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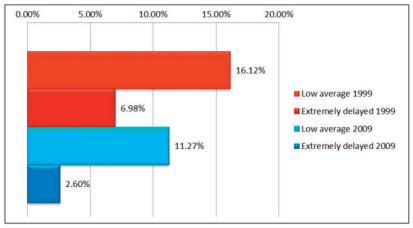
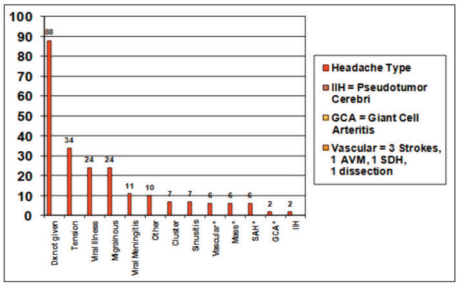
In this Month's IMJ

Neurodevelopmental outcome of preterm babies of 1999-2009: Huggart et al report on the neurodevelopmental outcome of very low birthweight babies. They applied the Bayley's assessment scale at 2 years corrected age. They found an 8 point increase in the cognitive score in the 2009 cohort compared with the 1999 one. The authors discuss the significance of their findings.





Headaches, neurologists and the emergency department: Gaughran and Tubridy found that in 3 month review there were 227 patients with headache among 8759 ED attendances. A brain CT scan was performed in 127 (56%) of the patients. Fifteen of the scans showed an abnormality. The authors suggest criteria for undertaking a CT scan in a patient with a headache.

Access to in-patient stroke services and multidisciplinary team (MDT) rehabilitation: current demands and capacity: O'Sullivan et al have audited 73 patients with stroke. The mean time from admission to MDT referral was less than 2 days. The length of treatment varied from 1-2 weeks. The mean length of stay in hospital was 20.2 days. Two thirds were discharged home, 11% died in hospital and the remainder went to rehabilitation or nursing home care.

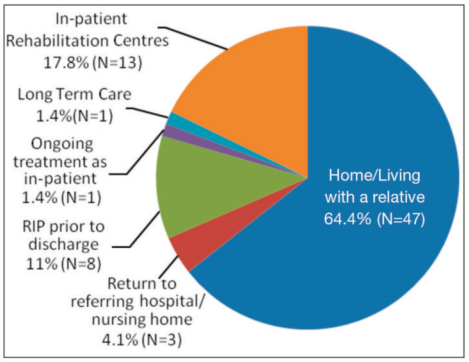


Table 1 Characteristics associated with positive self-rated knowledge of ophthalmology

		Positive Rating, % (n)	Statistical Test	Significance
Gender	Male	53.6 (15)	$\chi^2 = 4.62$	P=0.09
	Female	20 (3)		
Years in practice	>10 yrs	43 (18)	Fisher's exact	P=0.63
	<10 yrs	25 (1)		
Practice type	Sole practice	64 (9)	$\chi^2 = 5.72$	P=0.06
	Group practice	35 (10)		
Practice location	Urban or rural only	48 (11)	Fisher's exact	P=0.31
	Mixed urban and rural	27 (4)		
Postgraduate training	Trained in Ireland only	32 (8)	$\chi^2 = 1.96$	P=0.16
	Trained abroad*	52 (11)		
Undergraduate training	Rated adequate	92 (12)	Fisher's exact	P<0.05
	Rated inadequate	21 (7)		
Specialist clinical exposure	Yes	80 (4)	$\chi^2 = 3.99$	P=0.14
	No	34 (12)		
Ophthalmological instruments	Number of items in GP surgery, mean	5.6 (v.s. 5.4 in those with negatively rated knowledge)	t=-0.3	P=0.76
Confident using clinical instruments	Confident	52 (12)	Fisher's exact	0.09
	Not confident	20 (3)		
Quiz result	Mean 5.05 (v.s. 3.96)		t=-3.12	P<0.05

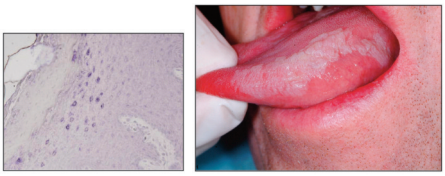
A survey of general practitioners' knowledge and perceived confidence with clinical ophthalmology: Gibson and Roche in a survey of GPs found that 70% felt that undergraduate teaching in ophthalmology was inadequate. Sixty six per cent were confident in the use of an ophthalmoscope. Thirty eight per cent felt that they had a good knowledge of ophthalmology. The authors suggest that an ophthalmology module be included in GP training.

Horizontal strabismus surgical outcomes in a teaching hospital: Idrees et al report on the outcome of 75 patients who underwent strabismus surgery. Two thirds of the patients were under 10 years. A cosmetically acceptable result was achieved in 93.3% of cases.

Table 1 Success of Strabismus Surgery by magnitude of Pre-Operative Angle of Deviation for Distance

Pre Op Angle of Deviation	≤ 30 PD	> 30 PD
Number of patients	13	62
Mean Post-op angle of deviation for distance (PD)	8.08	10.61
Surgical outcome in pd per mm muscle	1.82	3.56
Post-op Grade 1 alignment	76.9%	67.7%

Oral hairy leukoplakia in healthy, immunocompetent individuals: Galvin and Healy report 2 cases of OHL. The condition is caused by the EB virus. It presents with white non-removable plaques on the lateral borders of the tongue.



A rare case of nasopharyngeal carcinoma with widespread CNS metastases: Rafee et al describe a case of NPC in a 36 year old ex-smoker who developed leptomeningeal disease and multiple brain metastases 8 months after initial treatment. The authors point out that most patients present with locally advanced disease.

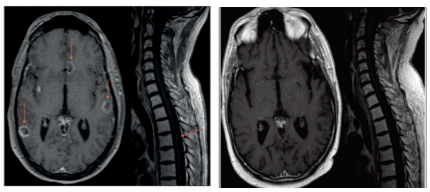
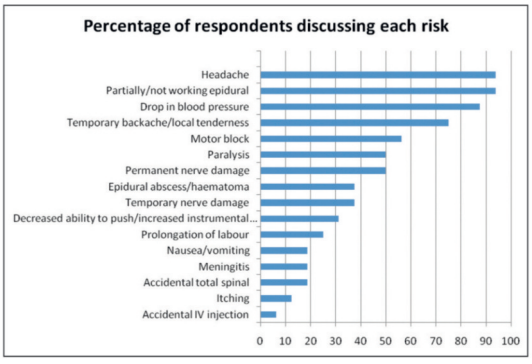


Table 1 The number of deliveries and stillbirths in total and in low risk pregnancies from 2009-2012

Year	Total Births	Total babies excluding Group B Streptococcus (GBS), cardiac, haematology, epilepsy, diabetes mellitus (DM), multiple pregnancies	Total Stillbirths	Tot. stillbirths excluding GBS, cardiac, haematology, epilepsy, DM, multiple pregnancy, congenital anomalies, <28 weeks gestation	Stillbirth Rate in 'Low risk' Group (%)
2009	5501	4667	28	13	0.28
2010	5549	4756	26	10	0.23
2011	5604	4643	22	9	0.22
2012	5615	4790	30	13	0.29

Does performing fetal ultrasound assessment once versus twice in the third trimester in low risk women alter the stillbirth rate: Mone et al examined the stillbirth rate in low risk women before and after 2011 when ultrasound was performed twice. There was no statistical difference in the stillbirth rate when women were scanned twice rather than once.

Informed consent for epidural analgesia in labour: a survey of Irish practice: Hegarty et al in a survey of Irish obstetric units found that there was major variation in the risks that were discussed before undertaking an epidural. Most discussed headache, failure to work and drop in blood pressure. Some of the more serious complications were discussed less frequently- permanent nerve 50%, paralysis 50%, epidural haematoma 37%. The authors suggest that a national standardized information form be introduced.



Transmitting Information to Patients

Transmitting information to patients is a constant challenge for doctors, nurses and other caregivers. The techniques and skills involved are not formally taught either at undergraduate or postgraduate levels. One mostly learns communication skills from observing senior medical and nursing colleagues in dialogue with patients. It is a simple fact that some health care workers are better communicators than others. However with proper training everybody should be capable of performing at an adequate level. Another problem is how does one know that one is doing a good job when talking to a patient. Patient satisfaction surveys are the main source of feedback but patients are often too polite to say what they really thought of the interaction.

Increasingly patients are looking for additional information details in order to make a more informed choice. They are particularly interested in finding out about what their options are. Writing material about health care for patients is difficult. The information must be constructed in simple English that is understandable by patients of all levels of education. Medical conditions and their treatment should be explained without technical details. It must also be taken into account that for many patients English is not their first language.

Longo and Woolf[1] have proposed the application of an information pyramid. The pyramid provides different levels of information. At the base the simple medical facts are described including an outline of the disease, the investigations and the treatment. The mid section gives direction on how a patient can decide about treatment options. The top section of the pyramid should indicate how a patient might choose a doctor and a hospital that is most suited to his or her needs. The higher up the pyramid that the patient goes the greater the degree of empowerment he is likely to achieve.

One of the major criticisms of the current methods of patient information communication is that the heterogeneity of patients is not adequately catered for. Most hospitals and GP surgeries are awash with information leaflets. The facts that are provided in the leaflets frequently differ from hospital to hospital. Simply put, much of the information is of poor quality with the evidence and uncertainties poorly expressed. McCartney[2] points out that no one has responsibility and usually there is a minimal or no budget. She cites the information circulated to patients recovering from an inguinal hernia repair[3]. The leaflets gave conflicting advice about the time before returning to work, 1-6 weeks (office) and 2-12 weeks manual. There were similar discrepancies about driving, sex and sport.

Much of information supplied assumes that patients have similar or the same experience of a disease. This is far from the facts. Age, gender, social class, level of education, family circumstances and personal philosophy greatly influence how the individual patient copes with his disease. NHS England plans to standardize all information going out to patients. Muir Gray, who is one of the pioneers of evidence-based medicine, states that patients have a right to clean, unbiased information. You can't rely completely on the doctor consultation as its not possible to cover everything in 15-20 minutes.

Patients differ on how much information they can absorb and digest. Some individuals only want the essential outline of their condition and prefer that their doctor makes most of the decisions. Others look for more information so that they can discuss the options with their family, friends and other doctors with whom they are acquainted. If we continue to simply produce one didactic document for a disease, patients will become increasingly dissatisfied.

Patient information in relation to medications is at a much more advanced state. Patient information leaflets have been a legal requirement in since circa 2000 for all medicines. Survey findings have found that patients value the patient leaflet which comes with the medicine more highly than any other source of information except doctors and pharmacists. For many patients this is the only written information they will have about the medicines which they are taking. For medicine purchase over-the-counter interaction between the patient and a healthcare professional may be limited or unavailable. In this latter case written information has an increased importance for safe use of the medicine.

The first practical step when writing a patient information leaflet is to involve patients and patient groups in the design of all the information content. Currently this is not done very frequently and most of us don't quite know to start. The format used should explain the main points about the disease and how the disease will affect their health. They need to know how their employment and everyday activities will be affected or compromised. They should know about the treatment options and the merits and demerits of each of them[4]. The practicalities are important. Keep the English simple. Use short sentences and bullet points. Avoid dense text as this makes the reader lose concentration quickly. Reinforce what will already have been said at the clinic. Explain instructions such as why a patient shouldn't eat for 6 hours. Ensure that risks are communicated clearly. List the side-effects of treatment in order of severity and distinguish the common from the rare.

Good quality patient information gives patients confidence and improves their overall experience. It gives them insight into the care pathway and enables them to prepare and plan for the next step. It should provide them other links which they can search before deciding on a particular treatment option.

JFA Murphy
Editor

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Multidisciplinary Approach to Consent in Arthroplasty Surgery

The process of consenting has been in the heart of the surgical practice as the binding contract between the informed patient and the entrusted treating surgeon. This is to protect the patient's autonomy and respect their right to determine their treatment. Consent validity relies on the provision of procedure information and the capacity of competent patient to understand it[1]. The Irish law states no medical or surgical treatment to be carried out without informed consent of the patient, however the law is not exactly clear in how much information to be provided prior to obtaining consent for administration of medical treatment or procedure[2]. The Irish medical council guidelines published in 2008 defines the significant information as any risk over 1-2% or any risk of grave consequences. It also implies the patient understanding is crucial part of the process[3].

In busy surgical services time constraints in clinics make it difficult to give every patient the time to engage in proper informed dialogue and consent regarding their surgery. Moreover consent on admission is generally the responsibility of senior house officers who may not have a full understanding of the proposed surgical procedure and associated complications[4]. Sometimes in an effort to protect the patients from unnecessary anxiety the gravest parts of the complications are omitted[5]. Furthermore, recent literature has demonstrated a 38% failure rate to recall procedure specific information after the routine consenting and counselling procedure[6]. The experience of providing patients with information booklets before surgery in an attempt to solve consent issues is becoming ubiquitous across all surgical disciplines. Unfortunately the literature suggests providing information leaflets does not improve the level of understanding of the proposed procedure[7-9]. Vergès et al showed evidence that providing written information to patients undergoing coronary angiography did not modify their knowledge in respect to modalities and profits[7]. Occasionally such deficits in the patients' knowledge is not sought nor volunteered by patients prior to signing consent forms. Patients may also have certain trepidation to question or seek explanations for information in the pressurised out-patient or admission ward environment. Lately, multimedia patient education in arthroscopy showed promising results in preoperative understanding of the procedure with a higher retention of the knowledge up to 6 weeks postoperatively[10-12].

In our orthopaedic unit we adopted a different approach to the problem. All patients who are undergoing an elective arthroplasty procedure are requested to attend the joint arthroplasty school with the desired members of the family. The school is co-ordinated by a joint specialist nurse and involves informal engagement by the entire multidisciplinary team. The team involves all disciplines that the patient will encounter from pre-operative assessment, anaesthesia, surgical, physiotherapy, occupational therapy and nursing. It takes the format of an open class where information is delivered through standardized multimedia presentations containing simplified information, anatomical models of the implanted prostheses, video of the proposed surgery and a supplementary package containing leaflets and guidance literature reflecting the joint school content. The information is delivered in chronological manner matching the inpatient experience including admission process, anaesthetic review, surgery, rehabilitation and physiotherapy, occupational therapy, preparation for discharge, community care, outpatient follow-up and annual follow up. The platform encourages open communication and dialogue where patients and their families interact and discuss their wishes and concerns regarding the surgery. This interaction between the patients allows them to share experiences and formulate better recovery plans[13].

The school allows patients to bring along a close friend or family member. This enables the immediate family to understand and know what to expect during the course of the surgery and the aftercare required. Patients are encouraged to see this person – or family members- as a coach or as a companion on the surgical journey. This empowers patients with the knowledge that they are at the core of the surgical procedure. On the other hand as surgeons this dynamic process provides us with a unique insight as to the issues and concerns that patients have regarding surgery. This experience does not eliminate the usual consent form or information booklets. Instead it adds depth and affirmation to the process by delivering the information in a timely relaxed fashion. This allows the information to be digested and adds clarity to the printed information making the content more understandable for the patient. It also makes the process more robust legally as the information has been delivered several times prior to obtaining the written consent agreement.

The trial in our institute showed great enhancement to the Rapid Recovery Program in the arthroplasty service. Through this approach we were able to enrol 478 patient in 2012 and 370. This lead to improved day of surgery admission rate of 75% in those two years. This was also coupled with high satisfaction as reflected in the Patient Reported Outcome Measures (PROM). The concept of a 'joint school' coupled with patient 'reading materials' fosters an environment of education and understanding between patients and staff prior to surgery. The patients themselves give constant feedback as they are so involved in the process and this allows reciprocity of thought, ideas, change and feedback throughout their journey. Success of the programme is dependent on holistic care planning, coupled with the team work ethos which empowers the patient to take an active role pre and post surgery, the patients are guided, educated and encouraged to take ownership of their recovery.

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Neurodevelopmental Outcome of Preterm Babies of 1999-2009

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Abstract
The Bayley scale of infant development is employed as the performance indicator at 2 years corrected gestational age for high risk paediatric groups. We compare neurodevelopmental outcomes in two cohorts of VLBW infants born in 1999 to a cohort born a decade later, while also examining the challenges of direct comparison of modified scales: BSID-II (2nd edition of the scales) with Bayley-III. BSID-II was used in the 1999 group and Bayley-III for the 2009 cohort. We demonstrated that over a ten year period there was an improvement in neurodevelopmental scores achieved in VLBW babies. Overall there was almost an 8 point increase in the cognitive scores from the 2009 cohort compared with the 1999 cohort in this time period. The mean motor score increased by 6 points when comparing 1999 and 2009. However we highlight the difficulties in comparing developmental scales, and consider whether Bayley-III overestimates developmental ability?

Introduction

Intact long-term survival is the ultimate aim of the neonatologist. With advancing techniques in the NICU there has been a decrease in perinatal mortality of pretermbabies[1], and over time the emphasis has shifted from improving mortality to morbidity in this vulnerable group. Therefore developmental followup is crucial in the assessment of the quality of outcome. How these babies fare in terms of cognitive and motor skills is clearly important and has become an integral part of childcare[2]. Formal assessment allows us to identify children with developmental delay and thus determine areas for appropriate early intervention services. The Bayley scale of infant and toddler development is the gold standard of assessing high risk paediatric groups. It is an assessment tool to screen for developmental delay in preterm children, and identifies areas of strength or weakness when planning an intervention programme for a child. In 1993 the 1st edition of the scales[3] was revised as the Bayley Scales of Infant Development II (BSID-II)[4] it measured two scores: the Mental Developmental Index (MDI) used to assess cognitive and language skills, and the Psychomotor Developmental index (PDI) for the evaluation of motor development. Although widely used, the format of BSID-II was criticized due to an absence of separate scales to appraise language and cognitive development. In 2006 the scales were restructured and restandardized as the Bayley Scales of Infant and Toddler Development Third edition (Bayley-III)[5]. This led to a separation of the pre-existing MDI into distinct cognitive, receptive and expressive language scales, and the PDI into fine and gross motor categories.

