PostScript

LETTERS

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Calibration of the paediatric index of mortality in UK paediatric intensive care units

Pearson et al should be congratulated on successfully collecting the data required for calculating the PIM Score on 7253 children admitted to 5 UK paediatric intensive care units (PICUs).1 It is reassuring to note that the authors did not find any systematic differences between these five units in terms of their standardised mortality ratios. Leaving aside the controversies involved in cross country comparisons, it is further pleasing that they appear to conclude that mortality following admission for paediatric intensive care in 1994–95 was less than it was in 1994–95.1 The current results imply that 78 more children have survived following treatment in these 5 PICUs than were predicted by the 1994–99 PIM derivation model.

Before this can be considered a major clinical advance, it is important to consider the health status of the additional survivors. Very different conclusions might be drawn if the additional children who survived have a very poor health status than if they have a very good health status.

The United Kingdom Paediatric Intensive Care Outcome Study (UK PICOS) was set up in paediatric intensive care units (PICUs).1 It is reassuring to note that the authors did not find any systematic differences between these five units in terms of their standardised mortality ratios. Leaving aside the controversies involved in cross country comparisons, it is further pleasing that they appear to conclude that mortality following admission for paediatric intensive care in 1994–95 was less than it was in 1994–95.1 The current results imply that 78 more children have survived following treatment in these 5 PICUs than were predicted by the 1994–99 PIM derivation model.

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PIM's performance in the UK data. This test divides the sample into 10 groups, ranging from very low to very high risk of death, and compares the actual number of survivors and non-survivors in each group with the number predicted by PIM. Because PIM predicts too many deaths in the leading units in the UK, it follows that the number of actual deaths differs from the number predicted—so the Hosmer-Lemeshow p value is low. However, table 2 in our paper shows that the ratio of observed to expected deaths was similar across the 10 groups, so that the recalibrated model is likely to fit well. The fact that the Hosmer-Lemeshow test gives a low p value does not necessarily mean that a model (such as PIM) is invalid—it often means only that the standard of care in the test PICUs differs from that in the units in which the model was derived.

The PICUs that contributed the data from which the PIM score was derived were all leading units that deliver a high standard of care, so the score reflects best practice in 1994–96 when the data were collected. We are recalibrating PIM using data from units in the UK and Australia, and the new model will be developed focal bronchiectasis and for which they underwent lobectomy (maximum score 8).

Table 2

<table>
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<th>Case</th>
<th>Operation</th>
<th>Local Chrispin–Norman scores</th>
<th>Postop (6 mth)</th>
<th>Preop</th>
<th>Postop (6 mth)</th>
<th>Long term follow up</th>
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</table>

Data are the Chrispin–Norman scores in the lung quadrant within which the patient had developed local bronchiectasis and for which they underwent lobectomy (maximum score 8).

All children have now been reassessed at least four years postoperatively (table 1). Three remain much improved, with few symptoms and minimal need for intravenous antibiotic therapy. One child remains better than prior to surgery, but has recently required increased intervention to maintain wellbeing (case 5). Two children require antibiotic therapy as frequently as prior to surgery with chronic rhinosinusitis (cases 3 and 6). There were no preoperative risk factors predictive of a less favourable outcome in these patients. Lung function has been maintained in all except one (case 6).

Follow up chest x-rays were assessed by a consultant paediatric radiologist, using the Chrispin Normo Scoring system. 2 New radiological changes have tended to occur in the zones previously occupied by the resected lobe (table 2). One of the patients has had a bronchoscopy following right upper lobectomy (case 3). Upwards displacement of the right middle lobe bronchus appeared to be causing airway narrowing. Such distortion of the lung anatomy may predispose to bronchiectasis in lobes that have shifted to occupy the spaces previously occupied by the resected lobe.

Our long term results suggest that surgical resection is a worthwhile option in selected children with severe localised symptomatic bronchiectasis. Detailed preoperative assessment is essential to exclude patients with more extensive lung damage. While there is a good long term improvement of symptoms and preservation of lung function in the majority of patients, there is a tendency for new radiological abnormalities to occur in the zones previously occupied by resected lobes.

References


Persistent proteinuria appeared four years after transplantation, when a renal biopsy revealed focal necrotising GN.

At the age of 10 years, the identical male twin was found to have microscopic haematuria and proteinuria of >1 g/24 h with normal renal function. Renal biopsy showed focal necrotising GN with 20% cellular and segmental crescents. Perinuclear ANCA were observed at a dilution of 1/160. The stored samples of the first twin were tested and pANCA were detected by indirect immuno-fluorescence.

This second twin was given intravenous methylprednisolone and cyclophosphamide. The clinical course was characterised by acute episodes resolving with repeated courses of methylprednisolone pulses.

ANCA positivity in the second twin (also found retrospectively in the first twin’s serum) allowed us to classify the disease as a renal limited vasculitis expressed by necrotising and crescentic GN.

