

EFFECT OF DIMENHYDRINATE IN CHILDREN WITH GASTROENTERITIS RELATED VOMITING WITH MILD TO MODERATE DEHYDRATION

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ABSTRACT

Background: Vomiting among children with dehydration is serious issue to deal with. **Objective:** To determine the effect of dimenhydrinate in children with gastroenteritis related vomiting having mild to moderate dehydration. **Methodology:** It was a quasi experimental study, conducted in the Pediatrics Department in Nawaz Sharif Medical College Gujrat from 1st January 2014 to 31st December 2015. Two hundred and fifty six patients were included in the study. 128 patients were enrolled in each group. The children with gastroenteritis and vomiting having mild to moderate dehydration were registered as group A and B. The socio demographic information, diarrhea and vomiting history was recorded and examination was done. Children, 1-6 years old having diarrhea and vomiting for last six hours were included in the study. A child enrolled in group A was given IM dimenhydrinate and started ORT and another child of same age and gender was enrolled in group B and only ORT was started. After two hours child was examined again and history of vomiting, ORS taken and frequency of stool was asked and decision for discharge on ORT was made. The was entered and analyzed by using SPSS version 10. **Results:** In group A (who were given anti-emetic), total 128 children with diarrhea and vomiting were given dimenhydrinate and ORT. After 2-3 hours of therapy, out of 128 children 94 (74%) children were having no dehydration, no vomiting and were taking adequate ORS orally and 34 (26%) children were having mild to moderate dehydration and were not able to take ORS due to vomiting. In group B total 128 children with diarrhea and vomiting were given only ORT. After 2-3 hours of therapy, out of 128 children 55(43%) children were having no dehydration no vomiting and were taking adequate ORS orally and 73(57%) children were having mild to moderate dehydration and were not able to take ORS due to vomiting. **Conclusion:** This clinical trial showed that a single IM injection of anti-emetic reduces gastroenteritis-related vomiting and facilitates ORT without significant adverse events. Dimenhydrinate shows promising results as a first-line anti-emetic, and use of this agent might increase the success of ORT, minimize the need for intravenous therapy, hospitalization, and reduces healthcare costs.

Key words: Vomiting, Dehydration, Dimehydrinate, Diarrhea.

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INTRODUCTION

Acute gastroenteritis is a common childhood illness.^{1,2,3} It is estimated that, worldwide, children younger than 5 years of age experience 3-5 billion cases of acute gastroenteritis each year. Antiemetic prescription for children with gastroenteritis is common among physicians.^{2,4,5,6} Vomiting is a common symptom of childhood illness, especially gastroenteritis.⁷⁻¹³ Vomiting is both unpleasant and poorly tolerated by children and their parents. Persistent vomiting will decrease the child's ability to tolerate oral fluids and may lead to dehydration.² Physicians, had to prescribe antiemetics for gastroenteritis-related vomiting at least once in the previous year.¹⁰ Seventy-nine percent of Italian pediatricians prescribed antiemetics for gastroenteritis-related vomiting.^{1,2,3}

The previous guidelines were adopted prior to studies on the newer class of antiemetics with a

better safety profile and increased efficacy.¹⁴ A more recent guideline devised by the Centers for Disease Control and Prevention in 2003 did state that ondansetron could be effective in decreasing vomiting and limiting hospital admission.¹⁵⁻¹⁸ A European consensus stated that antiemetics might be of value in selected children with severe vomiting.⁵ Regarding pathophysiology of vomiting, gastroenteritis triggers vomiting by the release of neurotransmitters either by direct stimulation from abdominal distention or by viral or bacterial toxins. The objective of this current study was to determine the effect of dimenhydrinate in children with gastroenteritis related vomiting having mild to moderate dehydration.