In recent years concerns have been raised with regard to the Bayley-III and the scores being achieved. Several studies[6-8] have demonstrated that there has been be an increase in the cognitive and language scores of the Bayley-III versus MDI scores using the previous version (BSID-II). Indeed it has been reported in the US[7] and Australia[8] that there have been unexpectedly high Bayley-III results studying developmentally normal children and high risk populations. This indicates that the new edition may overestimate developmental ability. There have been a couple of reasons postulated for the discrepancies in scores between the two editions. Firstly, the change in test format means we are no longer comparing like with like across the two scales. Could the increased scores seen be a result of the change in assessment tool rather than advances in neonatology? The second issue concerns the restandardization of the Bayley-III. In the US[6] it is thought that the population demographic changed over time, especially in relation to levels of parental education and ethnicity, between 1988 and 2000 when the two tests were standardized. Furthermore, 10% of the normative population for restandardization had existing conditions that incur a risk of developmental delay (Downs, Cerebral Palsy), however this may lead to an overestimation of abilities when using the assessment to detect those with suboptimal development. Our aim was to compare the cognitive, language, and motor skills, at 2 years CGA, of VLBW infants born before the new millennium to a cohort born a decade later. We also wanted to examine the challenges of direct comparison of modified scales, namely BSID-II with Bayley-III.

Methods

Our study was a retrospective review of neurodevelopmental outcome of a cohort of VLBW infants born 1999, compared to the outcome of a cohort born in 2009. The infants included were neonates admitted to NICU, National Maternity hospital during 1999 and 2009. The babies studied all had birth weights less than 1500g and gestational ages ranging from 24 weeks up to 35 weeks gestation. There was data available for a total of 47 babies from the 1999 cohort, and 88 patients from 2009. The Bayley scale of infant development was used as the performance indicator at 2 years corrected gestational age. The Bayley scale of infant development (BSID-II), measured mental developmental index (MDI) and psychomotor developmental index (PDI) for the 1999 cohort. The Bayley-III composite scores; language, cognition and motor, were used for those infants born in 2009. As the 1999 group received a single MDI score, and those from2009 got separate composite scores for cognitive and language scales, for comparison the mean of the cognitive and language scales was calculated and called the combined Bayley-III score (CB-III). The PDI from 1999 was compared directly with the composite motor score of 2009 as an approximation. The assessments of both cohorts were carried out by a single examiner (MS). Due to deficiencies in the Bayley-III highlighted by some commentators, a previously tested conversion[6] of language and cognitive results from Bayley-III was made to allow approximation and direct comparison with the MDI of BSID-II. Due to the differing scoring classifications between the two scales we decided on a categorization that we felt would optimise comparisons. The degree of delay was categorized and scored as extremely delayed (<70), below average (70-79), average (80-109), above average (>110). Potential confounding variables were also compared. SPSS 18 was used for data analyses, and independent t-test analysis was tested at 95% C.I.

Results

The outcome data was available for 47 infants born 1999 and 88 infants born 2009. The table shows direct comparison of the mean BSID-II MDI 1999 with the average of the combined cognitive and language scores (CB-III) from Bayley-III 2009. The mean MDI 1999 was 92.7 (SD 16.9) compared with a CB-III 2009 score of 100.5 (SD 17.8). The Bayley-III cognitive and language scores were 100.7 (SD 16.6), and 100.3 (SD 18.9) respectively. This demonstrates that CB-III 2009 scores were nearly 8 points higher than MDI 1999 scores. However, despite the significant improvement in cognition, it is not significant when cognitive outcome in 2009is assessed by adjusted MDI and compared to 1999 MDI using the Moore et al algorithm[6]. The adjusted score was 93.7 in 2009 compared to MDI of 92.7 in 1999 (p=0.758). A direct comparison of the mean PDI 1999 with the composite motor score from 2009 is also shown. This revealed a mean PDI 1999 score of 96.7 (SD 17.7) and a mean composite motor score 2009of 102.9 (SD 16.9). This reveals an improvement over time in the motor skills category, with scores from 2009 6 points higher than a decade previously.

Figure 1 compares MDI and CB-III outcomes1999 and 2009. The percentage of children scoring in the low average and extremely delayed categories was higher in 1999 compared with 2009. In 1999, the percentage was 23.1%, compared with 13.9% in 2009. Figure 2, the proportion of patients with a score of <70 i.e., extremely delayed (MDI/CB-III and PDI/Composite motor score) in the two cohorts were compared with and without adjustments of CB-III. In 1999 there was 10.6% (5/47) with MDI and PDI in the extremely delayed category. Ten years on in 2009 and this figure fell to 4.5% (4/88). When the cognitive and language scores from Bayley-III are converted to an approximate MDI and the percentages of patients receiving scores <70 in MDI and PDI/Motor were looked at, it revealed a rise in those in the extremely delayed categories from 4.5% to 10.2%. Thus the improvement in extremely delayed category as demonstrated with unadjusted CB-III, disappears completely when CB-III scores are converted to an adjusted MDI.

Table 1 Compares MDI 1999 with CB-III 2009, PDI and Adjusted MDI outcomes for 1999 and 2009

	1999 (n=47)	2009 (n=88)	P values
MDI (1999)	92.7		
CB-III (2009)		100.5	0.011
PDI	96.7	102.9	0.048
Adjusted MDI	92.7	93.7	0.758

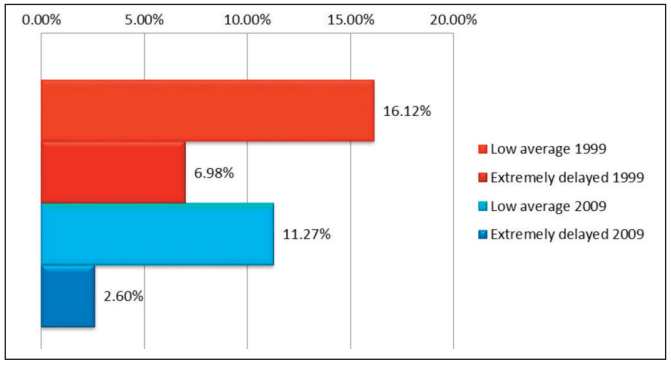

Figure 1 Compares MDI 1999 and CB-III 2009 outcomes, looking at the percentage of children scoring in the low average and extremely delayed categories

Table 2 compares potential confounding variables between the two cohorts. Notably the babies born in 2009 tended to be more premature (mean GA 28.4 weeks vs. 29.5 weeks) and consequently had lower birth weights (mean BW 1086g vs.1173g). In 1999 51.1% of the cohort was male; however in 2009 that percentage was 59.1%. Over a decade the numbers outborn increased from 2.1% to 15.9%. There was also an increase in antenatal steroid use, from 53.2% to 90.9%. Statistical analysis was performed on the potential confounders; an ANCOVA with Cohort as dependent variable; MDI/CBIII as independent variable; and BWGT, GA, Inborn, ANS and PNS as covariates. This demonstrated that ANS are a significant predictor of 'cohort' (p< .001) and MDI/CBIII is still significant (p = .002).When logistic regression analysis is utilised the only predictors that are significant are MDI/CBIII (p= .034), ANS (p< .001) and Inborn (p=.042). Unfortunately data was not available for other potentially significant confounders such as, ventilation, CPAP, chronic lung disease, intraventricular hemorrhage. It is acknowledged that this is a limitation of this study.

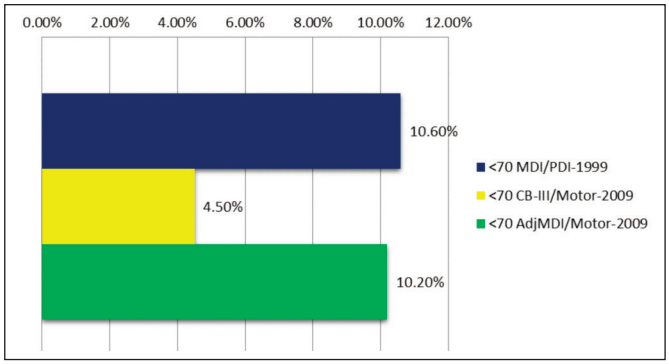

Figure 2 The proportion of patients with a score of <70 i.e. (MDI/CB-III and PDI/Composite motor score) in the two cohorts were compared with and without adjustments of CB-III.

Table 2 Possible confounding variables between the two cohorts

Variables	1999 (n=47)	2009 (n=88)
Birth Weight (mean)	1173g	1086g
Gestational age (mean weeks)	29.5	28.4
Sex (male)	51.1%	59.1%
Outborn	2.1% (1/47)	15.9% (14/88)
Antenatal Steroids	53.2% (25/47)	90.9% (80/88)
Postnatal Steroids	6.4% (3/47)	4.5% (4/88)

Discussion

Using two separate scales we have demonstrated that over a ten year period there was an improvement in neurodevelopmental scores achieved in VLBW babies (Table 1.) Overall there was an improvement of both cognitive and motor scores over a decade. Our study also highlighted that over a decade, there were less children being placed in the below average and extremely delayed categories. However given that we are not comparing like with like by employing two distinct editions of the scales we utilised a tested algorithm[6,10] converting cognitive and language scores from Bayley-III to an MDI equivalent. This allowed us to calculate and compare outcomes between the two scales. Using this formula we saw that there was a difference of only 1 point between the two groups; MDI 1999 and CB-III 2009. Indeed this demonstrates the absence of any significant difference between the 1999 MDI score and 2009 adjusted MDI score. Furthermore the same proportions of infants are placed in the extremely delayed category if the 1999 MDI and 2009 adjusted MDI scores are compared. The algorithm: Predicted MDI = 88.8 – {61.6 x (language score/100)-1 + (0.67 x cognitive score)}.

The inflation of scores using the 3rd edition of the scales has been replicated in other papers[6-8]; Moore et al[6] recommended caution in the interpretation of Bayley-III scores in population studies as the correlation with the previous edition appears worse at lower test score values. As with our study, they found that CB-III values were increasingly higher than MDI at lower scores. This leads us to consider whether the Bayley-III is overestimating developmental ability? or are advances in neonatology the reason for the improvements in scoring? Vohr et al[7] have also advised discretion when utilising the third edition of the Bayley scales. They feel it identifies significantly less children with disability. They go as far as recommending that all extremely low birth weight infants be offered early assistance and follow up at the time of discharge from the neonatal intensive care unit. This raises an important clinical issue. With fewer children placed in the low average and extremely delayed categories going forward, relying on Bayley scores alone may lead to at risk children missing out on

timely early intervention services? The weight of literature as discussed would say that interpreting Bayley-III should be done with caution. Indeed, perhaps the cut off for identifying developmental delay using Bayley-III scores should be raised, to avoid missing those who maybe lost to follow up otherwise?

In conclusion, demonstrating improvements in neurodevelopmental outcomes over time is extremely challenging, yet it is these longer term functional outcomes for our preterm infants that are the more important key performance indicators of the quality of our newborn services and as such must warrant greater resources for their assessment.

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Headaches, Neurologists and the Emergency Department

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Abstract
This study explores the claim that headache management can be improved by evaluating current emergent care. A retrospective chart review investigated primary complaints of headache during a three-month period. Two hundred and twenty seven patients were identified for review and three-month follow-up using fully available records and imaging. A total of 543/8,759 had a neurological condition. The most common conditions were headaches (42% or 227 cases), cerebrovascular problems (26%) and seizures (17%). No 'usual headache' patterns showed abnormal imaging. In contrast, those with 'sudden-onset' type or clinical findings had an abnormal scan 17% of the time. Of the MRIs ordered, one-quarter changed management. On discharge, 39% of patients left without a specific headache diagnosis. In the discussion, we evaluate how well a tertiary referral ED treats its most common neurological complaint, focusing on the controversial topics of when to investigate and prevention of re-attendance.

Introduction

Studying the Emergency Department (ED) approach is particularly important in headache for several reasons. Firstly, the majority of secondary headaches are treatable if diagnosed in the early stages.[1] Second, headache is by far the most common neurological complaint among the general population. Taking Irish national figures, of an estimated 700,000 neurological patients, 500,000 have migraine.[2] Third, the majority of patients with headache will never meet a neurologist.[3] This is particularly the case in Ireland with the lowest number of neurology consultants per capita in Europe.[2,4] Literature suggests ED physicians may not always be following guidelines for acute treatment of primary headache.[5-7] It also suggests that most patients continue to have headache after leaving the ED.[8,9] To our knowledge, there are no studies on headache prevalence and its acute management in the Republic of Ireland and only a handful in Britain. This study aims to provide useful data in this regard, identifying all patients with a primary complaint of headache. We reviewed their investigations and the long-term management of their headache to consider how we might guide resources, argue for specialist headache clinics and suggest ways to improve current care.

Methods

This retrospective chart review was conducted in a tertiary hospital, seeing 100-125 ED presentations daily, one quarter of which are admitted. A total of 8,759 patients were seen from 2nd January to 25th March 2012. All patients were given a Manchester Triage category by registered nurse practitioners.[10] On review of all possible triage categories, patients were excluded from further investigation if their triage category was considered by the ED consultant to be of low potential neurological yield, e.g. 'abdominal pain'. This produced ~ 4,500 patient records written by an emergency physician for further review. Care was taken to ensure accurate recording, conforming to recommended guidelines in the literature for reliable retrospective chart review.[11] We also included more vague triage categories such as 'unwell adult', to ensure no potential cases of a primarily neurological problem would be missed. Only headache recorded as the primary complaint by the ED physician prompted a comprehensive review of clinical findings, investigations, and discharge diagnosis. If a definitive headache diagnosis was not given, or was not clear from the records, it was recorded as 'unspecified'. Follow up involved cross-referencing subsequent neurology outpatient records and any unscheduled re-attendances to the ED within three months, prior to and after the original study dates. Review was performed by one trained physician working in neurology. A pilot study was performed for a 2-week period, with a post-study review by an ED consultant and a consultant neurologist on the study's direction, adequacy of data and their interpretation. Midway through the main study, the same team repeated this review. A standard excel sheet was prepared for data input. For analysis, Rigby et al's[12] categories of 'Usual headache', 'Sudden or worst headache', 'Abnormal exam' and 'Indeterminate' were adopted.

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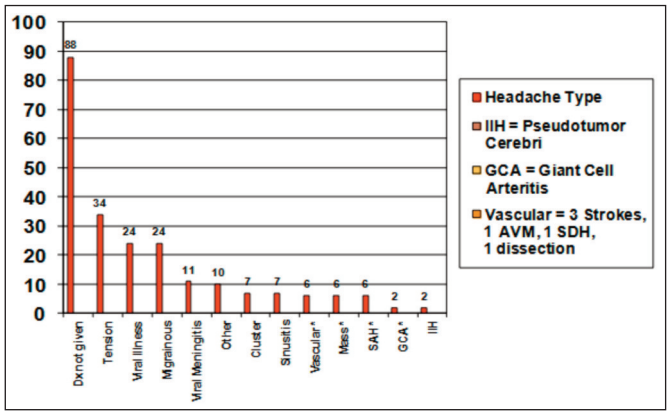

Figure 1 Breakdown of headache diagnosis on discharge from the ED (n= 227)

Results

A total of 8,759 patients were seen in the ED during the study period. A total of 543 (6.1%) patients were deemed to have a primary neurological complaint, of which 227 of those were headache- an average of 6.46 neurology cases and 2.7 headaches per day. This figure does not include those presenting with uncomplicated head injury and chronic back pain which, over the three month period, amounted to a further 633 patients (7.2%). A breakdown of headache type is given in Figure 1. One hundred and forty six headache patients were female, the majority aged 20-39 years (n=109). Seventy (31%) of the headache patients were diagnosed as having a primary headache by the emergency physicians. Sixty-nine patients (30.4%) had secondary headache. Thirty-four of these patients (15%) had a serious secondary headache. Sixty-four patients (28%) were seen by neurology as either an in-patient or out-patient. Six patients were transferred to a neurosurgical centre before neurological review and six self-discharged. Medical records in which no definitive discharge diagnosis was given comprised 88 patients (39%).

Table 1 Sudden or 'worst' Headache with normal Examination
(Total of 11 patients (0.05% of headaches))

Investigations	Diagnoses	Follow-up
All had CCT - 27% abnormal	Migraine 1	Neurosurgery transfer 2
LP 5 *	SAH 2	Neurology OPD 1
MRI 2 #	Dengue fever 1	GP 5
	Unspecified 6	Admission 3
	AVM 1	

* Two SAH in this group did not require LP
# One changed diagnosis from SOL to AVM
CCT-cranial computed tomography

A cranial computed tomography (CCT) study was performed in 127 of the 227 headaches (56%)- one patient refused to have a CT. Fifteen (12%)of these scans revealed an abnormality – 5 subarachnoid haemorrhages (SAH), 5 space occupying lesions ('SOL'), 1 haemorrhagic stroke, 2 ischaemic strokes, 1subdural haematoma (SDH), and 1 scan showed leptomeningeal enhancement. Magnetic resonance brain imaging (MRI) studies were performed in 20 patients (9%) including two patients who did not have a CCT first. Six of these MRIs (30%) showed an abnormality- 3 'SOL's', one dissection, one ischaemic stroke and one arterio-venous malformation (AVM). Five of the MRIs (25%) performed lead to a change in management from that planned after an initial CCT. These included changing an 'SOL' to an AVM; a 'normal CCT' to vertebral artery dissection; an intracranial 'SOL' to a meningioma; changing 'possible SOL' on CCT to a normal examination; and changing one CCT finding from 'ischaemic stroke' to an 'SOL.'

