

Translating Best Evidence into Best Care

EDITOR'S NOTE: Journals reviewed for this issue: *Archives of Disease in Childhood*, *Archives of Pediatrics and Adolescent Medicine*, *British Medical Journal*, *Journal of the American Medical Association*, *Journal of Pediatrics*, *The Lancet*, *New England Journal of Medicine*, *Pediatric Infectious Diseases Journal*, and *Pediatrics*. Gurpreet K. Rana, BSc, MLIS, Taubman Medical Library, University of Michigan, contributed to the review and selection of this month's abstracts.

—John G. Frohna, MD, MPH

Ondansetron reduces vomiting in children with acute gastroenteritis

DeCamp LR, Byerley JS, Doshi N, Steiner MJ. Use of antiemetic agents in acute gastroenteritis: A systematic review and meta-analysis. *Arch Pediatr Adolesc Med* 2008;162:858-65.

Question Among children with gastroenteritis, does the use of antiemetic drugs reduce vomiting and decrease the need for further intervention without causing significant adverse effects?

Design Systematic review and meta-analysis.

Data Sources Computerized databases, reference lists, and expert recommendations.

Study Selection Prospective controlled trials evaluating medication use in children with vomiting from gastroenteritis.

Intervention Antiemetic drug therapy.

Outcomes Emesis cessation, use of intravenous fluid for rehydration, hospital admission, return to care, and medication adverse effects.

Main Results The 11 articles that met the inclusion criteria evaluated various antiemetic agents: ondansetron ($n = 6$), domperidone ($n = 2$), trimethobenzamide ($n = 2$), pyrilamine-pentobarbital ($n = 2$), metoclopramide ($n = 2$), dexamethasone ($n = 1$), and promethazine ($n = 1$). Meta-analysis of 6 randomized, double-masked, placebo-controlled trials of ondansetron demonstrated decreased risk of further vomiting (5 studies; relative risk [RR] 0.45; 95% confidence interval [CI], 0.33-0.62; number needed to treat [NNT] = 5), reduced need for intravenous fluid (4 studies; RR, 0.41; 95% CI, 0.28-0.62; NNT = 5), and decreased risk of immediate hospital admission (5 studies; RR, 0.52; 95% CI, 0.27-0.95; NNT = 14). Diarrheal episodes increased in ondansetron-treated patients in 3 studies. Ondansetron use did not significantly affect return to care (5 studies; RR, 1.34; 95% CI, 0.77-2.35).

Conclusions Ondansetron therapy decreases the risk of persistent vomiting, the use of intravenous fluid, and hospital admissions in children with vomiting caused by gastroenter-

itis. Future treatment guidelines should incorporate ondansetron therapy for select children with gastroenteritis.

Commentary When gastroenteritis makes children vomit, everyone wants it to stop. This systematic review suggests that ondansetron might do just that. DeCamp et al found that ondansetron effectively reduced further emesis, the need for intravenous fluid, and hospitalizations in patients ages 1 month to 22 years who came to the emergency department with acute gastroenteritis. Although 2 earlier reviews concluded that ondansetron was not effective for acute gastroenteritis, this review includes more recent studies that push the verdict in the other direction. By using only randomized, controlled trials, careful quality assessments, and a very thorough literature search, DeCamp et al produced a high-quality meta-analysis for which the results should be reliable and valid. The results were consistent across the studies for the major outcomes of avoiding intravenous fluid and stopping vomiting, but varied more widely for preventing admissions. Readers are cautioned that the studies were all done in emergency departments, so we do not know if ondansetron works as well for children who are less sick or are in outpatient settings. The side effect of diarrhea must also be investigated more carefully. Overall, this is a well-conducted analysis that provides strong evidence that emergency medicine physicians should use ondansetron for this population.

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Evidence not persuasive for recommending a combination of ibuprofen and acetaminophen for feverish children

Hay AD, Costelloe C, Redmond NM, Montgomery AA, Fletcher M, Hollinghurst S, et al. Paracetamol plus ibuprofen for the treatment of fever in children (PITCH): randomised controlled trial. *BMJ* 2008;337:1490-7.

Question Among febrile children managed at home, is acetaminophen plus ibuprofen superior to either drug alone