The HLA antigen profiles of the two boys are A3,11; B27,35; DR12; DQ1.

Acute nephritis or urinary abnormalities were the initial onset symptoms in our patients. They occur in about 40% of children with ANCA associated GN. This emphasises the need for a precise diagnosis and aggressive treatment in such patients. ANCA should be sought in the presence of acute nephritis or persistent urinal abnormalities of unclear aetiology, and not only in children with frank vasculitis or rapidly progressive GN.

We believe this to be the first report of the recurrence of pauciimmune crescentic GN in a transplanted kidney in a child. Anti-rejection treatment with steroids and cyclosporin A seems to be a useful means of controlling disease flares up.

Furthermore, as far as we are aware, this is the first report of pANCA GN in HLA-identical twins. The pathogenesis of ANCA-GN is unknown but likely implicates genetic and/or environmental influences. The onset of disease at different times in two identical twins seems to suggest a genetically determined susceptibility rather than environmental triggers. Review of the literature revealed few reports of familial vasculitis, with some evidence suggesting a genetic predisposition of the HLA class I antigens present in our twins (A11, B35), and antigen B35 alone have also been found in two families.

In conclusion, a pANCA test should always be performed in children with acute nephritis of unclear aetiology; a diagnosis of ANCA GN should not preclude renal transplantation. HLA B35 may play a role in the pathogenesis of ANCA GN.

References

Clicking ribs—a clinical sign of rib fractures

It is well recognised in non-accidental injury that some children who have rib fractures on x-ray have neither external evidence of these fractures. Over the years, various observations on the radiology in non-accidental injury I, and several of my colleagues, have come across a small number of children who have been presented to hospital visitors with a parental complaint of feeling a “clicking” sensation or “grating” feeling in the rib cage or, indeed, even hearing an odd “click”. This has been ignored as a sign of rib fractures. The density lipoprotein cholesterol (HDL), low density lipoprotein cholesterol (LDL), free fatty acids (FFAs) and glucose in twenty HIV-1-infected patients during a minimum period of 18 months with an indinavir (HIV) or nelfinavir (NFV) containing regimen of HAART.

The lipid values were evaluated at two time-points: within the first month of HAART (“baseline values”) and after 18 months or more (range 18–24 months). Serum levels of fasting glucose was only evaluated at follow up.

In summary, we found an increase in serum levels of total cholesterol and LDL after PI use in HIV-1-infected children, as was previously observed in adults. However, in contrast with adults, a marked increase in HDL and normal glucose levels was observed. The total cholesterol/HDL ratio, fasting triglyceride and FFA levels remained stable over time. The changes that horizontal HBV transmission continues at an early age among Somali immigrants.

The UK is one of the few western European countries which has chosen not to comply with the WHO recommendations for universal hepatitis B vaccination. This position has recently been defended, although no reference was made for the need to immunise high risk ethnic groups outside an antenatal screening programme. Evidence of previous hepatitis B infection in children is not uncommon among the Somali population in Liverpool. This has implications for screening of children who may benefit from immunisation. If screening of high risk groups and vaccination of susceptible

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Treating childhood hyperhidrosis with botulinum toxin type A

Recently there have been a number of published studies on the use of botulinum toxin type A for hyperhidrosis. These studies focus on its use in adults and we would like to highlight that it can also be useful in treating childhood hyperhidrosis. As in adults, hyperhidrosis can have considerable impact on quality of life in children. This is illustrated by a 13 year old healthy girl referred for treatment of axillary hyperhidrosis. Excessive palmar sweating caused difficulty with school work (difficulty holding a pen, with the ink smudging the paper because of sweating) and social embarrassment. Botulinum toxin type A (Dysport; 30 mouse units) was administered intradermally using a 27g needle to the finger tips and the area over the hypothenar and thenar eminences of both hands. EMLA cream was used for topical anaesthesia. She reported sufficient reduction in palmar sweating within one week to improve her school work. She noticed grip strength reduction that lasted three weeks but did not affect hand function significantly. The beneficial effect of botulinum toxin lasted four months after which she requested further treatment. Repeat injections were given to the finger tips only. No adverse effect on grip strength was reported despite some functional benefit from reduced sweating. To date she has had four courses of treatment over a period of two years with good effect. Although treatments such as aluminium hydroxide and iontophoresis can be effective and may be preferred in children, we suggest that botulinum toxin should be considered for children with refractory hyperhidrosis who do not want surgery.