Forty-two patients (18.5% of 227 headaches) had a lumbar puncture (LP). One patient refused. Twelve cerebrospinal fluid (CSF) samples were abnormal (29%). Nine demonstrated an elevated white cell count (all lymphocytic) and 3 revealed a raised protein (one of which proved to be SAH). Those with usual

Table 2 Abnormal examination with headache
(Total of 93 patients (41% of headaches))

Investigations	Abnormal CT results (16% of CCTs)	Diagnoses	Follow-up
CCT (75% of pts)	SAH 3	Unspecified (55%) ^	Admitted (41%) #
LP (28%) *	SOL 4	Primary type (10%) ^ ^	Neurosurgery (4%)
		Secondary serious (29%) ^ ^ ^	
MRI (17%) **	Infarct 3	Secondary benign (6%)	GP (35%)
	Leptomeningeal		Neurology OPD (14%)
	Enhancement 1		Other hospital (3%)
			Self-discharge (2%)

* 11 (42%) abnormal
** 5 (31%) abnormal, 4 changed management
^ 31 subsequently seen by neurology / gen med
^ ^ migraine, tension, cluster, IIH, coital cephalalgia
^ ^ ^ aneurysm, SAH, sub-dural haemorrhage, mass, glaucoma, giant cell arteritis, dissection, viral meningitis, stroke
# 15 seen by neurology OPD, 2 self-discharged

Table 3 Analysis of repeat attendees to the Emergency Department
(Total of 46 patients (20% of headaches)) #

Headache type	Usual Pattern	Sudden Onset	Abnormal Exam	Indeterminate
No. of Headache Type	17	3	15	11
Follow up in OPD	7*	1 (also seen in ED)	13	4
Given definitive diagnosis	15	0	9	7
Repeat Investigations	3**	1 (CT, LP, MRI; clear)	12^	1#

* 4 also seen in ED
** 3 CCTs, 1 LP, all clear
^ Eleven CCT repeats, two abnormal but both new events, two positive MRIs in same patients. Two LPs- one negative, one viral meningitis but self-discharged before seen
# one patient had headache treatment prophylaxis recommended on discharge

headache or indeterminate type headache pattern, if performed, had normal investigations. Tables 1-3 focus on the three headache groups that attract most attention in the ED setting: sudden-onset headache, abnormal exam and repeat attendees.

Discussion

Headache has been demonstrated in previous studies to account for 1-4.5% of all ED presentations and this is consistent with the 2.6% seen in our study.[13-15] That 15% of these headaches were found to have a serious secondary cause further highlights the importance of taking headache seriously in the ED. One of the debates in acute headache management is the question of whether to perform CT imaging or not. In the face of patient expectation, the physician can often feel pressured to order unnecessary tests. Similarly, the question of 'what if' arises in the doctor's mind, especially when met by someone that continues to present, raising ever-present legal concerns. It has been estimated that 0.4% of all cancer in the US is attributable to iatrogenic radiation and this figure is anticipated to rise to 1.5% within a generation. Averaging the radiation equivalent of 150 chest x-rays per CT brain, it is projected that one in every 20,000 will develop a significant cancer.[16] The patients in this study were more likely to be young females, particularly vulnerable to such stochastic effects.

Our study supports the view that, in patients with their 'usual headache' pattern and a normal examination, it is unlikely that imaging will be helpful, as per current guidelines.[17] The physician should pause before automatically requesting a CCT and should concentrate on long term strategies to prevent re-attendance. In cases of abnormal exam or sudden onset headache, abnormalities found were sufficiently high to justify scanning all such patients. We recorded abnormal MRI findings in almost a third of those imaged, altering the previous diagnosis in one quarter of patients. For example, in one case, a clinically suspected stroke was found to be an SOL. This figure may be artificially high as an MRI may simply have confirmed clinical suspicions. However, in this study, some of the clinical suspicions were incorrect and others had a broad differential necessitating further clarification. In addition, according to current protocols, we are probably not doing enough LPs, although little serious disease was found on CSF examination despite this.[12,18] There are two possible explanations- either current protocol is wrong or else the incidence of serious pathology was too low for detection.

One measure to try and gauge adequacy of care is to interrogate whether any repeat attendees to the ED had a life-threatening diagnosis that was missed on first presentation. In this regard, the ED staff can be seen to do their job well, with one raised CSF protein of unknown significance being the only abnormal finding missed on repeat investigation. This is unsurprising given that the remit of the ED physician is to rule out acute pathology. Where the service appears to warrant some review is for those patients whose condition was not life-threatening, but remains a significant impediment to quality of life. If almost 40% of all headaches presenting were not given a diagnosis on discharge and 20% of all headaches are re-attending, there are clearly areas for improvement. A subset of headache patients have been previously identified that are seen to repeatedly attend the ED. This subgroup has been suggested to be formed of 'lost causes'/malingerers/drug seekers and have been found to be associated with medication overuse headache.[19,20] The important point to focus on in these difficult cases is that headache is a modifiable illness with prescribed medications and strategies available. If these patients continue to present, they obviously need more treatment than they are currently receiving. If strategies have been attempted and fail, referral to a neurologist is appropriate.

The strength of this study lies in its thorough review, cross-referencing and follow up. All patient records were available for review, benefiting from several electronic databases. A thorough search was conducted on all vague complaints with a potentially neurological cause in order to decrease the likelihood that any patient was missed. However, patients may have presented to another ED following first presentation. A larger study to estimate the extent of this 'medical nomadism' would be useful, as would the extent of analgesic misuse. Literature suggests however that headache sufferers are likely to present to the same ED (83% of the time) and the same GP (71% of the time).[21] This is good news for any future large-scale headache management program. Secondly, this study was not concerned with the general prevalence of headache types in the community, but rather what type of headache comes to the ED. A further study could follow up these patients through their GP to determine final diagnosis. The very nature of clinical medicine often precludes exact figures, but we feel that this study has given a good estimate of headache type seen in the ED. It confirms that headache is common and managed well acutely but could be improved both sub-acutely and chronically. As an interesting conclusion in support of a dedicated headache clinic, research by Blumenfeld in 2003 supports an individualised headache management program for referrals from the ED and GPs, headed by a headache expert/neurologist and managed by a specialist nurse. With six month follow up, patients showed a substantial decrease in GP and ED visits, a reduction in costs, burden of illness and sustained patient satisfaction.[22]

The discerning physician needs to start identifying those at greater risk for poor outcomes and start to refer early and treat more comprehensively. Longer duration of headache, severe pain, depression and repeat attendances have been promoted as red flags for continued disability.[8] Unnecessary radiation should be avoided and better attempts made at diagnosis using available IHS diagnostic criteria, bearing in mind that ED patients may sometimes be difficult to classify using these strict criteria.[23] On discharge, patients should be provided with a headache sheet as is the case with other common conditions in the ED, possibly comprising IHS classifications, alternatives to the ED, providing contacts for the Migraine Association of Ireland, medication suggestions for the GP and providing them with appropriate, non-opioid, back up medications to allow them to manage their headache better at home.

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Access to In-Patient Stroke Services and Multidisciplinary Team (MDT) Rehabilitation: Current Demands and Capacity

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

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Abstract
The objective of this project was to analyse the current access to in-patient stroke services and MDT rehabilitation in an acute stroke centre and to compare these services to the recommended "National Clinical Guidelines and Recommendations for the Care of People with Stroke and TIA" (IHF 2010). A retrospective chart review was carried out, recording activity statistics of all patients admitted with acute stroke over a three-month period. 73 patients (male=40, 54.8%) were included. Patients were discharged from the stroke service after a mean stay of 20.2 days (SD.=19.3). 76.7% (N=56) of patients were admitted to the acute stroke unit (ASU). The mean length of time from admission to first assessment 3.4 days (SD.=2.68), with an average of 138 minutes of treatment received per day across all disciplines. This is compared to the IHF's recommendation of patients being assessed within 24-48 hours of admission and receiving 180 minutes of treatment across all disciplines. As demands for stroke MDT services increase, it is important to recognise the benefits of increasing staff and resources to maintain and continue to improve standards of care.

Introduction

Stroke is the third most common cause of death and the most common cause of acquired major physical disability in Ireland[1]. There is a very high incidence of stroke, with nearly 11,000 new cases in Ireland every year[2]. In 2007, the Cost of Stroke in Ireland (COSI) report showed that less than €7 million per year is being spent on rehabilitation of survivors of stroke, an average spend of just over €200 per person[3]. It was proposed that improvements in acute stroke services could save 750 people per annum from lifelong dependency or death, and lead to a saving of €13 million per annum[3]. The Irish Heart Foundation Guidelines for Stroke Care suggested that, after having a stroke, patients should be cared for in a dedicated stroke unit[4]. An Acute Stroke Unit (ASU) is a specialised unit dedicated to the treatment of stroke[5]. Previous studies have shown that patient care is greatly enhanced by treatment in a stroke unit regardless of a patient's age, gender or the severity of their stroke[6]. The first Irish National Audit of Stroke Care (INASC) in 2006-2007 found that only one hospital, of 37 (3%) in Ireland had a fully operational stroke unit[7].There are currently 28 acute hospitals with operational stroke units; however some of these may be operating with incomplete multidisciplinary team (MDT) input[8]. Stroke has widespread effects on physical function but also on cognitive and emotional function and ability to communicate. An MDT approach is needed to assess and meet these challenges. The results of INASC highlighted limited access to the MDT[7]. The objectives of this project were to analyse the current access to in-patient stroke services and MDT rehabilitation in an acute stroke centre and compare these services to the current best practice guidelines, as set out by the Irish Heart Foundation (IHF) (2010)[4].

Methods

A retrospective analysis was carried out of the acute stroke service at Beaumont Hospital, Dublin. Patients admitted to Beaumont Hospital with acute stroke (infarction or haemorrhage), over a three-month period (March-May 2012) were included in the study. Therapy activity statistics were kept for all patients admitted, including time spent with each patient and interventions implemented by the medical and MDT. Demographic information, stroke type, length of stay in the ASU and the hospital were recorded for these patients using a standardised proforma derived from the IHF and local stroke care guidelines. Information was retrieved from hospital charts, hospital computer statistic programmes, the Patient Information Profile Explorer (PIPE) and through discussion with the MDT. Results were analysed using Microsoft Excel. The study was approved by the Beaumont hospital Clinical Governance and Audit Office.

Results

73 patients (male=40, 54.8%) were included in this study. Three quarters (76.7%, N=56) of patients were admitted to the acute stroke unit (ASU). Patients spent on average over 2-weeks in the ASU (14.6 days, SD.=15.1). The mean time from admission to MDT referral was less than 2 days and the mean time from referral to assessment approximately 1 day. The length of treatment varied across disciplines, but was on average 1-2 weeks in duration. Table 1 outlines the average times for referral, assessment and treatment for each discipline.

Table 1 Timeframes of referral and treatment duration

	SLT	Physio	OT	Dietetics
Admission to referral (days)	1.6 (SD.=1.93)	1.9 (SD.=1.6)	1.9 (SD.=2.1)	3.24 (SD.=3.6)
Time from referral to assessment (days)	1.2 (SD. = 1.22)	1.1 (SD. = 1.3)	2.3 (SD. = 1.9)	0.6 (SD. = 24.4)
Duration of Treatment (days)	20.8 (SD. = 24.6)	15.5 (SD. = 22.2)	16.8 (SD. = 23.4)	22.1 (SD. = 29.2)
Units received per day	2.2 (SD. = 1.6)	2.3 (SD. = 1.5)	3.1 (SD. = 3.5)	1.53 (SD. = 1.3)
% of Patients referred to this discipline	60.3 (N=44)	82.2 (N=60)	80.6 (N=59)	28.8 (N=21)

Table 2 Onward referral to rehabilitation services compared to INASC 2006

	Beaumont 2012	INASC 2006 [6]
Speech and Language Therapy	24.7% (N=18)	9%
Physiotherapy	24.7% (N=18)	21%
Occupational Therapy	32.9% (N=24)	17%
Dietetics	28.8% (N=21)	____

Speech and Language Therapy
60.3% (N=44) of patients were referred for speech and language therapy (SLT) and 41.5 % of those (N=17) were reviewed for

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swallowing in the first 24 hours using the Beaumont Hospital Swallowing Screening Tool (BHSST). 22% (N=9) of patients referred did not receive the BHSST test as they were not admitted to the ASU, the only location in the hospital where this test was performed at the time of this study. 24.4 %(N=10) had a formal swallowing review by SLT within 24 hours of admission with a further 24.4% (N=10) reviewed within 24 hours of referral being received. An additional 7.3% (N=3) were reviewed within 48 hours of referral being received. Similar results were found for assessment of communication problems by the SLT. Treatment concentrated on swallow deficits the first 2 weeks after stroke while patients also received treatment for communication deficits.

Physiotherapy
82.2%(N=60) were referred for physiotherapy. Of these patients 42.9% (N=24) received an initial assessment within 24 hours of admission and a further 33.9% (N=9) were seen within 24 hours of referral. Reasons for delays in assessment included patients being unwell (5.4%, N=3) and referrals sent over the weekend (5.4%, N=3). 55.4% (N=31) of patients received a full physiotherapy assessment within 5 days of admission, with a further 5.4% (N=3) seen within 5 days of receipt of referral. Delays were mainly due to patients being unwell (8.9%, N=5). Physiotherapy treatment focussed on transfer practice, balance and mobility over the first 2 weeks of therapy.

Occupational Therapy
80.8% (N=59) were referred to occupational therapy (OT) and 58.9% of these of patients had an initial assessment within 48 hours of admission. A further 21.7% were seen within 48 hours of the referral being received. Reasons for not being seen on time included patients being too unwell (5.4%, N=3) and referrals being sent over the weekend (12.5%, N=7). Occupational therapy included assessing Personal Activities of Daily Living (PADLs), upper limb rehabilitation, vision and perception, cognition and functional mobility, especially over the first 2 weeks of treatment. OT was also involved in assessing Domestic Activities of Daily Living (DADLs) and discharge planning.

Dietetics and Nutrition
28.8% (N=21) of patients were referred to Dietetics and Nutrition. 57%(N=12) of those patients were referred to the Dietician within 48 hours of admission, and 42.9% (N=9) were weighed. All were receiving nutrition within 72 hours of admission and the following interventions were used: Artificial Nutritional Support (60%, N=12), modified consistency (10%, N=2), high protein high calorie (10%, N=2), secondary prevention (20%, N=4). Secondary prevention included diabetic diets and low cholesterol diets.

Onward referral at discharge
54.7% (N=35) of discharged patients were referred for further rehabilitation by the MDT, SLT 24.7% (N=18), physiotherapy 24.7% (N=18), Dietetic 28.8%(N=21) and OT 32.9% (N=24). Patients were referred to a variety of services, including community care, in-patient rehabilitation and out-patient rehabilitation services. Nearly 17% (N=11) of patients that were discharged to the hospital's off site rehabilitation unit at St Joseph's Rehabilitation Unit Raheny. On discharge, nearly two-thirds (64.4%, N=47) of patients went home or to live with their families, 17.8% (n=13) went to in-patient rehabilitation, and 4.1%(N=3) returned to their referring hospital/nursing home. Just 1.4% (N=3) were still in-patients at the time of this study (Figure 1).

Discussion

Beaumont hospital has an ASU with a dedicated team, however only 76.7% (N=56) of stroke patients admitted to the hospital were admitted to the ASU. The IHF National Stroke Care Guidelines suggest that all stroke patients should be treated in an Acute Stroke Unit[4,6]. Beaumont hospital recommends that patients should spend the first 72 hours of their acute treatment of stroke in the ASU. After this, the patients, if well enough, should be moved to another ward for ongoing rehabilitation.

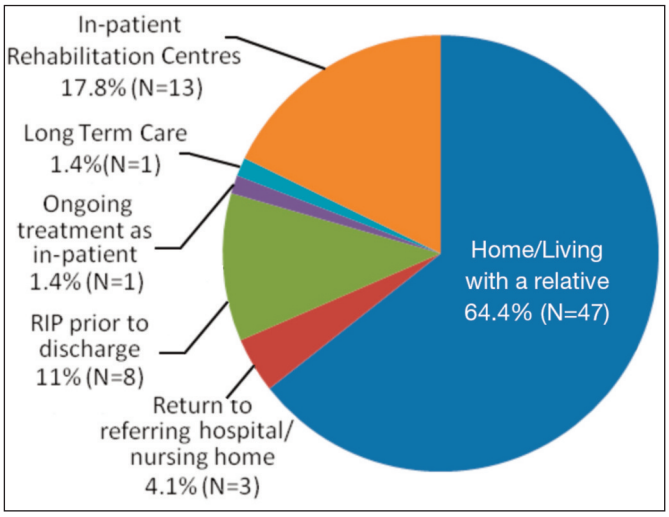

Figure 1 Destination of patients after acute setting

During this study period patients spent an average of 14.6 (SD= 15.1) days in the ASU. If this length of stay was shorter than the percentage of patients that were not admitted to the ASU may be reduced. Patient care is greatly enhanced by treatment in a stroke unit[6], thus it would be of benefit to the patient to spend their initial treatment time in the ASU. There are many reasons that could affect this length of stay, including bed availability on other wards, the extent of the illness of the individual patients and the needs of patients to continue receiving specialised care, which may only to be available within the ASU.

