Re: M Xu, M Reider. A supplementary home dose of oral ondansetron given in anticipation of recurrent emesis in paediatric acute gastroenteritis. Paediatr Child Health 19(2):107-108.

To the Editor;

I was delighted to see the article written by Mr Xu and Dr Rieder, 'A supplementary home dose of oral ondansetron given in anticipation of recurrent emesis in paediatric acute gastroenteritis', in the February 2014 issue of the *Journal*. In their review, the authors concluded that there is value in providing gastroenteritis patients with a second dose of ondansetron for home use in anticipation of further emesis. They argue that this practice may reduce emergency department (ED) revisits and prevent hospitalization due to severe dehydration, especially in rural communities. This conclusion, however, makes assumptions that are not supported by the available literature.

In 2002, Ramsook et al (1) conducted a double-blinded, placebo-controlled trial involving 145 children, comparing six doses of ondansetron/placebo administered every 8 h for two days. Vomiting was reduced after the first dose was administered; however, no further benefit was seen following discharge (vomiting occurred in 42% administered ondansetron versus 46% administered placebo at 24 h). In addition, at the 24 h and 48 h follow-ups, the median number of vomiting episodes remained zero, with no statistically significant difference between groups. During the 48 h following ED discharge, children administered ondansetron had threefold more diarrhea than those in the placebo group (mean 7.7 versus 2.3 episodes). The revisit rate was also higher in the ondansetron group (P=0.047). Of the four patients with revisits in the ondansetron arm, two returned with persistent vomiting and the other two with persistent diarrhea.

A second double-blinded, placebo-controlled trial of relevance was published by Yilmaz et al (2) in 2010, in which the authors provided participants with ondansetron/placebo every 8 h for a total of 24 h. In this study, although ondansetron administration reduced the frequency of vomiting following discharge (mean of 1.7 versus 0.2 episodes over 24 h; P<0.001) ondansetron administration was also associated with an increase in the number of diarrheal episodes (5.0 versus 4.3 episodes; P=0.04). However, as it relates to ED return visits, there was no difference in study groups (ondansetron, 13%; placebo, 14%; P=0.85).

Thus, these studies do not support the conclusions drawn by the authors regarding reducing ED revisits, morbidity and hospitalization. The goal of ondansetron use in the ED is to enable us to achieve oral rehydration in children with gastroenteritis, not simply to symptomatically treat vomiting. Diarrhea is the main cause of dehydration in children with gastroenteritis because it causes greater fluid loss per episode (10 mL/kg) than does vomiting (2 mL/kg) (3). Treating vomiting with no rehydration goals at home may provide parents in rural communities with a false sense of security. Finally, while the safety of a single oral dose is well established, there are more arrhythmogenic concerns related to the use of multiple doses of ondansetron when administered to individuals with other risk factors (4). Given the conflicting data regarding even the basic premise that additional doses of ondansetron will reduce vomiting, the clear evidence that it will increase diarrhea, and that ED revisits are either unchanged or increased, the evidence does not support the routine provision of additional doses of ondansetron on ED discharge.

Mohamed Eltorki MBChB FRCPC
Pediatric Emergency Medicine Fellow
University of Calgary
Alberta Children's Hospital
Calgary, Alberta
E-mail mohamed.eltorki@gmail.com

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The author responds;

The thoughtful comments made with respect to our article are greatly appreciated and, in retrospect, we concur that we should have been much more cautious about the potential value of additional doses of ondansetron in the outpatient therapy of acute gastroenteritis in children. While the decision to prescribe or not prescribe a drug is ultimately made on clinical grounds, this needs to be supported by best available evidence, which – and we concur – does not support the routine use of a 'take home' dose ondansetron. While a clinical decision in specific cases may be to dispense a 'take home' dose, this should be done on a carefully considered basis and accompanied by a thorough discussion with the family as to benefits and risk, acknowledging that there is no evidence supporting this, and covering the potential risks of this approach. Finally, we believe that what is needed are careful evaluations of the optimal therapy for acute gastroenteritis in children in Canada in the many challenging situations that our geography and demographics present.

Michael Rieder MD PhD
Schulich School of Medicine and Dentistry
Western University
London, Ontario