Short report: Parental knowledge of rectal acetaminophen

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Fever is one of the most common complaints in clinical pediatrics. Acetaminophen is used most frequently to treat children because of its antipyretic and analgesic effects and because it is relatively safe. Oral administration is the route of choice in daily practice, but in some circumstances this route is impractical, such as when a child cannot tolerate oral solutions or solids or before and during operations. Rectal administration of acetaminophen is then a feasible alternative.

We hypothesized that many of the parents arriving in our pediatric emergency department with their febrile children did not know acetaminophen was available in rectal form. We interviewed 231 randomly chosen caregivers of children aged 28 days to 16 years if their children's main complaint was fever (temperature higher than 38°C) and if the children had been given acetaminophen at home during the preceding 24 hours. We received ethical approval from the Research Institute Ethics Committee at the Hospital for Sick Children. Interviews were conducted by a research assistant before the children were examined by a pediatrician. Parents were enrolled during a 6-month period from September 2000 to February 2001. No parent refused to be interviewed.

Data on demographics, awareness of the existence of rectal acetaminophen, history of vomiting and diarrhea, and highest temperature measured at home were collected and put into the Microsoft Excel program. Statistical analysis was done with Statistical Package for the Social Sciences 8.0 for Windows. The χ^2 test was used for comparing frequencies and Student's *t* test for comparing continuous variables; *P* values <.05 were considered significant.

Of the 231 participating parents, 78 (33.6%) were aware of the rectal form of acetaminophen. Average age of the children was 34 ± 33 months (range 1 to 208). Mean duration of fever before coming to the emergency department was 4 ± 1.7 days (range 1 to 6 days); 44 (19%) had vomiting, and 14 (6%) had diarrhea as part of their illness.

We found no significant correlations between parental knowledge of the availability of rectal acetaminophen and children's age, parental age, parental education, number of children in the family, whether the child was first-born, or whether the illness involved vomiting or diarrhea. Parents who did not speak English at home, however, knew less about rectal acetaminophen (38% versus 24% respectively, *P*= .03) (**Table 1**).

In this prospective study, we found that only one third of parents administering acetaminophen at home for a febrile illness knew about the rectal route. No previous study reported Canadian parents' knowledge on this topic. The absence of such knowledge was correlated with English not being spoken at home but with no other demographic or educational factor or child's age.

Acetaminophen has been commercially available as an antipyretic and analgesic drug since the 1950s and has been used far more than any other analgesic-antipyretic. It is used for treating fever by up to 78% of parents,[1] especially parents of young children.[2] The dose of oral and rectal acetaminophen currently recommended ranges from 10 to 20 mg/kg,[3] although in the last few years, single larger doses of rectal acetaminophen were required to achieve a serum concentration of 10 to 20 μg/mL (66 to 132 mM), a concentration known to be antipyretic.[4-7] During childhood febrile illnesses, many doses are needed; hence, use of higher doses in these cases needs further investigation.

Parents regard lowering high temperatures to be of prime importance, especially in younger infants. They are particularly distressed and liable

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Table 1. Awareness of rectal acetaminophen by various family characteristics

VARIABLES ANALYZED	AWARE OF RECTAL ACETAMINOPHEN N=78	UNAWARE OF RECTAL ACETAMINOPHEN N=153	*P* VALUE
Child's age (months)	34±32 SD	34±33 SD	NS
Mother's age (years)	33±5 SD	32±7 SD	NS
Father's age (years)	36±5 SD	35±8 SD	NS
Mother's education >12 years	62 (79%)	102 (67%)	NS
Father's education >12 years	54 (69%)	99 (65%)	NS
Number of children at home			NS
•1	32 (41%)	74 (48%)	
•2	27 (35%)	48 (31%)	
•3 or more	19 (24%)	31 (20%)	
Patient is first-born child	38 (49%)	94 (61%)	NS
Vomiting or diarrhea	25 (32%)	33 (22%)	NS
English spoken at home	61 (78%)	98 (64%)	.03

NS—not significant, SD—standard deviation

to turn to an emergency department when their children are unable to take effective antipyretic treatment, such as when they are vomiting frequently. Educating parents about the possibility of giving acetaminophen rectally might serve to lower the number of parents attending emergency departments.

Results of this study support the notion that informing parents about rectal acetaminophen and its administration might substantially lighten the load in emergency departments—in itself a worthy aim. Pamphlets or posters, aimed especially at those who do not speak English, could inform parents on this subject.

Author contributions

Dr Goldman *and* **Dr Scolnik** *both collected the data, analyzed it, and wrote the manuscript.*

Competing interests

None declared

Editor's key points

- This survey of 231 parents who had come to an emergency department because their children had fevers showed that only 33.6% of them knew acetaminophen was available as a rectal suppository.
- Rectal administration of acetaminophen is especially useful when a child has a fever and oral administration is impossible for various reasons (eg, vomiting).
- Parents need to be informed about this alternative method of administration for acetaminophen so that fewer of them will go to an emergency department when their children have fevers.

Points de repère du rédacteur

- Cette enquête chez 231 parents consultant à l'urgence parce que leur enfant présentait de la fièvre a montré que seulement 33,6% d'entre eux savaient que l'acétaminophène existe sous forme de suppositoire rectal.
- L'administration intra-rectale d'acétaminophène est particulièrement utile lorsqu'un enfant présente de la fièvre et que l'administration « per os » est impossible pour différentes raisons (p.ex.: vomissements).
- Les parents devraient être informés de cette voie alternative d'administration de l'acétaminophène ce qui pourrait réduire le nombre de consultations à l'urgence pour fièvre.

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