Patients who were not admitted to the ASU did not receive an initial swallow screening test. At the time of the study, only the nurses who worked in the ASU were trained to do this test. It may be of benefit to teach staff on different wards managing stroke patients how to do this test following appropriate training. The typical patient who was treated by all four disciplines received approximately 138 minutes of direct care. The IHF guidelines suggest that patients are offered a minimum of 45 minutes of each active therapy for a minimum of five days a week[4]. This means each patient who is being seen by all four disciplines should receive 180 minutes per day. Currently many patients are not receiving the recommended amount of treatment. This study showed higher levels of onward referral to rehabilitation than INASC, where there was limited evidence of onward referral to rehabilitation services[7]. It has been reported that intensive rehabilitation up to 6 months may lead to improvements in mobility and activities of daily living[9] highlighting the need for timely onward referral for patients to improve outcome.

The length of time from admission until referral to MDT, and referral to first assessment was longer than the recommended 24 hours in the IHF guidelines. There was generally a two-day delay for patients to be referred to the appropriate services and the patients are seen within 24-48 hours of referral being received. Reasons for non-compliance with the guidelines varied, including referrals being sent at weekends and patients being too unwell to engage in rehabilitation. Furthermore there appeared to be a longer period of time until referral to Dietetics, 3.24 (SD. 3.6) days compared with less than 2 days for other disciplines. It is unclear as to why this was the case. All disciplines responded to referrals in accordance with local guidelines with dietetics, physiotherapy and SLT responding within 1 day and OT responding within 2 days for most patients. No discipline provided an average of 45 minutes of treatment daily per patient with the exception of OT. The provision of longer daily treatment within the current health setting, although in accordance with the guidelines, may be partially the reason for an extended response time to referral. The longest duration of treatment was for patients referred to dietetics and SLT, which may be indicative of patients continuing to display swallowing difficulties and requiring ongoing nutritional support.

This is one example of the high interdependence between the MDT members. While it is important to refer patients promptly, it is also important to refer patients appropriately. At the weekly meetings, the MDT discuss all patients referred to the each discipline. It was decided at these meetings that some of these patients did not require therapy from these disciplines: SLT (6.8%), Physiotherapy (6.7%), Occupational therapy (5.1%) and Dietetics and Nutrition (4.8%).

As demands for stroke MDT services increase, it is important to recognise the benefits of increasing staff and resources to maintain and continue to improve standards of care. However, it must be acknowledged that in the current economic climate this will be challenging and the existing resources may be stretched. Training of more staff to conduct an initial screening for swallow disorders has been recognised as an area of potential improvement in this hospital. This should increase the number of patients that receive this screening off the ASU. A more precise estimate of interval in hours rather than days would be preferable in this study. This would provide a more accurate picture of the overall system and highlight the areas of delay of treatment.

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A Survey of General Practitioners' Knowledge and Perceived Confidence with Clinical Ophthalmology

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Abstract
The quality of general practitioner (GP) ophthalmology referrals to emergency departments has been reported to be sub-optimal. It is possible that a lack of adequate formal training in ophthalmology for GPs contributes to this situation. Data in this study was obtained from a postal survey of GPs to ascertain their knowledge of, and confidence with, clinical ophthalmology skills as well as their training in this speciality. Undergraduate ophthalmology training was rated as inadequate by 35/50 (70%) respondents. 28 (56%) respondents reported to be confident with their clinical ophthalmology skills. 19 (38%) GPs reported to have good knowledge of ophthalmology, and this was strongly associated with a positive appraisal of their undergraduate ophthalmology training (92%, P<0.01), having experience working in an ophthalmology department (80%, p=0.14) and having received GP training abroad (52%, p=0.16). Regarding ophthalmology equipment, 47 (94%) GPs reported to have an ophthalmoscope but only 33 (66%) were confident with its use and just 20 (40%) could confidently distinguish an abnormal optic disc. Lack of knowledge of ophthalmology may have a significant impact on patient care and could be addressed by including clinical skills training in GP specialist training or continuing professional development schemes.

Introduction

An estimated 1-2% of consultations in general practice relate to ophthalmology complaints.[1] Many of these clinical presentations are mild and self-limiting and should be managed adequately at a primary care level. It has been shown however, that a significant proportion of GP ophthalmology referrals to Emergency Departments are either non-urgent or have poor or absent ocular examinations documented in the referral letter.[2] It is possible that a lack of formal ophthalmology training on GP vocational schemes impacts on clinical competence and confidence in this area. UK studies have suggested that most GPs view their ophthalmic medical education as inadequate and that this has an adverse effect on their confidence and management of eye conditions.[3] Eye skill workshops have been associated with significant improvements in general practitioner eye care, however continuing professional development schemes for GPs in Ireland do not include such training.[4] It would be useful to ascertain how confident GPs are in their clinical management of ophthalmological complaints as this may represent an area of unmet educational need. We surveyed a representative sample of GPs to establish how confident they were with their knowledge of ophthalmology. We aimed to investigate whether there were any basic demographic, training or clinical practice related factors associated with higher levels of reported knowledge of ophthalmology.

Methods

We performed a cross sectional survey in which a self-administered questionnaire was mailed to 125 GPs in December 2012. Information about participants' basic demographic information in addition to their educational and clinical background was requested. A five-point Likert scale was used to rate participants' knowledge of ophthalmology and confidence with clinical skills. A multiple choice question (MCQ) quiz about common clinical scenarios in ophthalmology was included with the questionnaire. GPs were selected using systemic sampling (every 20th name) from a total of 2,497 GPs listed nationwide in the Irish Medical Directory 2012-2013[5]. The questionnaire was posted to each GP with a stamped addressed envelope for return. All responses were anonymised. A pilot survey was conducted on a sample of GPs (n=5) which resulted in minor changes to the layout and wording of the questionnaire. GPs received no financial compensation for their participation and no reminders were sent. We undertook a descriptive analysis of the data and also performed comparative statistical tests. Responses from the Likert scales were dichotomised for the purposes of statistical analysis. The Chi Square statistic and Fisher's exact test were used to compare participants on binary outcomes while the Student t test was used to compare means. A P value of<0.05 was considered statistically significant. Statistical analysis was carried out with IBM SPSS Statistics version 20. Ethical approval was granted by the ICGP ethics committee.

Table 1 Characteristics associated with positive self-rated knowledge of ophthalmology

		Positive Rating, % (n)	Statistical Test	Significance
Gender	Male	53.6 (15)	$\chi^2 = 4.62$	P=0.09
	Female	20 (3)		
Years in practice	>10 yrs	43 (18)	Fisher's exact	P=0.63
	<10 yrs	25 (1)		
Practice type	Sole practice	64 (9)	$\chi^2 = 5.72$	P=0.06
	Group practice	35 (10)		
Practice location	Urban or rural only	48 (11)	Fisher's exact	P=0.31
	Mixed urban and rural	27 (4)		
Postgraduate training	Trained in Ireland only	32 (8)	$\chi^2 = 1.96$	P=0.16
	Trained abroad*	52 (11)		
Undergraduate training	Rated adequate	92 (12)	Fisher's exact	P<0.05
	Rated inadequate	21 (7)		
Specialist clinical exposure	Yes	80 (4)	$\chi^2 = 3.99$	P=0.14
	No	34 (12)		
Ophthalmological instruments	Number of items in GP surgery, mean	5.6 (v.s. 5.4 in those with negatively rated knowledge)	t=-0.3	P=0.76
Confident using clinical instruments	Confident	52 (12)	Fisher's exact	0.09
	Not confident	20 (3)		
Quiz result	Mean 5.05 (v.s. 3.96)		t=-3.12	P<0.05

* includes those who received training in Ireland and abroad

Results

Response rate and demographic information

Of the 125 general practitioners included in the study, 50 returned the completed questionnaire, a response rate of 40%. The majority of respondents were male GPs (58%) who reported to have over ten years' clinical experience (90%). Respondents were more commonly based in group practices (66%) rather than working as sole practitioners (28%). The sample was fairly even divided between urban (38%), rural (10%) and mixed urban and rural (36%) practices.

Training in GP and ophthalmology

30% of respondents rated their undergraduate ophthalmology training as adequate. 56% of GPs had completed their postgraduate training in Ireland only, the remainder reporting to have completed at least some of their training abroad. 12% reported to have had clinical experience working in a specialist ophthalmology department.

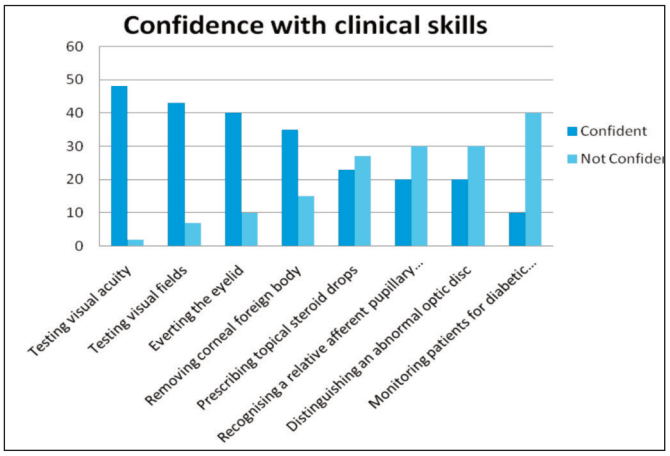

Figure 1

Self-rated knowledge of ophthalmology

Self-rated knowledge of ophthalmology was rated positively by only 38% of GPs. A positive rating was more likely if the respondent had rated their undergraduate training as adequate rather than inadequate (92% vs. 21%, P<0.01). Sole practitioners rated their knowledge of ophthalmology more positively than those in group practice (64% vs 35% respectively, P=0.06). There was no association between the length of time in clinical practice and knowledge of ophthalmology (rated positively by 25% of those in practice less than 10 years versus 43% of those in practice over 10 years, P=0.63). Those who rated their knowledge of ophthalmology positively did not report to have more ophthalmological instruments than those who rated it negatively although they tended to be more confident in using those instruments (see Table 1). Those who rated their knowledge of ophthalmology positively were more likely to be male, working in urban or rural only practices (as opposed to mixed location practices), those who had experience working in ophthalmology departments and those who had received GP training abroad. However these trends did not meet statistical significance. Respondents who positively rated their knowledge of ophthalmology received a higher score in the MCQ than those who negatively rated it (mean quiz score 5.05 vs. 3.96, P<0.05).

Self-rated confidence in clinical skills

56% of respondents reported to be confident in 4 or more of the 8 clinical skills described. Testing visual acuity and visual fields ranked among the most commonly rated clinical skills that GPs were confident with (94% and 86% respectively). Conversely, a minority reported that they could confidently distinguish an abnormal optic disc (40%) or would be able to monitor patients for diabetic retinopathy (20%) (Figure 1).

Ophthalmology Equipment

96% of respondents reported to have a Snellen chart and 84% felt confident using it. 38% admitted that, upon review, their Snellen chart was not correctly set up (full size at 6 metres and half size at 3 metres). However 34% of respondents did not answer this question. 94% of GPs reported to have an ophthalmoscope but only 66% were confident with its use. Equipment like the pinhole, dilating drops, slit lamp and tonometer rated low on both access and confidence (Figure 2).

Quiz Results

A total of 75% of participants scored 4 or more correct answers out of the 7 quiz questions. GPs performed best on questions regarding appropriate treatment of a dendritic ulcer (90% of respondents gave the correct answer), recognising signs of diabetic retinopathy (80% correct) and recognising signs of anterior uveitis (76% correct). Respondents did not score as highly on recognising the signs of optic neuritis (52% correct), management of floaters (44% correct) or recognising the signs of allergic conjunctivitis (40% correct).

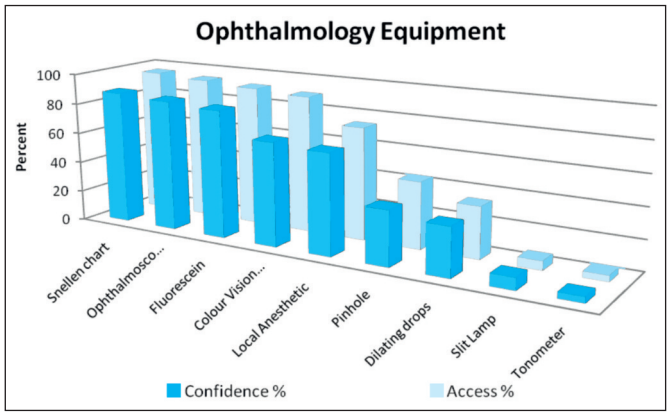

Figure 2

Discussion

We found that the majority of general practitioners (62%) rated their knowledge of ophthalmology poorly and that this was strongly associated with a negative rating of undergraduate ophthalmology training. 70% of all respondents described their undergraduate training as inadequate. Interestingly, length of time in clinical practice was not associated with better knowledge of ophthalmology. Just over half (56%) of GPs were confident in their clinical ophthalmology skills. A minority of GPs were confident in their clinical assessment of some serious (e.g. abnormal optic disc) or common (e.g. diabetic retinopathy) ophthalmological conditions. A significant minority of respondents were not confident using a Snellen chart (16%) or reported that they had not set it up correctly (38%). This study supports the findings of a similar study completed in the UK which found that a total of 57% of respondents did not feel confident with their ophthalmology knowledge.[6] They also found that uncommon and potentially more serious eye conditions resulted in less confidence and more referrals among responding general practitioners. Bailey et al reported that 80.2% of Irish GP trainees felt their undergraduate training was insufficient.[7] Our study of qualified GPs shows only a modest improvement (70%) in this figure.

The lack of confidence in clinical skills reported by participants in our survey is concerning as it has implications for both patients and GPs. Testing visual acuity is an essential component of fitness to drive certification and requires competency in setting up and using a Snellen chart. A significant minority of respondent GPs, however, did not have their Snellen chart correctly set up. Additionally, the fact that only 66% of GPs are confident using an ophthalmoscope has implications for chronic disease management in particular diabetes mellitus and hypertension. Finally, the use of topical steroids in primary care is a source of debate and it is the view of the British National Formulary that 'topical corticosteroids should normally only be used under expert supervision'.[8] Despite these guidelines, nearly half (48%) of GPs in our study reported to feel confident in prescribing topical steroids. GPs who had received some training abroad or who had experience working in specialist ophthalmology departments tended to rate their knowledge more positively than those who had not. It is therefore possible that ophthalmology placements could benefit those undergoing GP specialist training programmes. Many of the GPs surveyed in our study had received training in the UK where ophthalmology rotations are more widely available in GP training schemes than they are in Ireland. This highlights variations in clinical exposure and questions whether international standardisation in general practitioner competencies is being achieved. Currently the International Council of Ophthalmology recommends 40-60 hours of undergraduate ophthalmology exposure[9] and Chan et al[10] showed a positive correlation between overall comfort level assessing and managing common ophthalmic conditions and the number of hours of classroom instruction.

Our study revealed some discrepancies between self reported knowledge and confidence with clinical skills, for example; 80% of GPs knew the signs of diabetic retinopathy yet only 20% reported to be confident using an ophthalmoscope. Focusing on clinical skills based workshops, like those run by the RACGP in Australia[4,11], may enhance existing continuing medical education in this area. Our 40% response rate is relatively low but it is in line with other postal questionnaires of GPs, who can be a difficult group to survey[12]. Our sample size (50) is small relative to total study population but our method of systematic sampling should approximate a random sample therefore provide a representative sample. The self-reported nature of the study is another limitation and we cannot directly correlate self-rated confidence with clinical competence inpractice[13]. The strength of this study is that it provides a detailed description of GP knowledge of ophthalmology, and we have reported on a range of relevant training and clinical-practice related factors. This is an important area of clinical practice for GPs and has not previously been reported on. The results of our study have implications for the ongoing clinical and professional training of GPs with respect to ophthalmology. Irish GPs rate their knowledge of ophthalmology and their confidence with ophthalmology clinical skills quite poorly. It is possible that this impacts significantly on patient care. Inclusion of clinical skills based ophthalmology training in GP training schemes or continuing professional development schemes should be considered.

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Horizontal Strabismus Surgical outcomes in a Teaching Hospital

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

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Abstract
Strabismus may result in impaired stereopsis, diplopia, undesirable appearance, amblyopia and negative psychological impact. This study provides epidemiological and surgical outcome information about patients attending University College Hospital Galway requiring strabismus surgery. We report a retrospective analysis of 75 consecutive patients, who underwent horizontal strabismus surgery. Sixty-one (81.3%) patients had clinically significant refractive errors, hyperopia being the most common. Thirty-four (45.3%) patients had amblyopia and nine (12%) required further treatment. A cosmetically acceptable result with a post-operative ocular deviation within 25 prism dioptres of straight (grade 2) was achieved in 70/75 (93.3%) of patients. The overall mean change in ocular deviation per mm of muscle operated was 3.25 prism dioptre/mm. The outcomes of strabismus surgery in an Irish hospital compare very favourably with other jurisdictions. This data will help plan service delivery.