METHODOLOGY

It was a quasi experimental study, conducted in department in Nawaz Sharif Medical College Gujrat,

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from 1st January 2014 to 31st December 2015. Two hundred and fifty six patients were included in the study. Children 1-6 years old having diarrhea and vomiting for at least last six hours were included in the study. All the children were selected and examined in the emergency department and were admitted in ward for oral rehydration therapy (ORT) and dimenhydrinate. Dimenhydrinate was given within ten minutes of admission and ORS was started after twenty minutes. Two groups were made, 128 patients were enrolled in each group. The children with gastroenteritis and vomiting having mild to moderate dehydration were registered as group A (who were given dimenhydrinate) and group B (who were not given antiemetic). The children with severe dehydration and the children with sepsis were not included in the study. The children with dysentery and history of chronic diarrhea were also not included in the study. The socio demographic information, diarrhea and vomiting history was recorded and examination was done.

A child enrolled in group A, was given 0.5mg/kg IM dimenhydrinate and started ORT and another child of same age and gender and same duration of illness was enrolled in group B and only ORT was started. After two hours child was examined again and history of vomiting, ORS taken and diarrhea was asked.

Children who were having no dehydration and not vomiting for last 1 hours and taking ORS adequately were discharged and follow-up was done next day. Children who were having mild to moderate dehydration and vomiting and were not taking ORS adequately were kept in ward and if needed intravenous fluid was given to treat the dehydration. All the data was entered in computer soft-ware SPSS-10 and percentage of children having no dehydration and no vomiting and the percentage of children having mild to moderate dehydration and vomiting at 2-3 hours of admission was calculated.

RESULTS

In group A, total 128 children with diarrhea and vomiting were given dimenhydrinate and ORT. After 2-3 hours of therapy out of 128 children 94(74%) children were having no dehydration, no vomiting and were taking adequate ORS orally and 34(26%) children were having mild to moderate dehydration and were not able to take

ORS due to vomiting. (Table-I). In group B (who were not given anti-emetic), total 128 children with diarrhea and vomiting were given only ORT. After 2-3 hours of therapy, out of 128 children 55(43%) children were having no dehydration, no vomiting and were taking adequate ORS orally and 73(57%) children were having mild to moderate dehydration and were not able to take ORS due to vomiting. (Table-I).

Total 149 children were discharged in first 2-3 hours of admission, 94 were from group A and 55 were from group B. Total 107 children were discharged in 5-6 hours of admission, 34 were from group A and 73 were from group B. 172(67%) children were 1 to 3 years old and 84(33%) children were 4-6 years old. 146(57%) children were male and 110(43%) children were females.

Table I: Assessment of children with vomiting after 2-3 hours of admission (n=256)

Assessment after 2-3 hours of admission	Group-A (antiemetic given) n=128	Group-B (antiemetic not given) n=128
No dehydration, Taking ORS and No vomiting	94 (74%)	55 (43%)
Mild to moderate dehydration and Vomiting	34 (26%)	73 (57%)

DISCUSSION

Vomiting is one of the commonly observed phenomenon in acute gastroenteritis. In acute gastroenteritis among children most of the parents visit hospital when there is excessive vomiting along with loose motions. Scenario it is difficult to give ORS at home due to which chance of dehydration is increased. If we rehydrate the child vomiting will settle because it is self limiting. But if we donot stop vomiting by giving IM anti-emetic we cannot rehydrate the child by giving ORS.

If IM anti-emetic is given then child would take ORS adequately and there would be no need for I.V. fluid and the child could be discharged earlier. Guarino et al, Stated that antiemetics might be of value in selected children with severe vomiting.⁵ King et al, in a guideline devised by the Centers for Disease Control and Prevention in 2003 did state that anti-emetic could be effective in decreasing vomiting and limiting hospital admission.¹⁵ In a meta-analysis by DeCamp *et al.*, children who received ondansetron

were less likely to have ongoing vomiting, to be prescribed intravenous fluids or to be admitted to the hospital from the emergency department.¹⁸ Anti-emetics may be helpful in controlling the vomiting earlier in children with acute gastroenteritis but a larger randomized, placebo-controlled trial is necessary before the medication can be routinely recommended for the treatment of gastroenteritis-related vomiting in children.

CONCLUSION

This clinical trial showed that a single intramuscular injection reduced gastroenteritis-related vomiting and facilitates ORT without significant adverse events. Dimenhydrinate should be considered in situations where vomiting hinders ORT, but a larger randomized, placebo-controlled trial is necessary before the medication can be routinely recommended for the treatment of gastroenteritis-related vomiting in children.

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