Ondansetron May Curb Vomiting in Gastroenteritis

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Ondansetron therapy effectively reduced vomiting and other emetic complications—including hospital admissions—in children with acute gastroenteritis, based on results from a meta-analysis.

Current practice guidelines for treating children with gastroenteritis recommend oral rehydration therapy, but the guidelines don't recommend a drug treatment for vomiting, wrote Dr. Lisa Ross DeCamp and her colleagues at the University of North Carolina at Chapel Hill.

Vomiting may undermine oral rehydration therapy, and it is stressful for the children and their families (Arch. Pediatr. Adolesc. Med. 2008;162:858-65).

To determine the value of antiemetics in relieving vomiting, the investigators reviewed findings from 11 studies on this topic. Several studies involved more than one drug.

The antiemetics included ondansetron (six studies), domperidone (two studies), trimethobenzamide (two studies), pyrilamine-pentobarbital (two studies), metoclopramide (two studies), dexamethasone (one study), and promethazine (one study).

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Combined data from six randomized, double-blind, placebo-controlled trials including 745 children showed that ondansetron significantly reduced the risk of additional vomiting, the need for intravenous fluid (IVF), and the need for hospital admission, compared with a placebo.

Although the use of ondansetron was associated with increased diarrhea within 48 hours of administration in three studies, this effect did not appear to increase health care use and it did not persist beyond 48 hours.

No other serious adverse events were reported in connection with ondansetron use.

Overall, the numbers of children needed to treat with ondansetron to prevent hospital admission, IVF use, and further vomiting for 1 child were 14, 5, and 5 children, respectively.

Doses of ondansetron ranged from 2 mg to 8 mg when given orally using weight-based dosing and 1.6-4.0 mg when given orally using age-based dosing. The intravenous ondansetron dosage ranged from 0.3 mg/kg to 0.15 mg/kg.

"Studies of antiemetic agents other than ondansetron had small sample sizes, were of low methodological quality, and produced inconsistent results," the researchers explained.

The results were limited by the fact that the ondansetron studies included in this review were supported by GlaxoSmithKline, a manufacturer of ondansetron (Zofran). But ondansetron is available in a generic form, and additional studies, including cost-effectiveness studies, should not require industry support, the researchers noted.

Most of the studies in this review focused on moderately ill children who were treated in an emergency department. These children are generally at greater risk for hospitalization or IVF treatment than are children who present to primary care offices, the researchers added.

"Given the costs associated with IVF or hospital admission and the relatively low [numbers needed to treat] demonstrated in the present study, ondansetron use in [emergency departments] is likely to be cost effective," they wrote.

No known data exist on the use of ondansetron to treat pediatric vomiting in general office settings, and more studies are needed to evaluate outcomes after ondansetron use in these settings.

"There is not sufficient evidence to recommend the use of ondansetron for pediatric [gastroenteritis] in outpatient settings, or among children with mild disease," Dr. Rachel C. Vreeman of Indiana University, Indianapolis, and her colleagues wrote in an accompanying editorial (Arch. Pediatr. Adolesc. Med. 2008;162:866-9).

Dr. DeCamp and her colleagues and Dr. Vreeman and her colleagues stated that they had no financial conflicts. ■