Introduction

Strabismus refers to ocular misalignment, which may be caused by abnormalities in binocular vision or by abnormalities of neuromuscular control of ocular motility. Strabismus may lead to amblyopia, impaired stereopsis, diplopia, altered cosmesis, and affect social standing.[1,2] A variety of risk factors for strabismus have been identified which include anisometropia, hyperopia, myopia, family history, maternal cigarette smoking during pregnancy, neurological disorders, low birth weight, pre-term, anatomic anomalies and substance abuse during pregnancy.[3-5] Strabismus in childhood is relatively common and therefore has a significant impact on ophthalmological service. The prevalence of strabismus has been reported from 3-4%. Esotropia is the most common strabismus of childhood.[6] Amblyopia has an estimated prevalence in childhood of 0.5% to 3.5%.[7] There are three primary types of amblyopia: 1. anisometropic, (difference in refractive error between the eyes); 2. strabismic (due to ocular misalignment); 3. deprivation (due to media opacities such as cataract, corneal opacities, or vitreous opacities). Current practice in Ireland is to screen by checking visual acuity of children at primary school entry (age 4-5 years) and at primary school exit (approximately 12 year old).

Interventions for the treatment of strabismus include optical manipulation with corrective glasses and occasionally prisms. Surgery on extra ocular muscles may be employed to realign the eyes. Rarely botulinum toxin injections to specific extra ocular muscles are used to correct the deviation. Penalisation of the non-amblyopic eye with occlusion therapy or cycloplegic medication maybe used in children with strabismus who also have amblyopia. The aim of management is to optimise the best corrected visual acuity (BCVA) of both eyes, maintain normal binocular fusion and improve appearance. Clinical benefits of realignment include: improved cosmesis, potential re-establishment of binocular fusion, elimination of diplopia, expansion of visual field, improvement of head posture, and psychosocial well being.[1,2] The purpose of the present study is to evaluate the baseline characteristics, surgical management and clinical outcomes of patients requiring strabismus surgery at University College Hospital Galway.

Methods

The medical records of 90 consecutive patients who underwent strabismus surgery under care of two consultants in our institution were reviewed. The type and amount of squint surgery was noted, as well as squint size pre- and post-operatively. A graded measure of success was used at three months post-operation. Only patients who had surgery for horizontal strabismus, with a minimum of three months follow-up post-operation were included. All patients had full orthoptist assessment pre- and post-operatively. The surgical techniques employed included: monocular medial rectus (MR) recession and lateral rectus (LR) resection for esotropia, bimedial rectus recession (BMRR) for esotropia with excess accommodation, bilateral LR resection for esotropia, monocular LR recession and MR resection for exotropia and bilateral LR recession for exotropia. Parameters recorded were age, sex, diagnosis, angle of deviation pre-and post-surgery at 6 metres and a third of a metre, type of surgical procedure, BCVA, refractive error, presence or absence of amblyopia, type and duration of non surgical treatment, co-morbid conditions, length of follow-up, number of ocular assessments, source of patient referral, age at referral. The accuracy of surgical alignment at three months post-operation was recorded as: Grade 1 - Ocular deviation ≤ 10 prism dioptres (PD); Grade 2 - Ocular deviation ≤ 25 PD; Grade 3 - Ocular deviation ≤ PD; and Grade 4 - Ocular deviation ≤ 35 PD. Patients were excluded from analysis if they had vertical squint surgery, had less than three months follow-up post surgery, or had missing data. Data were analysed using SPSS (version 20, IBM, USA); comparisons between the groups were drawn using One Way Anova test, Kruskal-Wallis test, and Independent T-test statistical analysis.

Results

Ninety patients had strabismus surgery, 15 patients were excluded from further analysis (8 vertical squints, 7 incomplete follow up). The inclusion criteria were met by 75 patients (under care of two consultant ophthalmologists). There were 44 (58.7%) female and 31 (41.3%) male patients. Fifty (66.7%) patients had esotropia and twenty-five (33.3%) had exotropia. Referrals were made by community ophthalmologists (32%, 24/75), general practitioners (25.3%, 19/75), community or school services (13.3%, 10/75),optometrist (8.0%, 6/75), other hospital specialities (8.0%, 6/75), orthoptists (2.7%, 2/75) and unknown referral sources (10.7%, 8/75). Refractive errors were present in 61 (81.3%) patients. Hypermetropia was the predominant refractive error, as shown in figure 1. Fourteen (18.6%) patients were emmetropic.

The mean age of patients at presentation was 20.7 ±16.2 years. Twenty-five (33.3%) of the patients were aged greater than 10 years at presentation. Children under 10 years had a mean of 13.0 ± 8.8 visits. Children over 10 years had a mean of 6.8 ± 4.8 visits. There was evidence of amblyopia in 34 (45.3%) patients, and 9 patients required further amblyopia treatment. The remaining 25 patients had undergone previous amblyopic treatment. With respect to the 9 patients treated for ambylopia by our unit, the mean log MAR BCVA improved significantly with treatment from 0.53 ±0.24 (approx 6/18) to 0.19 ± 0.17 (approx 6/9; paired-student's t-test: p =0.009). The mean age of the patients at presentation was 4.3 ± 1.5 years. The mean spherical equivalent refractive error of these patients was +3.85 ± 1.3 D(100% were hyperopic). Amblyopic treatment lasted for a mean of 15.7 ±11.6months and the patients were followed–up over a mean of 5.1 ± 2.1 years, with a mean of 18 ± 9.7 visits. The mean number of visits for patients without a history of amblyopia was 10 ± 6.7.

The mean preoperative angle of deviation was 46.4 PD. The mean post-operative angle of deviation was 10.2 PD. The post operative

CPD available online at www.imj.ie and questions on page 191.

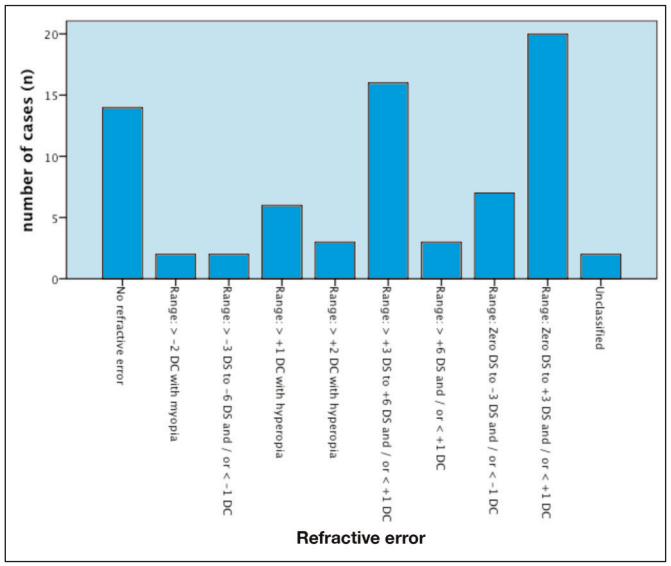

Figure 1 Bar chart of types and magnitudes of refractive error at presentation. DS: Dioptre sphere, DC: Dipotre Cylinder

alignment wasgrade1 (≤ 10 PD) in 69.3% (n = 52), grade 2 (11- 25 PD) in 24.0 (n=18), grade 3(26 – 35 PD) in 4.0% (n = 3) and grade 4 (> 35 PD) in 2.7% (n = 2). 93.4% of patients achieved a cosmetically acceptable result of a postoperative distant ocular deviation within 25 prism dioptres of (grade 2). Two patients who had poor surgical outcome (grade 4) had very large preoperative distance angle of deviation of 70 and 80 PD respectively. The procedure employed varied according to the clinical scenario, 39(52%) cases were monocular recess/resect procedures, 29 (38.7%) were bimedial recessions, 5 (6.7%) were bilateral lateral rectus recessions and there were 2(2.7%) bilateral lateral rectus resections.

We examined the change in ocular deviation and calculated the mean change in ocular deviation per unit of muscle operated (recessed or resected in PD/mm). For all 75 patients there was a mean 3.25 PD/mm. Looking at the surgical outcomes by tropia type we found that, in the 50 cases of esotropia the mean effect was 3.41 PD/mm and in the 25 cases of exotropia the effect was 2.97PD/mm. Then when we looked at the surgical approach we found that the 29bimedial recessions yielded a mean change in ocular deviation per unit of muscle operated of 3.03 PD/mm, while monocular recess/resect (n = 39) gave a mean of 3.66 PD/mm and bilateral lateral rectus recessions (n = 5) only yielded a mean of 1.46 PD/mm. BMRR gave a greater surgical effect on near deviation (3.59 PD/mm), but this was not significantly different to the distance figure. Table 1 illustrates the effect of size of preoperative deviation upon patients' outcome. Patients were pre-operatively divided into two groups, one with preoperative angle of deviation for distance of 30 PD or less, and other with angle greater than 30 PD for distance. This demonstrates that a greater change in angle of deviation was achieved per millimetre of extra ocular muscle recessed or resected for larger pre-operative angle of deviation, which is statistically significant (p = 0.0001, 95% CI(-2.48, -.98) Mean Difference -1.73 (One Way Anova Test).

Table 1 Success of Strabismus Surgery by magnitude of Pre-Operative Angle of Deviation for Distance

Pre Op Angle of Deviation	≤ 30 PD	> 30 PD
Number of patients	13	62
Mean Post-op angle of deviation for distance (PD)	8.08	10.61
Surgical outcome in pd per mm muscle	1.82	3.56
Post-op Grade 1 alignment	76.9%	67.7%

PD – Prism dioptre; Grade 1 alignment: ≤ 10 PD

Discussion

It is remarkable that in a system where screening for ocular deviations occurs at two set-points, only 13.3% of referrals were from these screening services. The vast majority (65.3%) were from doctor visits (community, ophthalmologists, GPs and other hospital specialities). It would seem that the benefit of screening for strabismus at four to five years and again at 12 years of age has limited effect and may need to be revaluated, especially if amblyopia is to be detected in a timely manner. There is evidence that early detection through screening at 9 months of age can significantly alter the course of ambylopia and strabismus.[8] This study highlights the significant workload associated with running a strabismus service. Amblyopia and younger age were associated with even higher clinical visit rates, which has been previously reported.[9,10] Ambylopia is the commonest preventable cause of visual loss in children,[8] and while it is more responsive to treatment among children younger than 7, some children 7 to less than 13 years of age show a marked response to treatment.[11] Over 13.3% of our patients required treatment for amblyopia and 77.8% improved to 6/9 or better and 100% were 6/12 or better in the amblyopic eye. No patients lost any vision throughout this study.

Our results compare favourably to those reported in other jurisdictions. We recorded69.3% within 10 PD of alignment, whereas, Wisnicki et al reported alignment of58% with 10 PD in resident (trainee surgeons) group, and 69% within 7 PD in the attending (consultant surgeon) group.[12] Kampanartsanyakorn et al. reported a success rate of 60.2%. Success was associated with younger age (> 6 years) and preoperative deviation less than 30 degrees,[10] this reflects our experience. Gogate et al reported that 77.9% (260/461) had a post-operative ocular deviation less than 20 PD and large pre-operative deviations and amblyopic eyes accounted for 63/101 (62.3%) cases of poor outcome. They found a trend of recess-resect procedures to had better outcome as compared to bilateral recess procedures, but it was not statistically significant.[9] We found a similar trend but it did not achieve significance.This study provides an insight into our current practice at University College Hospital, Galway. This is the first time such data has been published from an Irish teaching hospital. It highlights the significant impact this group of patients have on the ophthalmic service. Treatment efficacy has been analysed and comparison of different treatment methods are reported. Our results compare favourably with international reports. This is a source of epidemiological data, which can help plan future healthcare delivery.

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A Case of Quinsy Following High-Pressure Water Jet Injury

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Abstract
High-pressure water injuries of the oropharynx are uncommon but can cause significant injury and airway compromise when they occur. A small number of cases of high-pressure water injury of the oropharynx have been presented in the literature, detailing a range of effects and outcomes. We describe the first reported case of high-pressure water injury of the oropharynx associated with peritonsillar abscess (quinsy) requiring surgical drainage.

Case Report

A previously well, twelve year-old boy with no history of tonsillitis presented to the Paediatric Emergency Department for review 5 days after injury to the oropharynx. The child reportedly discharged a high-pressure water hose (powerhose) through the mouth projecting to the right oropharynx while playing at home. Despite a small volume of bleeding and pain following the injury, medical review was not initially sought for the patient. The patient presented in a stable, apyrexial condition, feeling generally unwell with increasing odynophagia and nausea and referral was made to the Otolaryngology service. Examination revealed a fulminant right-sided peri-tonsillar abscess (quinsy), with evidence of preceding mucosal trauma notable. There was no evidence of neck abscess, surgical emphysema, bruit or other relevant examination findings. Nasendoscopy was completed which demonstrated a patent airway without any medialisation of the lateral pharynx. Laboratory results showed a raised C-Reactive Protein, 37mg/L. Incision and drainage was carried out emergently in the Emergency Department producing 10millilitres of frank pus. The patient received 3 days of IV antibiotic treatment prior to discharge on broad-spectrum oral antibiotic therapy. Culture results revealed heavy growth of Streptococcus Mitis/Oralis and Streptococcus Milleri sensitive to prescribed oral antibiotic therapy. The patient made a full recovery.

Discussion

High-pressure water jet injuries of a variety of body parts have been reported in the literature[1,2]. Injury to the oropharynx appears to represent a very rare event, but has also been described in a small number of reports[3-5]. Findings of significant internal trauma with minimal external injury are characteristic in high-pressure water jet injury[2]. The effect of surgical emphysema, secondary to water and air being injected into tissue planes at high pressure, as well as the presence of significant vascular injury or microvascular thrombosis, has also been described[1]. A significant risk of infection exists following high-pressure water jet injury and early antibiotic therapy is recommended[6]. Typical colonising organisms, when injected into tissues planes via water jet, find the perfect setting for the development of a deep tissue infection or abscess[6].

In our case, the delay in presentation led to a failure to initiate antibiotic therapy, accounting for the development of infection. Caution should be taken to ensure appropriate culture and sensitivity is carried out where possible. Aypical water-based pathogens may be seen, such as Aeromonas Hydrophilia, a facultative, anaerobe, Gram-negative bacillius which can progress to severe gas-forming infections when not treated appropriately[7]. Previous case reports have described a necessity for intubation where oropharyngeal trauma has caused oedema in the upper airway and oropharynx[3]. As such, in the setting of acute high-pressure water jet injuries to the oropharynx, patients must be treated with a high index of suspicion for airway compromise or significant vascular injury. In our case, however, the patient presents a number of days following the initial injury in a stable condition with no suspicion or clinical features of imminent airway compromise or vascular injury.

High-pressure water injuries to the oral cavity are uncommon but have been reported in the literature. This is the first report of a case of high-pressure water injury which was associated with quinsy requiring surgical drainage.

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Oral Hairy Leukoplakia in Healthy, Immunocompetent Individuals

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Abstract
Oral hairy leukoplakia (OHL), while typically associated with HIV infection and immunosuppression, is rarely seen in HIV negative immunocompetent individuals. We report on two cases of OHL in immunocompetent patients.

Introduction

OHL, first described in 1981 and caused by the Epstein Barr Virus (EBV), presents as white, shaggy, non-removable plaques, typically on the lateral borders of the tongue[5]. It was initially considered pathognomic of HIV infection and latterly of immunosuppression. However more recently it is increasingly being reported as a complication of localised immunosuppression with topical or inhaled steroids[7-9]. Rare cases have also been documented in HIV negative individuals with no underlying history of topical or systemic immunosuppression[3,4,8,9]. It has been postulated that age may be a factor in some of these cases and chronic reactivation of EBV has been found to be related to aging[10].

Case Reports

Patient 1 is a 70 year old male, married with three children, referred for assessment of a white area on the lateral border of the tongue present for six weeks. Relevant medical history included osteoarthritis, hypertension and hyperlipidemia treated with olmesartan, felodipine and pravastatin. There was no history of immunosuppressive therapy. He was a non-smoker but consumed 30-40 units of alcohol per week. He was edentulous, with full upper and lower dentures. Denture hygiene was good. Examination revealed a soft, white, 4mm by 4mm plaque, on the right ventral surface of the tongue. An excisional biopsy was carried out and histopathological examination revealed parakeratosis with hyperplasia, candidal proliferation in the keratotic layer without any inflammatory reaction and groups of large cells with nuclear haloes suggestive of a viral effect. In-situ-hybridisation (ISH) identified EBV and a diagnosis of OHL was made. Investigations were carried out to identify any possible underlying immunodeficiency which could predispose to OHL including full blood count, electrophoresis, T-cell subsets, C-reactive protein, immunoglobulin levels and serology for HIV. The only finding was a decreased lymphocyte count of 1.1 ×109/l (normal range 1.5 – 3.5 ×109/l). HIV serology was negative initially and at retest six months later. There has been no recurrence post excision, the patient remains well and no underlying cause has been found.

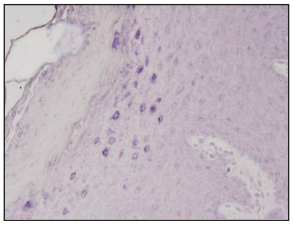

Figure 1 In situ hybridisation positive for Epstein Barr Virus

Patient 2 is a 55 year old male, married with one daughter, referred for assessment of a white patch on the left lateral border of the tongue. Relevant medical history included well-controlled asthma for which he used a beclomethasone dipropionate inhaler twice daily. He was a non-smoker and did not consume any alcohol. Examination revealed a raised, creamy-white, soft, 50mm by 20mm plaque on the left lateral border of the tongue. There was also median rhomboid glossitis, denture stomatitis under an upper partial denture, and erythematous candidiasis of the dorsum of the tongue.

