosis of many genetic conditions in the general population and the importance of pattern recognition in recognizing such rare conditions. It is not known how many people in the general population have unrecognised rare syndromes. Some experts say that between 30 to 40 percent of children with special needs do not have an exact diagnosis. There are also many children with multiple malformations and developmental delay, but without a specific diagnosis - SWAN: Syndromes without a name[2]. Experts make diagnoses through a combination of intuition (pattern recognition) and metacognition (thinking about how one and others think, that includes clinical reasoning and analytical thinking)[3]. Sometimes a diagnosis by pattern recognition is instantaneous and exact, as seen in the second case here, although pattern recognition can often be unreliable if not supported with metacognition[3].

Geneticists are deriving enormous benefits from newer diagnostic aids especially high resolution microarray comparative genome hybridization which compares the amount of DNA present for each chromosome in a single cell, to that of a normal standard. Whole exome sequencing, with analysis of the coding regions of 24,700 genes simultaneously, is now coming into clinical practice[4]. Nevertheless, there is always a place for a discriminating pair of eyes which initiates the search for a diagnosis in the first instance, often not medically-trained eyes, as seen in the cases here.

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Strategies to Address Poor Influenza Vaccine Compliance in Healthcare Workers

Sir

Influenza vaccines are safe and have the potential to prevent significant morbidity and mortality[1]. Healthcare Worker (HCWs) are at increased risk of influenza infection[2]. There are many reports of influenza outbreaks where unvaccinated HCWs have infected patients and facilitated onward spread of infection[3,4]. Vaccinating HCWs reduces influenza-related morbidity and mortality in vaccine recipients and in high-risk patients. Another benefit is reduction of staff illness and absenteeism during the influenza period[5]. Despite longstanding recommendation for annual influenza vaccine in HCWs, uptake remains poor (17% across acute hospitals in Ireland in 2012-2013)[6]. A dedicated vaccine-unit was established in the department of GU medicine and Infectious Diseases (GUIDE), St James's Hospital in 2002 to address poor vaccine uptake in attending HIV-infected patients. Targeted interventions including individualised vaccine passports, SMS text reminders along with patient education and engagement have facilitated on-going improvement in vaccine coverage (influenza vaccine coverage >90% achieved in attending HIV-infected cohort (n~2000 in 2013-2014). Despite successes of the outpatient vaccine programme, influenza vaccine uptake in HCWs in GUIDE in 2011-2012 was only 52% (31/60). A staff survey was undertaken in April 2012 to investigate reasons for poor vaccine uptake. Here we report results of the survey and describe interventions employed to improve vaccine uptake.

Basic demographic information along with reasons for vaccine acceptance or refusal were recorded using a pre-defined list of choices modified from a previously published questionnaire[7]. 46 of 60(77%) staff completed the survey (23(50%) <35 years, 41(89%) female, 13(28%) doctors, 10(21%) nurses, 23(50%) multidisciplinary-team). All participants identified as having direct contact with patients. 30(65%) reported receiving influenza vaccine in 2011-2012. 38(83%) reported receiving pandemic H1N1 vaccine in 2009-2010. 25/30(85%) received influenza vaccine in the GUIDE vaccine unit. Motivating factors cited for receiving vaccine included, "it reduces my risk of getting sick" (n=28,(93%), "it reduces risk of transmitting influenza to patients" (n=27,(90%), "it reduces risk of transmitting influenza to family and friends" (n=24,(80%), "personal choice" (n=25,(83%). Reason cited for refusal of influenza vaccine included, "personal choice" (n=10,(63%), "influenza vaccine might make me feel sick" (n=5(31%), "I do not like needles" (n=5,(31%), "the vaccine is not mandatory" (n=5,(31%),"forgot" (n=3,(19%). Targeted education interventions outlining survey findings along with benefits of influenza vaccine were undertaken at departmental meetings. E-mail reminders and posters promoting influenza vaccine were circulated. These interventions have resulted in a significant increase in influenza vaccine uptake in HCWs in GUIDE(52%(31/60) in 2011-2012 versus 97%(58/60) in 2013-2014, ($p<0.001$).

Our results support findings of other studies demonstrating high levels of vaccine coverage can be achieved in voluntary HCW vaccination programmes. Multifaceted approaches including educational, motivational and reminder interventions can improve HCWs compliance with vaccine recommendations[8]. Other approaches shown to improve vaccine uptake in HCWs include mandatory vaccine policies, financial incentives at an institutional level and introduction of policies that require staff to sign declination forms (for non-vaccination). While debate continues as to the most effective and acceptable strategies to improve vaccine coverage, what is clear is that influenza vaccine uptake in HCWs needs to be augmented as a matter of priority given the potential adverse effects to our patients and ourselves.