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H Marcovitch

The Child with Headache: diagnosis and treatment


Over the past 10–15 years there has been a large volume of research into headache, in general, and childhood headache in particular. Research interest and publications have covered vast areas of previously neglected aspects of childhood headache including epidemiology, pathogenesis, clinical features, classification, impact on child's life and education, management, psychological adjustment, and medical treatment. Two major developments have helped to drive research into childhood headache and migraine. Firstly, the publication of the classification and diagnostic criteria for headache disorders, cranial neuralgias, and facial pain by the International Headache Society in 1988 triggered better understanding, research interest and debate into headache. Secondly, the introduction of a new generation of specific anti-migraine medications in the early 1990s has started a huge wave of research into migraine. Sumatriptan was the first of many 5HT1 agonists to show effective relief of migraine headache in adults associated with
high expectation for a strong potential in children. The two factors drive the research into childhood migraine many steps forwards. Unfortunately despite the huge amount of new knowledge on the subject and, possibly, the increased prevalence of headache and migraine in children, there is more need now than ever for an up-to-date publication on the subject. Until now, only two books on childhood headache and migraine are available on the paediatric bookshelf. The Classical books of Charles Barlow (Headache and migraine in childhood, Oxford: Blackwell Scientific, 1984) and that of Judith Hockaday (Migraine in childhood, London: Butterworth, 1988) remained the most recent sources of information and advice for practising paediatricians and general practitioners. Therefore, this book comes at an appropriate time to fill some of the gaps in the paediatric literature.

The book deals mainly with the diagnostic issues, differential diagnosis, and the management of childhood headache in a simple and practical way. Complex concepts and mechanisms were introduced and discussed with simplicity that made the reading of the book flow easily. Headache was introduced as a pain syndrome that has its own methods of measurement and management in the early part of the book. The general direction of the book was determined, therefore, by the fact that 7 out of the 10 contributing authors been pain scientists, clinical psychologists, or child psychiatrists. Such an influence towards the psychology of pain has enhanced the quality of the book and enriched its value and contents. Therefore, the book provides the reader on the subject of pain and headache a valuable reference to understand difficult issues in relation to pain measurement, impact of pain and headache on child’s life and also the management of headache including behavioural modification.

From the point of view of the practising general paediatricians who deal with children with headache in busy medical paediatric clinics, the book provides a good brief overview of the causes of headache, diagnostic assessment, and treatment. The use of simple data collection sheet would be very useful to assist the attending physician in establishing the diagnosis of the type of headache and also in identifying both the trigger and relieving factors. The editors propose, in two appendices, lengthy interviews of the child and the parents that may defy the practicality of the consultation. It would be more appropriate to the clinician if those interviews were short and direct. Also, diaries would be a useful tool to help understand the child’s headache by recording symptoms as they occur.

There is no doubt that this book will prove to be an important and useful resource for paediatricians treating children with headache. Other publications dealing with the practical issues and the organisation of headache services for children are also needed.

I Abu-Arafeh

Core Paediatrics and Child Health


Another textbook of paediatrics finds its way to market, to take its place alongside those already in print. In their introduction, Haddad et al write that they have written this for undergraduates and junior doctors undertaking their first paediatric post. The underlying concepts arise from prior collaborative work undertaken by departments of Child Health in Scottish universities as a response to the GMC guidelines contained in “Tomorrow’s Doctor”. This work, reported in Medical Education, 3 provides a structure that gives uniformity of approach for each organ system and indeed the textbook is clearly and consistently laid out.

As with many other authors of textbooks, the authors start with an assumption that the layout of texts will influence learning. It is difficult to find any supportive evidence in educational literature and any research suggests that it is assessment rather than course material that drives acquisition of knowledge and reasoning skills. Nevertheless it seems reasonable to assume that those learning paediatrics should be able to choose from a selection of texts written and laid out differently. As such, it could be commended to students if they are considering the purchase of a textbook to support their learning, and I feel sure it will take its place in the “top five” of UK paediatric textbooks.

Although system based, the authors claim they have adopted a “problem oriented approach”. This does not match other books that start with clinical signs and symptoms; such a true problem oriented approach can be seen in Field et al’s book. This difference highlights the difficulty of writing a text for both students and practising doctors. Anecdotally, students, who seem to prefer topic based teaching while SHOs, may find a true problem based approach more suited to their needs. They do, nevertheless, include “key problems”, and have useful sections that review underpinning science, such as “Essential background”. For the enthusiastic student who wishes to pursue any topic further, they have included “Beyond core” material and sections entitled “Highlights and hypotheses”.

At over 300 pages, it probably contains more than is needed at undergraduate level but could be seen as core and a suitable text for reference. SHOs might find its system based layout less helpful in their learning how to practice paediatrics, but it would be a useful starting point for revision for postgraduate exams.

Teachers need to look at evaluation from a different perspective. How should they evaluate material for students undertaking their course? Fundamentally, any text should support and NOT divert student effort from the learning objectives set to reach more fundamental course aims rather than a “topic based” core curriculum, but such discussion is outside the remit of a book review such as this.

My one major criticism is that it divides up history taking and examination according to body systems. Development of these clinical skills must be the cornerstone of undergraduate education, and dissection of history taking and examination makes it a difficult text from which to teach these essential practical skills. Having said that, this book offers a clearly structured text for early professional education, and it will be interesting to see how it is received by the consumer, the medical student or doctor undertaking general professional training.

M D C Donaldson

References