

Tepid sponging and paracetamol for reduction of body temperature in febrile children



Clinical question

A general practitioner noted that the *Australian immunisation handbook*¹ stated that “tepid sponging of children to reduce a fever of < 41°C is no longer routinely recommended, as there is no evidence to support the efficacy of this practice”. He asked whether tepid sponging is effective in lowering a raised body temperature, and whether paracetamol might be more effective in reducing body temperature if combined with tepid sponging.



Search question

The request concerned all children with raised body temperatures below 41°C. The interventions of interest were (a) tepid sponging compared with paracetamol or (b) paracetamol alone compared with paracetamol combined with tepid sponging. The ideal study design to answer this question would be a controlled trial that allocated patients at random to either (a) tepid sponging or paracetamol administration or (b) to paracetamol administration alone or in combination with tepid sponging.



Search

We conducted a PubMed search using the terms “fever”, “febrile” or “temperature” combined with forms of the word “sponge” (including sponging) to identify relevant articles. To limit retrieval to methodologically rigorous studies, we applied a search filter² that identified articles about therapy using specific research designs. Because of the time constraints of the evidence retrieval service, only articles with English abstracts published after 1989 were considered in answering the question.



Summary of findings

Our search identified several studies comparing the use of tepid sponging with antipyretic drugs to reduce the body temperature of febrile children. All but one study³ specified that the subjects included were experiencing fever with temperatures in the range below 41°C.

(a) A randomised controlled trial (RCT) of tepid sponging compared with oral paracetamol (15 mg/kg) found sponging was more effective in reducing body temperature only during the first 30 minutes of treatment.⁴ Another RCT comparing sponging with a single dose of aspirin (15 mg/kg), paracetamol (15 mg/kg) or ibuprofen (8 mg/kg) found sponging was more effective than each of the three medications during the first 30 minutes of intervention.⁵ After 60 minutes, the effects of each medication became superior to sponging.

(b) Three studies compared the effects of paracetamol alone or combined with sponging. An RCT comparing

paracetamol and paracetamol plus a 15-minute tepid sponge bath found that sponge-bathed subjects cooled faster during the first hour, but there was no significant temperature difference between the groups over the two-hour study period.⁶ Another RCT comparing paracetamol alone against paracetamol with tepid sponging found a greater and more rapid fall in mean temperature in the sponge plus paracetamol group. In the paracetamol-only group, 95% ($n = 38$) still had a temperature of 38.5°C or greater at 60 minutes, compared with 42.9% ($n = 15$) of the sponge-and-paracetamol group.⁷ An earlier study found that paracetamol plus sponging produced the greatest temperature reduction when compared with sponging or paracetamol alone, the smallest temperature reduction occurring in the group receiving sponging alone.³

We concluded that tepid sponging appears to be more effective within the first 30 minutes of treatment and has an additive effect when combined with paracetamol.



Outcome

The report was submitted to the requesting doctor, who decided to continue recommending tepid sponging in combination with paracetamol treatment to reduce body temperature in febrile children.

Vivienne F Bernath

Research Officer

Jeremy N Anderson

Associate Professor; and Director, Centre for Clinical Effectiveness, Southern Health/Monash Institute of Health Services Research, Melbourne, VIC

Chris A Silagy (deceased)

Professor, and Director
Monash Institute of Health Services Research Melbourne, VIC
cce@med.monash.edu.au

Acknowledgements

This search was conducted as part of a project supported by a General Practice Evaluation Project grant, GPEP 720, the AQUA project from the Department of Health and Family Services. Information about the project including clinical questions and answers, can be found at <http://www.med.monash.edu.au/healthservices/cce/research/gpep.html>.

References

1. National Health and Medical Research Council (Australia). The Australian Immunisation Handbook. 7th ed. Canberra : AGPS, 2000: 3.
2. PubMed clinical queries. PubMed. <http://www.ncbi.nlm.nih.gov: 80/entrez/query/static/clinical.html> (accessed April 2000).
3. Friedman AD, Barton LL. Efficacy of sponging vs acetaminophen for reduction of fever. Sponging Study Group. *Pediatr Emerg Care* 1990; 6: 6-7.
4. Agbolosu NB, Cuevas LE, Milligan P, et al. Efficacy of tepid sponging versus paracetamol in reducing temperature in febrile children. *Ann Trop Paediatr* 1997; 17: 283-288.
5. Aksoylar S, Aksit S, Caglayan S, et al. Evaluation of sponging and antipyretic medication to reduce body temperature in febrile children. *Acta Paediatr Jpn* 1997; 39: 215-217.
6. Sharber J. The efficacy of tepid sponge bathing to reduce fever in young children. *Am J Emerg Med* 1997; 15: 188-192.
7. Mahar AF, Allen SJ, Milligan P, et al. Tepid sponging to reduce temperature in febrile children in a tropical climate. *Clin Pediatr* 1994; 33: 227-231.

(Received 2 Apr, accepted 4 Jun 2001)

□