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Acknowledgements
The support of the GUIDE vaccine subcommittee in this work and the staff of the GUIDE department who participated in this study.

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Aidan Halligan (Trinity College Dublin, 1984)

'Our lives begin to end the day we become silent about things that matter' - Martin Luther King

The course of a doctor's career is often set shortly after graduation and follows a well-marked path of varying achievement through to retirement. In contrast the extraordinary, unfinished career of Professor Aidan Halligan, who died recently age 57, was dramatic in its variety, unpredictability and scale of achievement. Among his achievements he was, in one 6 year span from 1997 to 2003, the youngest Professor of Obstetrics in the United Kingdom, the first Director of Clinical Governance for the UK, and an advisor at Tony Blair's Cabinet Meetings as the Deputy Chief Medical Officer for England. These titles meant little to him but in his unswerving passion over many years for improving the quality of healthcare in the NHS he can be said to have influenced the health of a nation.

Aidan attended Templeogue College Dublin and sat the Leaving Certificate in 1975. He initially spent time in a seminary but did not settle and worked in a variety of jobs before entering Medicine at TCD in 1978. He was one of a small, close-knit group of students assigned to The Royal City of Dublin Hospital (Baggot St). The group included Carol Furlong and they would marry after graduation.

The vast majority of medical students pass the Final Exams but Aidan, a highly intelligent man, was an exception and failed Obstetrics and Gynaecology. He would highlight this failure in his lectures in later years. It was a demoralising blow at the time but he recovered and was a very effective intern at Baggot St. He was an innately friendly, kind hearted person. As a junior doctor he could have a somewhat saintly demeanour. This concealed a wicked sense of humour and he was a recidivist practical joker. He used these talents to wind up those he felt weren't doing their job as well as they should.

At 28 he was older than most when finishing the intern year and perhaps this influenced his rapid career progression thereafter. Guided initially by Dr. Eamon McGuinness he trained in Obstetrics and Gynaecology in Dublin. He passed MRCOG in 1991. He did a period of research which was highly productive in both hypertension and folate supplementation in pregnancy. He was subsequently awarded an MD. Moving to Leicester in 1993 he was initially lecturer in Obstetrics before being appointed consultant a year later. In 1998 he was appointed Professor of Fetal and Maternal Medicine and head of Obstetrics at Leicester, the youngest Obstetric Professor in the UK at the time.

For many this rapid advancement would have been followed by years of clinical and academic productivity in the specialty. Within a year however Aidan had left Obstetrics for good. A chance meeting with Baroness Jay when she was Leader of the House of Lords and Chairperson of a National Hospital Charity led to his being appointed the first Director of Clinical Governance in the UK. He revelled in the role, visiting hospitals across the UK to see the barriers to good healthcare. He became convinced the key was not strategic plans or increased budgets but leadership: inspiring and empowering others at all levels to do their best. He felt strongly that the culture in an institution was more important than it's written strategy. Hospitals were frequently found to be 'paper safe but not patient safe'. He saw that best care happened where staff were compassionate, where patients were listened to, where staff communicated well with each other. These could not be measured but were not difficult to perceive. Rather than get his message across by sending policy documents from the Centre, he used personal contact and the spoken word to influence hearts and minds. An excellent and moving speaker (who had a stutter until his early twenties) he inspired audiences to reaffirm their commitment to patient care, and to rediscover their ability to make a difference. He particularly supported those who 'spoke truth to power', who spoke out about deficiencies in care despite it not being popular or well received.

In 2003 he was appointed Deputy Chief Medical Officer for England. This was an onerous post and involved him centrally in national issues including the Shipman and Bristol enquiries. In 2004 he was made jointly responsible for an ambitious IT programme for the NHS. This at the time was the world's largest civil IT project costing £2.3 billion pounds. He resigned from the project after 6 months as lack of clinician 'buy in' threatened it's success.

Aidan came to prominence in Ireland at this time, having been approached by the Government in 2004 to be the first head of the newly formed HSE. Initially interested in taking up the post he eventually turned it down for what was described as family reasons. He continued as Deputy CMO in England and medical advisor to the then Labour Cabinet. In 2006 criticism of the pace of NHS reform led to the resignation of the CEO of the NHS. Aidan was one of those critics and a piece he wrote for a healthcare journal was used by the Opposition Leader, David Cameron to attack the then Prime Minister Tony Blair. He subsequently resigned as Deputy CMO.

