Prehospital use of paracetamol among children attending the accident and emergency department

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METHODS

Setting

The A&E department at Sheffield Children’s Hospital serves an urban catchment area covering Sheffield and about 40 000 children under 16 years attend annually. Children are triaged on arrival by a nurse who can prescribe paracetamol or ibuprofen if appropriate. Patients were managed by the A&E department.

Inclusion and exclusion criteria

Inclusion criteria were consecutive adults attending with children (<16 years) presenting to the A&E department during June 1998 with an illness perceived by the carer to include fever. Non-English speaking adults were excluded.

Design

Seventy five adults accompanying children were invited to participate. No adult refused. Adults completed a questionnaire (see journal web site) in the A&E department.

Data handling

Data were entered onto a database and analysed using the SPSS for Windows Version 6.1. Data compared differences in prehospital paracetamol administration using χ², Fisher’s exact tests or t tests. A level of p<0.05 was taken as being significant.

RESULTS

Seventy five carers of children presenting to the A&E department completed questionnaires correctly. The male:female ratio was 1.6:1.0, with an age range (median) of 3 months to 13 years (2 years).

On presentation, 65 of the 75 children were still feverish (86.7%). There was no difference between the mean ages of those feverish and non-feverish children (3.2 years (SD=3.9) compared with 2.7 years (SD=2.9), t(73)=0.44, p=0.66). Twenty one (32.3%) children had not received paracetamol before attending, all but one was feverish at presentation. There was no difference in mean age between those who received paracetamol before presentation and those who did not (2.6 years (SD=2.7) compared with 3.5 years (SD=3.9), t(73)=1.2, p=0.23).

Table 1 summarises the reasons for not administering paracetamol.

Knowledge of administration

There was a significant correlation between knowledge of paracetamol use (see questionnaire on web site (item 4)) and prehospital administration (χ²=5.0, p<0.05). Most carers knew that paracetamol could be given four to six hourly (n=60, 80%). Of those who had administered paracetamol, 61.1% (n=33) had given the correct dose. Most had used Calpol (n=23, 42.6%), but 14 were unable to state what
preparation they had used (25.9%). The remainder had used a combination of other paracetamol preparations.

Resolution of fever
Of the 65 feverish children, 21 (32.3%) had not been given prehospital paracetamol. Fifty (66.6%) children were subsequently given antipyretics in the A&E department. A further 15 (24.6%) patients were feverish, but no action was taken by A&E department staff. There was a significant correlation between fever and antipyretic administration ($\chi^2 = 23.7$, p<0.01). Most (n=28, 56.0%) received paracetamol, the rest 10 (13.3%) patients attending, all but one had resolution after antipyretic administration and a period of observation in the A&E department.

Diagnoses and disposal
Table 2 shows the distribution of discharge diagnoses. Twelve (16.0%) patients were admitted. There was no correlation between administration of paracetamol at any time and disposal (Fisher’s exact test, p=0.49).

**DISCUSSION**
Most carers seem to administer paracetamol appropriately for a perceived feverish illness. However, there is scope for education of carers in the benefits of paracetamol and other antipyretics. These findings are echoed by previous studies, which identified a shortfall in knowledge about fever and antipyretic administration. Blumenthal stated that improving parental perceptions of the dangers of fever and the use of antipyretics might avoid consultations. Some children were noted to be feverish at triage, but did not receive antipyretics. Given that the evidence for the benefits of antipyretics exists, failure to administer it is a training issue. Although not recorded here, the use of antipyretics may expedite transit time in the A&E department. Thomas conducted a national survey of A&E department nurses, and found that most nurses used tepid sponging, administration of antipyretics or both to reduce temperatures. All but one child had a resolution of their fever in the A&E department. It is not possible to determine whether the period of observation or administration of antipyretics was the most beneficial. Further work to investigate this relationship is required.

There is some evidence for the presence of a fever benefiting host defence mechanisms. Some authors advise against the use of antipyretics stating that fevers are not harmful, but drugs have potential harmful side effects. However, given that carers perceive fevers to be associated with morbidity, it may provoke less anxiety and promote carer confidence in managing minor self limiting paediatric illnesses.

**Study limitations**
Carers attending the A&E department with children who are unwell are a self selected population, which means that these data may not be generalisable to the population as a whole. There may be differences in knowledge of the management of an ill child in our population when compared with a primary care population. The small sample size may lead to some clinically significant effects not reaching statistical significance.

In conclusion, this study has shown that most carers of children are aware of the benefits of using paracetamol for fevers. This knowledge increases the likelihood that paracetamol will be administered. Significantly more children presenting with a perceived feverish illness who had been pretreated were apyrexial on arrival in the A&E department. Paracetamol use did not influence the decision to admit or discharge patients from the A&E department. Education of carers and A&E department staff should be ongoing to improve knowledge of the benefits of antipyretics.

**Contributors**
SM formulated the idea for this study. SM and ST designed the study. ST collected the data and developed the database. ST, SM, and DB analysed the data and wrote the paper. SM will act as guarantor for the paper.

**Additional information regarding this paper is available on the journal web site (emjonline.com)**

**REFERENCES**
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