DMSAs after UTI—scan more children, not less

EDITOR,—Deshpande and Verrier Jones have recently concluded that it is not worth undertaking dimercaptosuccinic acid (DMSA) scans in children over 1 year of age who present with a “simple” urinary tract infection (UTI). Their argument has three strands. First, they interpret their data as indicating a very low prevalence of children over 1 year having a renal scar, especially if the UTI is diagnosed at home by their general practitioner. Their second point is that it is not justified to perform DMSA scans after 1 year. Yet their own data show that the prevalence in their 124 patients is very similar under and over 1 year (7/52 (13%) v 7/72 (10%); \( p=0.52, \chi^2 \)). This confirms our study of 2842 children who had DMSA scans after a first recognised UTI. The prevalence of scars was similar at every age from infancy to 16 years.

Deshpande and Verrier Jones advise using the site of diagnosis of the UTI as well as age to select which children should have a DMSA scan. They seem to be assuming that children diagnosed in hospital are likely to have had a more severe illness (and greater scarring risk) than children diagnosed at home by their general practitioners. Their argument has two flaws. One is that there are many local factors that may influence where the diagnosis is made, but which do not relate to the severity of illness. These will vary but will include the organisation, quality and ease of availability of primary and secondary health care services as well as geographical and social factors. Clearly, it cannot be assumed that their deceptively simple surrogate marker for illness severity will reliably predict scarring risk outside their own centre. A further problem is that their small numbers (54 diagnosed at home, 18 in hospital) gives poor and unconvincing power for this association. We also made a crude assessment of illness severity in our study of scars prevalence in children after a UTI, not if they had fever, anorexia, malaise, or required hospital admission (but not who made the diagnosis). Younger patients were much more likely to have a severe illness by any of these criteria (table 1), yet their prevalence of scarring was no greater. We also investigated whether these illness severity markers distinguished between the 92 children who had scars and 232 of the unscarred children who were scanned on the same day. Though scarred children were symptomatically slightly more often, the differences were small, so these criteria would not provide a clinically useful screening tool, either before and after the fourth birthday (table 2).

WHAT IS THE COST OF A DMSA?

Deshpande and Verrier Jones’ description of DMSAs bears almost no relation to our experience of them. We currently advocate undertaking one in every child after their first recognised UTI. Recognising children’s urinary tracts after a UTI is to identify risk factors that will allow us to prevent renal scarring, there is no value in diagnosing scars that have already occurred. Reflux nephropathy is the commonest cause of hypertension in children. Children that have their blood pressure monitored because of known renal scarring can receive early treatment. By contrast, children that present unexpectedly with severe hypertension following unrecognised or uninvestigated UTIs may have a high morbidity, and a significant mortality. Similarly, children identified as having extensive renal scarring can have treatments gradually introduced if their renal function begins to decline, rather than presenting with the complications of severe renal impairment such as rickets, poor growth, tiredness and anaemia, or even sudden death from hyperkalaemia.

In summary, whilst we acknowledge the importance of knowing the cost of every intervention and test, we are concerned that their value must also be fully appreciated. Investigations that inform families about their child’s condition, and allow monitoring to direct early treatment and prevent unpleasant or permanent sequelae are inherently valuable. Since a DMSA scan performed after a childhood UTI has a similar chance of identifying scarring at any age, we currently advocate undertaking one in every child after their first recognised UTI.

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Age specific aetiology of anaphylaxis

Routine hospital data analysis suggests the incidence of anaphylaxis is rapidly increasing in England. Although an acute life-threatening disorder, anaphylaxis is often managed sub-optimally, one of the major difficulties being prompt recognition of the disorder. An appreciation of how aetiology varies with age may aid clinicians in arriving at a quick and accurate diagnosis.

Using the Hospital Episode Statistics database, we studied 2535 emergency NHS admissions over the four-year period from 1 April 1991 to 31 March 1995, for a primary diagnosis of anaphylaxis (International Classification of Diseases (ICD) 9: 995.0; 999.4). Three cases were excluded because of invalid age codes; 17% of admissions occurred in children aged under 16 (n = 385). Overall, aetiology was recorded for 52% (n = 1207) of admissions, the most commonly recorded triggers being drugs (61%), food (16%), and venom (11%).

Studying age specific aetiology (table 1) reveals that food related anaphylaxis becomes relatively less frequent with increasing age (p < 0.001) whereas the proportion of drug triggered admissions increases with age (p < 0.001). No venom related admissions were noted in infants, but in all other age groups the proportion of venom triggered admissions remained stable.

The differences in age specific patterns of admission may result from variations in susceptibility, exposure, or both. Alternatively, these patterns may reflect recording biases, which may operate differentially. Care also needs to be taken in interpreting these data because aetiology was not recorded for almost half of the anaphylaxis admissions studied. Despite these reservations, in view of the unprecendentedly large number of admissions available for study, our findings are likely to provide the most reliable picture of variations in anaphylaxis aetiology with age. Further progress will be dependent on achieving more comprehensive recording of triggers, particularly in children, and the development of a more extensive set of ICD codes for anaphylaxis that allows recording of triggers such as nuts and latex.