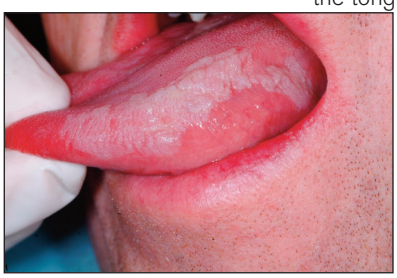

Figure 2 White patch on left lateral border of tongue

An incisional biopsy of the white plaque was carried out, swabs taken of the tongue and palate and instructions on inhaler technique and denture hygiene given. Histology showed hyperplasia with sheets of ballooned epithelial cells, parakeratosis and no inflammation. ISH was strongly positive for EBV in the superficial epithelial cells giving a diagnosis of OHL. Investigations to identify any possible systemic immunodeficiency were then carried out, as in the previous case. These revealed a raised white cell count of 13.0 ×109/l (normal range 4.0 – 11.0 ×109/l) with neutrophilia of 10.2 ×109/l (normal range 2.0 - 7.5) and raised immunoglobulin E of 198.0 u/ml (normal range 0.0 – 100.0 u/ml). HIV testing was negative initially and on retest six months later. Swabs grew significant levels of Candida albicans which was treated with nystatin suspension 100,000 units/ml four times daily for two weeks. The OHL was treated successfully with oral valciclovir. At most recent review there has been no recurrence, no underlying predisposing factor has been found and the patient remains well.

Discussion

While initially considered pathognomic of HIV infection and later of systemic immunosuppression, OHL is increasingly being reported in HIV-negative individuals. Some of these may arise as a complication of localised immunosuppression due to the use of topical or inhaled steroids, as in our second case. Chronic EBV reactivation related to aging may be a contributing factor in those without any identifiable underlying cause[10]. Histological findings in OHL are non-specific and include epithelial hyperplasia, acanthosis, hyperparakeratosis and koilocyte-like sub-corneal cells[1]. Definitive diagnosis requires demonstration of EBV in the lesional epithelium[2,6] using ISH or polymerase chain reaction (PCR) technology. OHL remains an important condition to recognise and, while it can occur in immunocompetent individuals, should always prompt a search for an underlying cause. It is possible that increased recognition may lead to further cases in immunocompetent individuals being reported.

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A Rare Case of Nasopharyngeal Carcinoma with Widespread CNS Metastases

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Abstract
Nasopharyngeal cancer is unique among head and neck cancers. Despite definitive treatment, there is a high rate of recurrence, most commonly in the bone, lung or liver. Brain metastases and particularly, leptomeningeal carcinomatosis are extremely rare. We present a case of recurrent nasopharyngeal carcinoma with brain metastases and leptomeningeal carcinomatosis in the absence of local recurrence and systemic metastases.

Introduction

NPC is endemic in some areas such as southern china, however the incidence is rare in US and Europe, ranging between 0.5–2 per 100 000[1]. Most patients initially present with locally advanced disease. The commonest mode of failure is distant metastases. The most common sites for distant metastases are bone, lung and liver in order of decreasing frequency[2,3]. Although direct intracranial invasion into the skull base is not uncommon, true brain metastases are rarely seen[2]. We present a patient with leptomeningeal disease and multiple brain metastasis eight months after treatment of primary nasopharyngeal carcinoma.

Case Report

A 36 year old ex-smoker presented with a twelve month history of right facial discomfort and numbness. PET showed a 4.5 cm soft tissue mass in the nasopharyngeal mucosa, extending into the parapharyngeal space and a 0.8 cm FDG avid right level 2 lymph node, with no evidence of distant metastasis. Lymph node biopsy was consistent with NPC, $T_4N_1M_O$. Radical chemoradiotherapy was commenced- 70/35 fractions intensity modulated radiation therapy, with concomitant Cisplatin, in accordance with the Intergroup 0099 trial in NPC[4]. Adjuvant treatment involved Cisplatin and 5-Fluorouracil. PET post completion of treatment showed disease resolution. MRI seven months later revealed multiple ring enhancing lesions throughout both cerebral hemispheres, and multiple areas of leptomeningeal enhancement involving the thoracic and lumbar cord. Additionally there was mild focal FDG uptake on PET within the spinal canal at T7 (Figure 1). There was no evidence of disease outside the CNS. Palliative radiotherapy was administered to the spine and brain, for back pain and lower limb weakness, and palliative chemotherapy was commenced on a three weekly basis, with Carboplatin AUC 5 and 5 FU infusion, with weekly Cetuximab and two weekly intrathecal Cytarabine. MRI post six cycles of treatment showed a significant improvement with near resolution of intracranial metastases (Figure 2), however, there was still some persistent leptomeningeal deposit in the lumbar spine, with adjacent leptomeningeal enhancement.

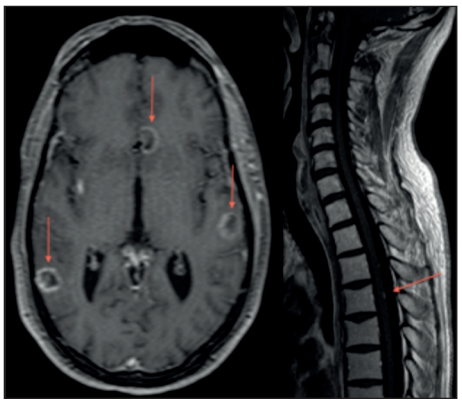

Figure 1
Axial post contrast sequence at the level of the occipital horns of the lateral ventricles displaying multiple ring enhancing lesions and sagittal post contrast sequence through the thoracic spine displaying leptomeningeal enhancement at the level of T7

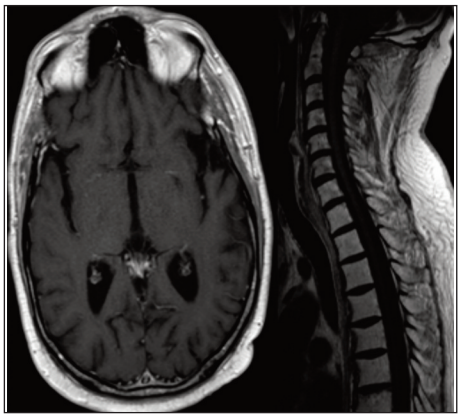

Figure 2
Axial post contrast sequence at the level of the occipital horns of the lateral ventricles displaying near complete resolution of the multiple cerebral metastases with no residual enhancement and sagittal post contrast sequence through the thoracic spine with no residual leptomeningeal enhancement at the level of T7

Discussion

Reccurence is one of the most common failures in nasopharyngeal cancer. The majority of all recurrences develop within three years after radiation therapy[5]. Isolate local relapse is commonly seen[6]. Kwong et al showed that patients with loco-regional relapse had significantly higher rates of distant metastases than patients with loco-regional control, with a five year rate of distant metastases of 40.7% vs 29.4%[7]. Patients with nasopharyngeal cancer in the literature had had pulmonary and liver metastases prior to developing CNS metastases. Brain metastases in nasopharyngeal carcinoma are uncommon. And specifically, carcinomatous meningitis is an extremely rare phenomenon. Leptomeningeal carcinomatosis is broadly defined as the dissemination of tumour cells with invasion of the meninges. The most common solid tumours known to cause this are breast cancer (12-35%), lung cancer (10-26%) and melanomas (5-25%)[8]. Standard treatment of leptomeningeal

disease includes radiation and intrathecal chemotherapy, and treatment of the systemic cancer if possible.

Orit Kaider-Person et al summarized reports of brain metastases from nasopharyngeal carcinoma. Of the six papers reviewed, five reported parenchymal brain metastases. And among these, three had evidence of systemic metastases at the time of, or prior to the diagnosis of brain inolvement[2]. Khor et al reported a case of nasopharyngeal carcinoma with an isolated temporal lobe metastasis that appeared forty five months post completion of initial treatment[9]. This patient subsequently underwent complete excision of the lesion by craniotomy, followed by whole brain radiotherapy. Without treatment, the median survival of patients with leptomeningeal disease is approximately four to six weeks, and death occurs from progressive neurologic dysfunction. Even with aggressive treatment, the average survival is in the range of four to six months[10]. There is a pressing need to identify predictive factors for isolated leptomeningeal carcinomatosis to improve outcome and prognosis in what is now an increasingly well recognized complication of cancer.

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Does Performing Fetal Ultrasound Assessment Once Versus Twice in the Third Trimester in Low Risk Women Alter the Stillbirth Rate?

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Abstract
The aim of this retrospective observational study was to evaluate if performing fetal growth scans once or twice in the third trimester impacts on stillbirth rates in low risk pregnancies. The study was performed in a tertiary centre with 6,000 deliveries per annum. Data on all deliveries was collected via the National Maternity System Database and high risk pregnancies were excluded to calculate the stillbirth rate before and after 2011 when ultrasound assessment was performed twice and once in the third trimester. Between 2009-2012 there were 18,856 low risk-pregnancy deliveries with 45 stillbirths, (average stillbirth rate 0.26%). The stillbirth rate in 2009/2010 was 54/9423 (0.25%). The stillbirth rate in 2012 was 13/5615 (0.27%). [p= 0.897; chi square= 0.017; df =1]. There was no statistical difference in the stillbirth rate when low risk women were scanned once or twice in the third trimester.

Introduction

Growth restricted fetuses are at an eight times greater risk of stillbirth compared to those that are appropriately grown[1]. Evidence suggest that in cases of 'unexplained stillbirth', low birth weight is commonplace, occurring in up to 30% of cases[2,3]. Antenatal detection of fetal growth restriction is poor where only 15-25% of cases are correctly identified[4]. Studies demonstrate heterogeneity of results as to how sensitive and specific fetal biometry and estimated fetal weight is in the detection of fetal growth restriction. A recent large population-based study performed in Sweden, 2005 demonstrated no significant difference in perinatal outcome between units when routine ultrasound screening in the third trimester was used[5]. An older Cochrane review concluded that routine ultrasound (USS) after 24 weeks gestation in low-risk pregnancy does not improve perinatal outcome[6]. The data to draw these conclusions come from eight trials, the most recent of which was 1999. One study introduced heterogeneity and conflicted with the conclusion[7]. This study found that mothers with a 'low-risk' pregnancy who had an ultrasound scan at 30-32 weeks gestation and 36-37 weeks gestation had increased detection of small-for-gestational age infants versus a control group receiving standard ante-natal care. This was statistically significant and the risk was reduced by one third. The intervention rate was also significantly increased in this group however with no difference in neonatal admissions[7].

The National Institute of Clinical Excellence (NICE) in the U.K. issued a guideline on antenatal care in 2008. It recommends routine symphysio-fundal-height measurements at each ante-natal appointment from 24 weeks gestation and clearly state that routine use of ultrasound scanning after 24 weeks gestation should not be offered as it is not evidence based[8]. It does however support the measurement of a single abdominal circumference measurement in the third trimester as a tool for diagnosing fetuses, which are below the 10th centile[8]. It also

concedes that further prospective research is required into evaluating the diagnostic value and effectiveness (in terms of clinical and cost-effectiveness) of routine third trimester ultrasound scanning in predicting growth restricted fetuses[8]. Despite the lack of evidence demonstrating the efficacy of routine scanning in reducing stillbirth, in our unit in Belfast, The Royal Jubilee Maternity Hospital, we used to offer growth scans at 29 and 35 weeks for all pregnant women with a normal pregnancy. After the year 2011, we offered growth scans only at 29 weeks and omitted scanning at 35 weeks for these women. The purpose of this study was to see if we could detect a difference in stillbirth rate when women with normal pregnancy are scanned twice versus once in the third trimester.

Methods

Approval was obtained from the local audit committee. The board of clinical governance stipulated that ethical approval and informed patient consent was not deemed necessary as this was an anonymous data collection. This audit included 22,269 deliveries spanning the period 2009-2012 within a tertiary maternity unit, the Royal Jubilee Maternity Service, Belfast, which has approximately 6,000 deliveries per annum. Data was obtained from the computerized Northern Ireland Maternity System database (NIMATs). Before 2011 it was routine to perform an ultrasound scan which included fetal biometry and assessment of the fetal environment including amniotic fluid index and placental grading of low risk pregnancies at both the 29 week and 34 week antenatal visit. After 2011 patients were scanned at 29 weeks gestation only.

Our primary objective was to determine the difference in stillbirth rate in apparently low risk pregnancies. We therefore removed patients from our analysis who were deemed 'high risk'. We removed patients that were positive for Group B streptococcal infection, women who had a multiple pregnancy, fetal congenital anomalies and women affected by medical conditions such as cardiac disease, haematological and renal conditions and diabetes, to form a low risk group. We calculated the total number of stillbirths for each year and also those that occurred in what were deemed 'low risk' pregnancies. Because we wanted to know if scanning had an impact on stillbirth, and as scanning in our unit occurred at 29 weeks, we also removed deliveries before 28 weeks from our final analysis (Table 1). The changeover of this scanning regime of twice in the third trimester to once in the third trimester occurred in March of 2011. Given that there was would be some overlap in the changeover period, we removed the year 2011 from our analysis. Statistical analysis was conducted using SPSS software (IBM, Armonk, NY, USA). Comparisons were drawn between groups using a Chi-squared test with Yates correction. All case notes were reviewed by hand where a stillbirth had occurred in the 'low risk' group using a standardized proforma which was designed and piloted to determine the causes in this group. The birthweight centiles were calculated using a customized calculator obtained from www.gestation.net to see how many stillbirths had underlying growth restriction.

Table 1 The number of deliveries and stillbirths in total and in low risk pregnancies from 2009-2012

Year	Total Births	Total babies excluding Group B Streptococcus (GBS), cardiac, haematology, epilepsy, diabetes mellitus (DM), multiple pregnancies	Total Stillbirths	Tot. stillbirths excluding GBS, cardiac, haematology, epilepsy, DM, multiple pregnancy, congenital anomalies, <28 weeks gestation	Stillbirth Rate in 'Low risk' Group (%)
2009	5501	4667	28	13	0.28
2010	5549	4756	26	10	0.23
2011	5604	4643	22	9	0.22
2012	5615	4790	30	13	0.29

Results

During the study there were a total of 22,269 deliveries from 2009-2012. After high risk pregnancies were removed there were a total of 18,856 deliveries. In total there were 106 stillbirths

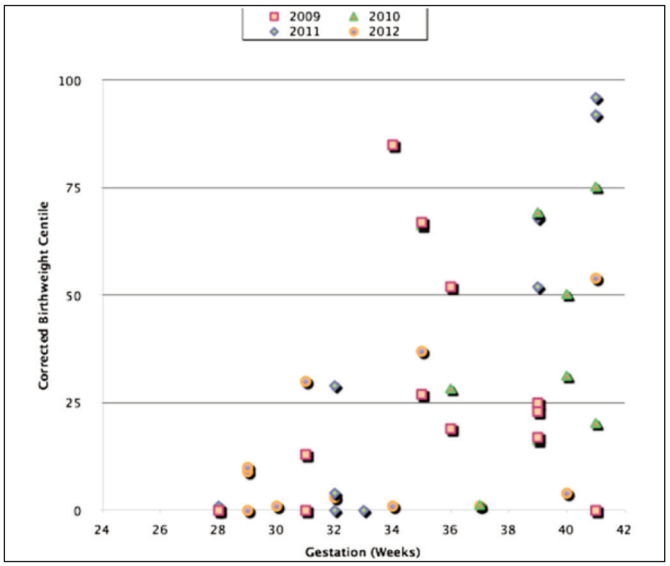

Figure 1 The association between adjusted birthweight centiles and gestation at time of stillbirth from 2009 to 2012

spanning the period 2009-2012. After high risk pregnancies were removed this was a total of 45 with an average stillbirth rate of 0.25% per number of low risk pregnancies per annum. The stillbirth rate in the 2009/2010 group was 0.25%. The stillbirth rate in the 2012 group was 0.27%. This difference was not statistically significant [p= 0.897; chi square= 0.017; df =1] (Table 1) . On review of the individual stillbirths from 'low risk' women, we found that 19 out of 45 (42%) babies were growth restricted [mean centile = 26.1; centile range 0-96], when we classified growth restriction as below the 10th centile customized for the individual woman based upon a standardized birthweight centile calculator[3]. The scatterplot shown in Figure 1 demonstrates that a high proportion of stillbirths are at the lower birthweight centile. There is no apparent cluster of stillbirths of any particular gestation between 2009- 2012.

Discussion

This study indicates that there is no difference in stillbirth rate when a strategy of scanning once or twice in the third trimester of pregnancy is employed in women with an apparent normal pregnancy. This strength of this study lies in the fact that we have a robust data collecting system and that all cases of apparent unexplained stillbirth were reviewed by hand. The weakness of this study lies in the fact that this was retrospective and the relative small sample size. A randomized controlled trial should ideally be performed. However, in order to demonstrate a 10% reduction in stillbirths with a power of 0.8, a power calculation indicates that we would require 266,841 patients in each arm. It is therefore unlikely that such a trial would ever be undertaken. Clinicians are therefore likely to base their decisions on large observational studies. This study also reiterates the point made by others that a large proportion of 'unexplained' stillbirths are growth restricted[3]. The question of course remains as to how we can reliably detect growth restriction. Recent research suggests that further trials must be undertaken to assess both sympysio-fundal height measurement and ultrasound scanning in detecting fetal growth restriction and the impact of these modalities on peri-natal outcome[4,9]. Northern Ireland is unique in that we are already performing ultrasound scanning for women with a normal pregnancy. In some respects, we can almost answer the question in reverse: We have not detected a significant difference in the stillbirth rate when we moved from a strategy of scanning twice versus once in the third trimester for women with an apparently normal pregnancy. Is it possible that we would not alter the stillbirth rate if we moved from a strategy of scanning once to not scanning at all in the third trimester?