He used the succeeding years to tirelessly promote the values he believed in. He was, among other roles, Prinicipal of the NHS Staff College for Leadership, Chief of Safety at Brighton and Sussex University Trust and Chairman of Pathway, a Charity for the Homeless. He was a director of Well North, a healthcare initiative for the underprivileged across the North of England. He was made Honorary Colonel of a British Army Reserve Unit in 2013 and visited military hospitals in Afghanistan to see how top quality care could be delivered under the most extreme conditions.

He was a man of great courage, integrity and spirituality. The Chairman of the NHS Alliance Dr. Michael Dixon described his death as 'The loss of a giant of British Medicine. A man who spoke truth to power and everyone else. He is, quite simply, irreplaceable'.

Aidan lived in Leicester with Carol a General Practitioner and his three daughters Molly, Becky and Daisy.

'May his soul be on God's right side.'

Continuing Professional Development

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Treatment Outcome for Adolescents Abusing Alcohol and Cannabis: How Many 'Reliably Improve'?

BP Smyth, A Kelly, J Barry, W Cullen, C Darker. Ir Med J. 2015; 108: 137-9.

Question 1
The number of high risk users of alcohol were

a) 31
b) 33
c) 35
d) 37
e) 39

Question 2
The number of high risk users of cannabis were

a) 53
b) 55
c) 57
d) 59
e) 61

Question 3
The number of males in the study was

a) 82
b) 84
c) 86
d) 88
e) 90

Question 4
The median number of appointments attended by patients were

a) 7
b) 8
c) 9
d) 10
e) 11

Question 5
The number of adolescents who had previously been treated for an alcohol problem was

a) 3
b) 5
c) 7
d) 9
e) 11

A Review of Bed Utilisation in the West of Ireland

DS Evans, R Corcoran, R Kiernan, M Glacken. Ir Med J. 2015; 108: 142-4.

Question 1
The total number of admissions in the study was

a) 280
b) 282
c) 284
d) 286
e) 288

Question 2
The number of inappropriate admissions were

a) 21
b) 23
c) 25
d) 27
e) 29

Question 3
The proportion of elective patients admitted one or more days prior to surgery was

a) 71%
b) 73%
c) 75%
d) 77%
e) 79%

Question 4
The proportion of patients over 65 years was

a) 60%
b) 62%
c) 64%
d) 66%
e) 68%

Question 5
The number of male patients were

a) 151
b) 153
c) 155
d) 157
e) 159

Transurethral Resection of the Prostate – "Now and Then"

C Dowling, D Moran, A Walsh, M Alsinnawi, R Flynn, TED McDermott, R Grainger, JA Thornhill. Ir Med J. 2015; 108: 144-6.

Question 1
The total number of patients in the study was

a) 160
b) 170
c) 180
d) 190
e) 200

Question 2
The proportion of patients in 2010 who had a urinary catheter in situ pre-operatively was

a) 51%
b) 53%
c) 55%
d) 57%
e) 59%

Question 3
The mean length of catheterization time in 2010 was

a) 63 days
b) 65 days
c) 67 days
d) 69%
e) 71%

Question 4
The proportion of patients in 2010 with infective complications was

a) 6%
b) 8%
c) 10%
d) 12%
e) 14%

Question 5
In 2010 the proportion who had their surgery performed under spinal anaesthesia was

a) 76%
b) 78%
c) 80%
d) 82%
e) 84%

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	27 - 29	€50,000	€81.81
	30 - 39	€60,000	€136.35
	40 - 45	€60,000	€198.15
	40 - 45	€90,000	€297.25
	40 - 45	€120,000	€396.32

Plus benefit from reduced medical questions for doctors joining the scheme up to age 45 and no medical questions for interns joining the scheme up to age 35.

IMO
FINANCIAL SERVICES

OFFER AVAILABLE UNTIL 31 OCTOBER 2015

For more information, contact your IMO Financial Services team on 01 661 8299 or imofs@imo.ie

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* Savings based on three months' premium after tax relief of 40%. No premium will be deducted for the first 3 months.
† Benefit is subject to a maximum of 75% of salary (includes overtime of up to 50% of basic salary) less any Early Retirement Pension Entitlement.

Fitzserv Consultants Ltd. t/a IMO Financial Services is regulated by the Central Bank of Ireland.
Zurich Life Assurance plc is regulated by the Central Bank of Ireland.
The information contained herein is based on Zurich Life's understanding of current Revenue practice as at April 2015 and may change in the future.