Aziz Sheikh is supported by a NHS R&D National Primary Care Award

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I noted contrasting newspaper headlines in the week I read this book (February 2001): “5m Britons living on the breadline” (referring to the Breadline Europe survey in September 1999) and “Parents are to blame for child poverty”, a Peterborough City Council Leader commenting on the finding of the Poverty in Peterborough 2000 report. These summarise the breadth of attitudes represented in the UK and, inevitably too, in paediatrics, over the causes of child poverty. How much is it really parents’ fault that children go to school dirty, with holes in their shoes, and without any breakfast, or indeed do not go to school at all? The blame culture is common, particularly among the conservative media, and those who live in poverty are well aware of this. Low income parents know that they carry the responsibility for parenting their children adequately. The evidence is that mothers will give up treats, trips, and an adequate diet for themselves in order to feed and clothe their children.

Table 1 Emergency anaphylaxis admissions by age and aetiological trigger.

<table>
<thead>
<tr>
<th></th>
<th>Children &lt; 16</th>
<th>All ages</th>
<th>Infants &lt; 1</th>
<th>Pre-school 1 to 5</th>
<th>Junior 6 to 10</th>
<th>Adolescent 11 to 15</th>
<th>Elderly &gt; 55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Meat/fish</td>
<td>60 (41)*</td>
<td>190 (16)</td>
<td>16 (62)</td>
<td>25 (48)</td>
<td>8 (32)</td>
<td>11 (26)</td>
<td>12 (4)</td>
</tr>
<tr>
<td>Nut/seeds/mushrooms / plants</td>
<td>1 (1)</td>
<td>19 (2)</td>
<td>1 (4)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Fish</td>
<td>43 (30)</td>
<td>110 (9)</td>
<td>12 (46)</td>
<td>6 (12)</td>
<td>1 (4)</td>
<td></td>
<td>3 (1)</td>
</tr>
<tr>
<td>Fruit</td>
<td>7 (5)</td>
<td>35 (3)</td>
<td>2 (8)</td>
<td>4 (8)</td>
<td>1 (4)</td>
<td>0 (0)</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Drug</td>
<td>49 (34)</td>
<td>738 (61)</td>
<td>7 (27)</td>
<td>15 (29)</td>
<td>9 (36)</td>
<td>18 (43)</td>
<td>227 (75)</td>
</tr>
<tr>
<td>Antibiotics: penicillin</td>
<td>4 (3)</td>
<td>158 (13)</td>
<td>1 (4)</td>
<td>1 (2)</td>
<td>2 (5)</td>
<td>64 (21)</td>
<td>25 (0)</td>
</tr>
<tr>
<td>Antibiotics: other</td>
<td>2 (1)</td>
<td>70 (6)</td>
<td>0 (0)</td>
<td>1 (2)</td>
<td></td>
<td></td>
<td>12 (4)</td>
</tr>
<tr>
<td>Analgesics: anti-rheumatics</td>
<td>0 (0)</td>
<td>55 (5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>18 (6)</td>
<td>7 (1)</td>
</tr>
<tr>
<td>Analgesics: other</td>
<td>0 (0)</td>
<td>57 (5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td></td>
<td>12 (4)</td>
</tr>
<tr>
<td>Vaccines</td>
<td>17 (12)</td>
<td>54 (4)</td>
<td>3 (12)</td>
<td>2 (4)</td>
<td>4 (16)</td>
<td>8 (19)</td>
<td>10 (4)</td>
</tr>
<tr>
<td>Drug other</td>
<td>26 (18)</td>
<td>344 (29)</td>
<td>3 (12)</td>
<td>12 (23)</td>
<td>4 (16)</td>
<td>7 (17)</td>
<td>96 (32)</td>
</tr>
<tr>
<td>Insect venom</td>
<td>15 (10)</td>
<td>136 (11)</td>
<td>0 (0)</td>
<td>7 (13)</td>
<td>3 (12)</td>
<td>5 (12)</td>
<td>35 (12)</td>
</tr>
<tr>
<td>Total admissions</td>
<td>145 (107)</td>
<td>1207 (92)</td>
<td>52 (21)</td>
<td>247 (41)</td>
<td>65 (11)</td>
<td>210 (36)</td>
<td>304 (56)</td>
</tr>
<tr>
<td>Total admissions (%)</td>
<td>385 (62)</td>
<td>2320 (48)</td>
<td>69 (62)</td>
<td>145 (64)</td>
<td>73 (66)</td>
<td>98 (57)</td>
<td>499 (39)</td>
</tr>
</tbody>
</table>

*p value

<0.001

The evidence is that mothers will give up treats, trips, and an adequate diet for themselves in order to feed and clothe their children.

The involvement of paediatricians in such schemes is limited at present, but could be considerable. Resolution for 2002: find out what is happening locally in measures to tackle poverty in child health, and contribute Spencer’s book will be essential reading.
Poverty and child health

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Arch Dis Child 2001 85: 349
doi: 10.1136/adc.85.4.349

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