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Informed consent for epidural analgesia in labour: A survey of Irish practice

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Abstract

Currently, we do not have a national standard regarding epidural consent in Ireland. The aim of this survey was to assess practice in obstetric units in Ireland with regard to obtaining informed consent prior to epidural insertion, and whether the risks discussed with women are being documented. A postal survey of anaesthetists in Irish obstetric units was performed in January 2012 to assess practice regarding obtaining informed consent prior to epidural insertion, and documentation of the risks discussed. The response rate was 16/18 (88%). There was major variation both in which risks are discussed with women in labour and what risks are quoted. The most frequently quoted risks were headache - 15/16 (93.8% of the respondents), partially/not working epidural - 15/16 (93.8%), drop in blood pressure -14/16 (87.5%) and temporary backache/local tenderness - 12/16 (75%). The more serious risks were not discussed as frequently: permanent nerve damage - 8/16 (50%), paralysis - 8/16 (50%), epidural abscess/haematoma - 6/16 (37.5%), meningitis - 3/16 (18.7%). The vast majority of respondents supported introduction of a national standardised information leaflet, detailing all the benefits and risks of epidural analgesia, to be shown to all women before consenting to epidural insertion.

Introduction

The role of the anaesthetist has been expanding over the last few decades and anaesthetists have become increasingly involved in procedures separate from other specialties, an example of which is providing epidural analgesia for labour, which may be the only medical intervention in the occurrence of natural delivery. Traditionally the complications and risks of anaesthesia were discussed as part of the surgical procedure. This has been always a matter of debate as anaesthesia has its own risks which are distinct from surgery, e.g. nerve injury from the epidural needle. This survey included all the obstetric units in Ireland. The aim of this survey was to assess practice in obstetric units with regard to obtaining informed consent prior to epidural insertion and whether the risks discussed with women are being documented.

Methods

A two-page questionnaire was sent to the lead anaesthetist in each obstetric unit in Ireland. Each anaesthetist was asked to report on his or her standard practice for obtaining consent for epidural analgesia in labour. This was taken as being representative of the standard practice in their unit. The aim of the questionnaire was to evaluate whether verbal or written consent is obtained, which risks are routinely discussed with patients and what risk is quoted. Each lead anaesthetist was also asked if they use an information leaflet and if they felt that there should be a standardised national Epidural Information Leaflet, detailing the benefits and risks of epidural analgesia, for use in all hospitals in Ireland.

Results

Of the 18 questionnaires sent out, 16 replies were received giving a response rate of 88%. In ten units (62.5%), written consent was obtained. In all other units, verbal consent was obtained prior to epidural insertion. Consent was documented in all units on either a specific consent form for epidural (75%) or in the patients' notes (25%). Table 1 gives a summary of the risk information women are routinely given. It was not reported by any unit that they routinely informed women of all the risks associated with epidural analgesia.

Some units reported that patients were informed of risks, but an exact risk was not specified. Other units reported exact risks with the quoted incidence varying greatly from unit to unit. The most frequently quoted risks were headache (93.8%), partially/not working epidural (93.8%), drop in blood pressure (87.5%) and temporary backache/local tenderness (75%). The more serious risks were not discussed as frequently: permanent nerve damage (50%), paralysis (50%), epidural abscess/haematoma (37.5%), meningitis (18.7%) (see Figure 1). When obtaining consent from a woman with poor English, the majority of respondents (93.7%) reported that they either got a family member or friend to translate or used an official translator. Only one respondent reported that they would insert the epidural without consent if a translator was not available. No one reported that they would abandon the procedure.

Eleven units (68.7%) reported that they have a local Epidural Information Leaflet, which is shown to all women prior to epidural insertion. In four of these units, it is routinely documented that the information has been read and discussed with the patient prior to epidural insertion. Fourteen of the respondents (87.5%) felt that there should be a standardised national Epidural Information

Leaflet, with the benefits and risks of epidural analgesia for labour stated, available for use in all obstetric hospitals in Ireland. All respondents felt that the Antenatal Clinic would be the most appropriate place to supply women with the information leaflet.

Table 1 Risks discussed and range of risks quoted to women prior to epidural insertion.

	Routinely inform women (%)	Range of risks quoted
Itching	2 (12.5%)	1/10
Headache	15 (93.8%)	1/100 – 1/1 000
Drop in blood pressure	13 (87.5%)	1/10 – 1/1 000
Nausea/vomiting	5 (18.7%)	1/10
Partially/not working epidural	15 (93.8%)	1/10 – 1 000
Temporary local tenderness/backache	12 (75%)	1/10 – 1/100 000
Motor block	9 (56.2%)	1/10 – 1/1 000
Prolongation of labour	4 (25%)	1/10 – 1/1 000
Decreased ability to push/increased chance of instrumental delivery	5 (31.2%)	1/10 -1/10 000
Temporary nerve damage	6 (37.5%)	1/1 000 – 1/10 000
Permanent nerve damage	8 (50%)	1/10 000 – 1/100 000
Paralysis	8 (50%)	1/10 000 – 1/100 000
Epidural abscess/haematoma	6 (37.5%)	1/10 000 - < 1/100 000
Meningitis	3 (18.7%)	< 1/100 000
Accidental total spinal	3 (18.7%)	1/10 000 - < 1/100 000
Intravenous injection of local anaesthetic	1(6.25%)	1/100 000

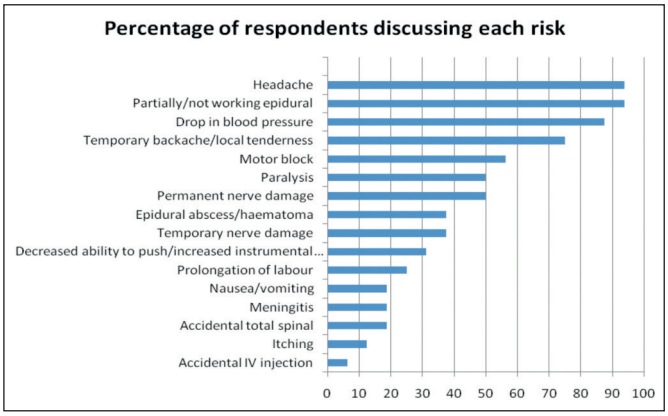

Figure 1 The percentage of respondents who report discussing the presented risks, prior to provision of epidural analgesia

Discussion

This survey shows that there is major variation across Ireland both in which risks are discussed with women in labour and what risks are quoted. There is particularly low reported discussion of the serious risks of epidural analgesia. The lead anaesthetist's practice was taken to be representative of the standard practice in their unit. While this may not be the case, there is still an unacceptably large variation in practice reported. The "reasonable patient standard" asks what a reasonable patient would consider reasonable and material to the decision to consent to a procedure offered[1].

It is incumbent on the physician to ascertain what is reasonable and material for the patient. "A risk is material when a reasonable person would be likely to attach significance to the risk in deciding whether or not to forgo the proposed therapy"[2]. The Supreme Court of Canada defines a material risk as follows: "even if a risk is a mere possibility, yet if it carries with it serious consequences, such as paralysis or death, it should be regarded as material and therefore requires disclosure"[3]. The recent guidelines from the AAGBI agreed with this standard and recommended that the decision to omit mentioning a risk should be rational and stand up to logical analysis[4]. It has been shown that women in labour would prefer to be informed of all risks associated with epidural analgesia and that non-disclosure of the risks is unacceptable to them[3,5]. We cannot morally refrain from discussing the more serious risks of epidural insertion with patients. It is difficult to quantify the incidence of these risks as they occur rarely.

The Obstetric Anaesthetists Association (OAA) has an Epidural Information Card with quoted risks derived from the literature, views from experts in the field and members of the OAA's Information for Mothers Subcommittee: persistent nerve damage, 1 in 13,000; epidural abscess, 1 in 50,000; meningitis, 1 in 100,000; epidural haematoma, 1 in 170,000; severe injury including paralysis, 1 in 250,000. These figures should be quoted to patients pre-epidural insertion. More frequent risks, such as hypotension, nausea and headache may vary from unit to unit depending on experience and training of the anaesthetists, adoption of full aseptic technique and drug regimes used. An individual unit may be able to quote their own figures obtained from audit and data collection.

There is evidence that women in labour retain more information when provided with both verbal and written information, than verbal information alone[2]. We do not have a national Epidural Information Leaflet detailing the benefits and risks of epidural analgesia. The OAA Epidural Information Card is available in several languages (available from http://www.oaa-anaes.ac.uk)[6]. Our survey shows that there is overwhelming support for the use of a national standardised information card, such as the OAA's Epidural Information Card. Documentation in the notes that such a card had been read by the patient would also serve as medicolegal evidence for informed consent. Our respondents felt that the Antenatal Clinic would be the best environment in which to give women information about epidural analgesia. Women would prefer to be informed about epidural insertion prior to the onset of labour[3], therefore the Antenatal Clinic would be an ideal location for distribution of such a card.

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Debt Crisis Ahead for Irish Medical Students

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Abstract
Internationally medical student debt is a cause of concern. A survey of medical students in UCC (response rate of 191 representing 35% of the EU student cohort) reveals that 34(26%) of direct entry medicine (DEM) students and 36(61%) graduate entrants (GEM) have a loan with an anticipated average debt of €17,300 and €80,000 on graduation respectively. Fifty-three(90%) graduate entrants and 75(57%) direct entrants revealed that they often worry about their current financial situation. Fifty-three(28%) of students have a part-time job and many were concerned about the degree to which this conflicted with their academic workload. 118(89%) of school leavers and 48(81%) graduates received financial assistance from their families to fund their college expenses. Student responses recommended the introduction of a government supported low interest rate loan and other incentives to help service high levels of debt associated with medical education.

Introduction

Medical Education in Ireland comprises Direct Entry Medicine (DEM) i.e. school leavers and Graduate Entry Medicine (GEM) courses. GEM programmes offer graduates of any discipline the opportunity to study an accelerated four-year medical programme in contrast to the traditional 5/6-year undergraduate courses. A small number of places are also reserved for mature and disadvantaged students.[1] Fees for EU GEM students are between €14,580 and €14,915 on a tuition only basis, for each of the four years of the programme. These figures exclude the cost of living which is estimated to be €7,902 for students living away from home, bringing the total direct cost for this graduate student cohort to €22,482 per annum at a minimum.[2] GEM students cannot qualify for the student grant or any other state financial aid and must fund their entire tuition and cost of living privately through personal loans and family support, where available. In contrast, DEM students who are eligible for the free fees initiative pay a registration fee of €2,500 per annum and are eligible to apply for state financial supports.

Medical student debt is an increasing concern internationally. In the US, where a graduate entry model predominates, on-going expansion in medical school places has not led to any significant increase in the number of students from lower socio-economic groups in medical schools.[3] It is speculated that the prospect of debt dissuades these students from applying to medical school.[4] It is also recognised that students with higher debt may underperform academically and are more likely to experience significant stress and adverse mental health.[5] Such is the concern regarding the adverse impact of student debt in the US, it is proposed that medical degrees be shortened.[6] In a context of reduced funding for medical education and decreased remuneration for doctors, we were keen to evaluate the current financial situation of students in our medical school.

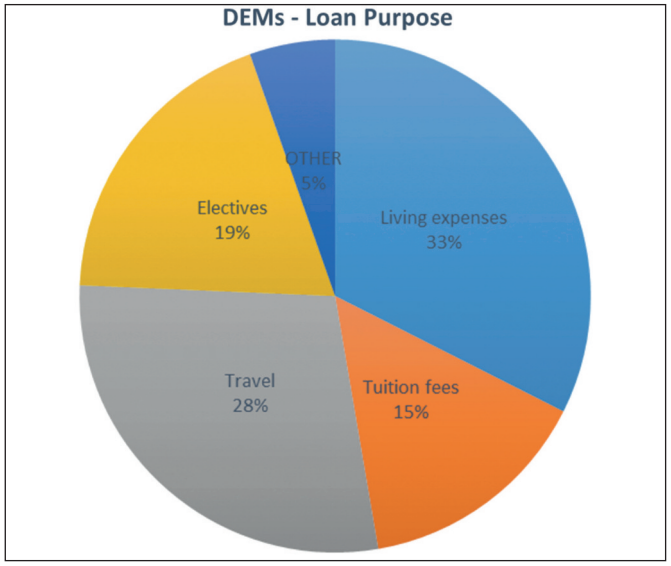

Figure 1

Methods

All medical students at University College Cork were invited to partake in a survey between the 15th and 20th February 2013. We collected demographic data and determined the nature and source of financial aid they received, and whether they undertook part time work. The survey was distributed through student emails. Responses were anonymous and participation was voluntary. Participants were advised that the data may be used for oral presentations and publications in the future. Data was analysed using Microsoft Excel. The responses from non-EU medical students were excluded from the current analysis.

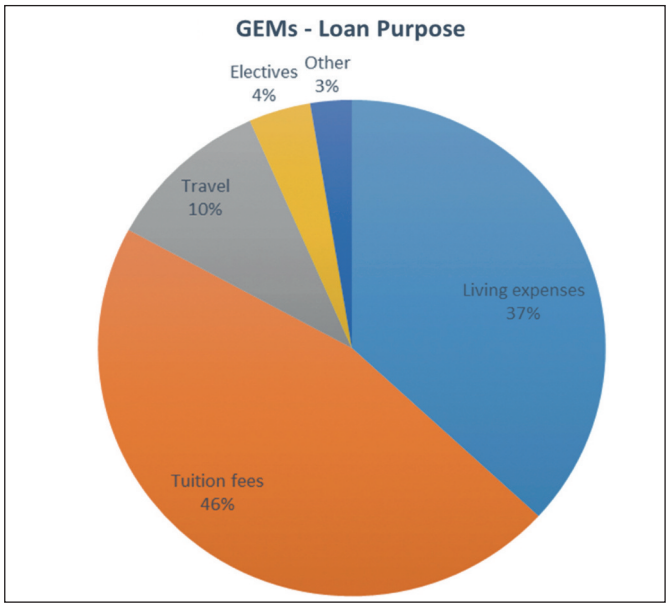

Figure 2

Results

There were 212 complete responses from a student population of 775. 132 of these were EU-DEM students, 59 were EU-GEM students and 21 were Non-EU DEM/GEM students. The EU response represented a response of 35% of all UCC EU medical students. Of the 132 EU-DEM students who replied, 12 (9%) had to pay full EU tuition fees for at least one year of their course while 120 (91%) were covered by the free fees scheme. Twenty-seven (20.5%) students of the DEM respondents were in receipt of a higher education grant. A total of 118 (89%) EU-DEM students received financial support from their families while the

corresponding figure for GEM was 48 (81%). Fifty-three students worked part-time, 40 DEMs (30%) and 13 GEMs (22%). Of those that work, only 8 (15%) said that it did not affect their studies, while 27 (51%) said it moderately to severely affects their studies. Fifty-three (90%) GEMs and 75 (57%) DEMs answered yes when asked if they worried about their current financial situation.

A total of 34 (26%) of DEMs and 36 (61%) of GEMs have taken out loans to fund their course/living expenses. The purpose for the loans differed between DEMs and GEMs as illustrated in Figures 1 and 2. The anticipated mean GEM loan on graduation (before interest) was €79,554 (range: €30,000 - €100,000, median: €85,000) and that for DEM was €17,295.50 (range: €2000 - €100,000, median: €10,000). Fifty-three (90%) graduate entrants and 75(57%) direct entrants revealed that they often worry about their current financial situation. Free text responses were analysed and coded with 4 themes emerging; hidden costs of medical training (such as stethoscopes, travel to placements and electives), calls for incentives to support medical students, challenges of juggling a part-time job with college work and reliance on family rather than bank loans.

Discussion

There is a scarcity of information regarding medical student debt in Ireland. The response rate achieved is representative of that achieved in research projects which attempt to collect such sensitive data.[4] The majority of students surveyed received financial aid from their families (DEM 89% vs. GEM 81%). Twenty-seven(20.5%) of DEM students surveyed were in receipt of some form of a state higher education grant and this is in stark contrast to the national average of 43% of students receiving state assistance.[7] One study from the UK examining social class in school pupils' perceptions of medical school found that pupils from poor backgrounds identified costs as a major constraint.[8] As costs continue to rise, there is a risk that the number of students from lower socioeconomic classes may fall even further. Such students are already underrepresented in Irish medical schools.[1] The purpose of loans differs between GEMs and DEMs with tuition fees a bigger factor for the graduate entrants however living expenses constitute a similar burden for both groups.

The survey found that the average level of personal debt among the graduate entry cohort was €79,554 with 36(61%) of students on this programme availing of a specialised term loan. Prior to 2013 a typical loan package offered GEM students approval for a €100,000 personal loan to cover the full cost of tuition and living expenses during the four years of the programme. Currently, the typical loan package offers students up to €60,000 to cover tuition fees only. With a monthly salary after tax of €2,072 for newly qualified interns, many graduates are struggling to meet repayments in the order of €1,300 per month to service a €100,000 Graduate Medicine Loan. Graduates are voting with their feet with many opting to leave Ireland in search of better working conditions abroad.[9] A number of factors are at play but past research has established that debt is an important predictor of medical workforce migration.[10]

There is an increasing literature regarding the stress experienced by medical students compared to other undergraduate students.[11] Debt induced medical student stress is known to contribute to academic underperformance especially in the early years of the course.[12] Student responses revealed the conflict felt by students trying to minimise loan burden, and economic pressure on their families by trying to manage a part-time job and still perform in medical school. Survey participants alluded to an ideal solution to this problem. This would involve EU medical students receiving some financial encouragement to pursue postgraduate training opportunities in Ireland. Many provinces in Canada have used this "return of service" scheme successfully for a number of years. Financial rewards to promote recruitment and retention are offered for medical graduates who, for example, agree to work in rural communities.[13] Another option, worthy of exploration, is a government backed interest-free or low interest rate loan for medical students. In the UK, a non-profit making government-owned organisation provides such loans to students for tuition fees and living costs. Furthermore, graduates do not have to repay their loans until their income reaches a certain threshold.[14]

Research evaluating career intentions of NCHDs is also limited in the Irish context. International research has suggested that those medical students who graduate with debt are less inclined to consider general practice as a career.[15] It is worth noting though that others have suggested that it is students from high-income families who are most likely to pursue surgery and surgery specialties as opposed to family practice.[12] While some conclusions may conflict there is consensus that medical school debt can influence career choice.[3,15] Medical student debt is a concern for both direct entry and graduate entry students but it is also a concern for all stakeholders working to ensure that there is equity of access to medical education and equity of opportunity for all who graduate from medical school. Solutions to medical school debt could and should be part of medical workforce planning.

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The Burden of Cost – Admission Versus Discharge Medications

Sir,

Avoiding unnecessary polypharmacy prevents potential drug-drug interactions culminating in adverse drug events.[1] Medication review is an important opportunity for rationalizing a patient's treatment to maximize therapy for established chronic disease and minimize the potential for drug-drug and drug-disease interaction. A secondary consideration is the potential for a drug review to identify the possibility of cost saving by noting those occasions where generic substitution could occur without detriment to the patients overall therapy. We completed an audit of drug costs of medications for patients on admission and on discharge from an acute general hospital.

The charts of the first 94 medical patients admitted into an acute general hospital starting from January 1st 2012 were sourced from Hospital In-Patient Enquiry (HIPE) and a pre-designed questionnaire was completed for each of these patients. The cost of medications per patient was calculated using the MIMMS manual appropriate for the period of admission and discharge. We examined the patient demographics, source of referral, LOS (length of stay), admission diagnosis, past medical history and names of medications and their individual costs.

The total monthly cost of medications for the 94 patients on admission was €10,517.20 with the average monthly cost being €111.89 per patient. In comparison, on discharge, the total monthly cost was €11,320.05 with the average cost being €120.43 per patient. 64 patients (68.1%) were 65 years and older of whom 6 patients (6.4%) were resident in nursing homes. The average length of stay was 3.1 days. Prescription cost increased for 51 out of the 94 patients (54%); an increase of 25.4% in monthly cost of medications was identified. 70% of these patients were aged 65 years or over. Cost reduction was noted in 21 (22%) of the patient group with a 26.7% saving in monthly cost noted. The remaining 22 (24%) patients had no change in medication cost. The most commonly prescribed medications were anti-coagulants and anti-platelets, costing €409.63 per month, followed by inhalers, nebulizers and antitussives, costing €1661.45 per month. 40% had previous admissions within the last 6 months. There was a non-significant trend observed in reduction of cost of medication following admission under a geriatrician rather than a general physician.

Identifying a preferred drug list could impact positively on the cost of medications for the state.

Acute medical admissions are an opportunity for substantial quality improvements. Each medication needs to be evaluated in terms of appropriateness particularly in the elderly age group and its impact on the patient especially when prescribed with other medications. There are many merits associated with having a cost effective prescription drug regimen.[2] Simple strategies for ensuring appropriate prescribing can be put in place which may inadvertently reduce polypharmacy and hence cost.[1]

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Recording Abbreviation in Clinical Case Note: Are We Good At It?

Sir,

It was recommended that document clinical case notes should include abbreviations, which are approved for use throughout the HSE. Using the standard recommendation, with respect to medical abbreviations[1], will decrease administration errors. Consequently the legal issues that may arise due to these errors will be diminished. In light of this recommendation, we set out to determine whether the doctors in our Paediatric department are using the standard recommendation, with respect to medical abbreviations.

A retrospective charts review of patients admitted to the paediatric department has been examined. Data with respect to recording clinical case notes were collected. Whether, the criteria of the standard guidelines, regarding the proper using of medical abbreviations recorded in clinical case notes, have been met was assessed. Results from 50 admissions notes were collected. Of 50 admissions, 305 abbreviations were recorded by paediatric SHO, 262 by Paediatric registrars and 166 by paediatic consultants.

With respect to abbreviation documented by SHO, 305 abbreviations were documented 1153 times. Of 305 abbreviations, 180 (59%) are approved for use throughout the HSE. In total 770 of 1153 abbreviations were approved by HSE: the most common abbreviations were OE (On examination) [36/770 (4.7%)]; NKDA (No known drug allergies) [4.7%]; CVS (Cardiovascular system) [32 (4.2%)] and PO (Per oral) [30 (3.9%)]. Of 383 abbreviations not approved by HSE, the most common were HS [30/383 (7.8%)], CRT [24 (6.3%)], UTD (6.3%) and BS [22 (5.7%)]. In all 262 abbreviations were documented 732 times by Registrars. Of 262 abbreviations, 152 (58%) are approved for use throughout the HSE. In all 466 of 732 were recommended by HSE, with OE [34 (7.1%)], Hx (History) [4.2%], CVS (3.8%) and ED (Emergency Department) [3.8%] being the most common. Of 266 abbreviations not approved by HSE, the most common were CRT [18 (6.8%)], BS (6%), Sats [14 (5.3%)] and Pt [12 (4.5%)]. Consultants documented 166 abbreviations 268 times. Of these 166 abbreviations, 163 (98.2%) are approved for use throughout the HSE. The most frequent abbreviations were CO (Complaining of) [7/268 (2.6%)], Hx [5 (1.87%)] and CXR (Chest x-Ray) [4 (1.5%)]. Only 3 abbreviations including CRT, GE, IVF were not approved by HSE.

Interestingly, IVF (In Vitro Fertilisation) was falsely used for intravenous fluid. Oxygen saturation should be written SaO2, but not O2 sat. RA means right atrium, but not room air. However, SVRA may be used for Self-ventilating on room air. RT (Radiotherapy) was falsely used for right (Right and left must be written in full, unless it is contained within an abbreviation). AE should mean air entry, but not accident and emergency (ED). CRT

(capillary refill time), Pt (patient), UTD (up to date), HS (heart sound), BS (bowel sound) and NPA (nasopharyngeal aspirate) are not approved for use throughout the HSE. Ht means height, but not heart. For culture and sensitivity, C&S should be used, but not CS (caesarean section).

In conclusion, all abbreviations except 3 (98.2%) reported by consultant are approved for use throughout the HSE. More than half (59 %) of abbreviations documented by SHO and 58% of those reported by registrars were recommended by HSE. We recommend regular routine auditing of practice.

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Introducing a Specialist Drug Kardex Can Significantly Change Prescribing Practices for VTE in Cancer Patients

Sir,

We read with interest the results of the ENDORSE Study[1]. This study clearly demonstrated a high prevalence of risk for venous thromboembolism (VTE) and a low rate of prophylaxis use, particularly in medical patients. Of those at-risk medical and surgical patients with no contraindication to VTE prophylaxis, overall 57% received recommended VTE prophylaxis, with 64% surgical and 47% medical patients, receiving the recommended prophylaxis, respectively. We note that with regard to risk factors present prior to admission, active malignancy was an issue in only 6.7% (n=19) of the patients included in the study, and as inpatients only 2 patients (0.7%) underwent cancer therapy. As such, cancer patients are perhaps underrepresented in this cohort. Cancer is a well-known risk factor for the development of VTE, and VTE is a common and life-threatening condition in cancer patients, resulting in a shorter life expectancy than either cancer patients without VTE or noncancer patients with VTE[2,3]. Effective thromboprophylaxis reduces the risk for VTE and improves outcomes.

However, mirroring general medical and surgical patients, VTE prophylaxis continues to be underprescribed in cancer patients. Recognizing the clinical burden of VTE in cancer patients, the National Comprehensive Cancer Network recently released updated guidelines for VTE prevention and management[4]. These guidelines categorise hospitalised cancer patients as a group at high or highest risk for VTE who should be considered for pharmacological thromboprophylaxis, provided no contraindications exist to anticoagulant therapy. Currently, no guidelines exist in our institution for primary prophylaxis of VTE. As a pilot scheme for the hospital, the oncology department was introduced with a re-designed drug prescription kardex which included a component which prompted the admitting physician to assess VTE risk prior to prescribing medications. Compliance of the oncology department to the current NCCN guidelines for VTE prophylaxis was assessed for the last 23 patients admitted prior to the new kardex and the first 10 patients admitted with the altered kardex.

Data was collected retrospectively analysing patient medical records and prescription kardexes to determine changing practices following the introduction of the new kardex. Similar to the ENDORSE study, a low rate of VTE prophylaxis prescription was initially noted. Of the 21 patients who should have been given primary prophylaxis with enoxaparin, 38.1% (n=8) were prescribed it, while 2 patients were continued on therapeutic tinzaparin for previous thromboembolic events. Introduction of the new kardex resulted in significantly improved thromboprophylaxis prescription practice, with 88.9% (n=8) of patients whoshould have been prescribed VTE prophylaxis receiving enoxaparin, while 1 patient continued their therapeutic tinzaparin for previous thromboembolic events.

Authors of the ENDORSE study mention a number of successful strategies reported in the literature to improve rates of VTE prophylaxis[1]. Our study reiterates that simple steps, such as introducing a re-designed hospital admission prescription kardex, can significantly improve VTE prescription practices. We agree with the authors that awareness of VTE guidelines should be an integral component of health policy.

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The Use and Limitations of SMS Reminders to Improve Outpatient Attendance Rates

Sir,

Missed appointments and non-attendance at outpatient clinics are a major cause of inefficiency in the health service. It is estimated that this problem currently costs the Health Service Executive (HSE) up to €33 million annually; each individual non-attendance costs €80 and adds a burden to lengthening waiting lists and a potential delay in assessment and treatment of the non-attending patient. Outpatient Breast Services are currently under particular pressure with a 60% increase in referrals to the Symptomatic Breast Units (SBU) since services were centralised under the auspices of the NCCP in 2007[1].

Numerous strategies have been reported in an attempt to reduce non-attendance rates including postal, phone call and short message service (SMS) text reminders. SMS text reminders have the advantage of instant delivery, lower cost and the potential to deliver multiple messages simultaneously. It has been shown that SMS text reminders increase attendance at healthcare appointments compared to no reminders or postal reminders[2,3]. In an effort to reduce non attendance and improve efficiency at the SBU in Beaumont Hospital we introduced SMS text reminders, sent to patients 3 days before their scheduled appointment. The rates of non-attendance at the SBU were audited for 4 weeks before and after the introduction of the SMS reminder service. Contrary to previous reports [2,3], we did not observe a reduction in overall non-attendance rates at the SBU following the introduction of the SMS reminder service; the non attendance rate in the 4 weeks prior to SMS text reminders was 11.3% and in the 4 weeks following initiation of the service the overall non-attendance rate was 11.6%. However, the potential impact of this service was considerably limited by the fact that only 56% (n=337) of patients scheduled to attend the SBU had a valid mobile phone number registered on the hospital administration system. Subgroup analysis of these patients revealed that the SMS text reminder service did in fact result in a decreased in non-attendance rates to 6.6%.

These findings, while confirming the potential of an SMS text reminder service to reduce non-attendance rates at SBU, highlight an important deficit in patient contact information as a component of the outpatient referral process. The National Cancer Control Programme (NCCP) has comprehensive guidelines, including a standardised referral form, for referrals to the symptomatic breast service. The SBU referral form includes a section for patient contact details and a specific subsection to include mobile phone number. Despite this, and the fact that mobile phone ownership statistics for Ireland report a penetrance of >90%, only 56% of patients scheduled to attend the SBU had a mobile phone number provided with the referral. This limitation impacted negatively on the potential for SMS text reminders to reduce non-attendance rates and improve efficiency in the SBU. We conclude that the provision of complete patient contact details including mobile phone number should be a mandatory component of the referral system if we are to improve the efficiency and feasibility of SMS text reminders and benefit from the resultant improvement in attendance rates and service efficiency.

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Re: Irish Patients Knowledge and Perception of Anaesthesia

Sir,

We read with interest the article by Mannion and Smith[1] about patients' knowledge of the role of anaesthetists in Ireland. Recent studies across the world have also shown that patients still have a misunderstanding of anaesthetists' role and qualifications. However interestingly there are exceptions, with 99% of patients in Switzerland acknowledging that anaesthetists were medically qualified[2], suggesting that patient education in other countries has the potential to be further improved.

We recently conducted a survey on 120 adult preoperative patients in the Severn region, with a view to demonstrate a substantial improvement in the understanding that patients had of the role and responsibilities of anaesthetists. Our results reinforce the results found in Smith and Mannion's study that public ignorance still exists, with only 72 % of patients believing that anaesthetists were qualified doctors. This shows a very minute increase since the study by Swinhoe and Groves (1994), when 65% of participants thought they were qualified[3], despite the widespread use of the internet and increase in the general public's interest in medicine over this 19 year period. In agreement with Smith and Mannion's study, a quarter of patients said they were unsure of any areas that anaesthetists worked outside the operating theatre and only 43% knew they worked in intensive care. We asked the participants which individual they felt was most responsible for treatment in an intra-operative emergency. 54% of patients believed this was the role of the surgeon, with only 18% saying the anaesthetist was "the main person in charge". Additionally we asked participants to estimate the duration of training needed to become a consultant anaesthetist. 64% of patients thought it took between five and seven years after completing A-levels. Surprisingly 9% thought it only took two years and only 12% guessed the correct estimate of 14 years.

It could be questioned whether it actually matters what patients know about the anaesthetist, as long as the care they receive is excellent; after all we are all happy to fly in a plane knowing little about the pilot. Firstly, one would certainly expect to see a reduction in pre-operative anxiety, described by almost half the patients involved in the study by Smith and Mannion, if their knowledge of the skills of the anaesthetist, their roles outside the operating theatre and their many years of training, were improved. Secondly, it is interesting to consider that all doctors are now required to collect evidence for their Revalidation, including patient feedback. From the anaesthetists' point of view the

patients' perception of their role and responsibilities will be crucial in this process. Anaesthetists are already in debate about how best this feedback should be collected, especially if they do not perform regular clinics or ward rounds. It was pleasing to find that during our survey the patients were keen to learn more about their anaesthetist's role and level of training. Therefore it would be ideal to find some additional time to ensure these questions are answered in the ever-shortening preoperative visit.

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Headaches, Neurologists and the Emergency Department

G Gaughran, N Tubridy. Ir Med J. 2014; 107: 168-71.

Question 1
The number of ED attendances during the study period was

a) 8459
b) 8559
c) 8659
d) 8759
e) 8859

Question 2
The number of patients with a neurological problem during the study period was

a) 513
b) 523
c) 533
d) 543
e) 553

Question 3
The number of cases of headaches was

a) 207
b) 217
c) 227
d) 237
e) 247

Question 4
The proportion of the neurological cases due to a cerebrovascular problem was

a) 26%
b) 28%
c) 30%
d) 32%
e) 34%

Question 5
The number of patients who had a brain CT scan was

a) 107
b) 117
c) 127
d) 137
e) 147

Access to In-Patient Stroke Services and Multidisciplinary Team (MDT) Rehabilitation: Current Demands and Capacity

EJ O'Sullivan, DJ Williams, J Shanahan-O'Connell, K Kirrane, D Armitage, W Leahy, E O'Flaherty, NF Horgan. Ir Med J. 2014; 107: 171-3.

Question 1
The number of patients in the study was

a) 53
b) 63
c) 73
d) 83
e) 93

Question 2
The number of male patients was

a) 38
b) 40
c) 42
d) 44
e) 46

Question 3
The mean stay in the acute stroke service was

a) 16.2 days
b) 18.2 days
c) 20.2 days
d) 22.2 days
e) 24.2 days

Question 4
The average length of treatment received per day was

a) 128 mins
b) 138 mins
c) 148 mins
d) 158 mins
e) 168 mins

Question 5
The number of patients that were discharged to home/living with a relative was

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

Horizontal Strabismus Surgical outcomes in a Teaching Hospital

Z Idrees, I Dooley, G Fahy. Ir Med J. 2014; 107: 176-8.

Question 1
The number of patients in the study was

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

Question 2
The mean age of patients at presentation was

a) 18.7 years
b) 20.7 years
c) 22.7 years
d) 24.7 years
e) 26.7 years

Question 3
A cosmetically acceptable result was achieved in

a) 66 patients
b) 68 patients
c) 70 patients
d) 72 patients
e) 74 patients

Question 4
The number of patients aged greater than 10 years at presentation was

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

Question 5
The number of patients who had clinically significant refractive errors was

a) 59
b) 61
c) 63
d) 65
e) 67

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