

CLINICAL OUTCOME WITH ADD ON RACECADOTRIL VERSUS STANDARD CARE IN PAEDIATRIC GASTROENTERITIS – OUR EXPERIENCE

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ABSTRACT

BACKGROUND

Acute gastroenteritis (AGE) is a diarrheal disease of rapid onset, with an increase in the water content, volume, or frequency of stools and often self-limiting. The WHO recommends ORS as the treatment of choice for children with mild to moderate gastroenteritis in both developed and developing countries. Racecadotril, an intestinal enkephalinase inhibitor, has been used as treatment because it would decrease the duration of acute diarrhea and fluid loss. Racecadotril has sufficient proven efficacy in the treatment of acute diarrhea in children. We evaluated the clinical outcome with add on Racecadotril versus standard care in paediatric gastroenteritis.

METHODS

This open-label randomized study was undertaken at department of Pediatrics, Medical College, for a period of two years. A total 42 children, age group between 3- 10 years of age having watery non-bloody diarrhea with mild to moderate dehydration were enrolled in the study. Patients with severe dehydration, bloody diarrhea or hypersensitivity to Racecadotril were excluded from the study. The patients were randomly assigned to receive intravenous rehydration therapy + Racecadotril (1.5mg/Kg) three times a day or intravenous rehydration therapy alone. The bedside nurse or care giver was instructed to administer the medication. All patients received standardized follow - up care for 7 days. The primary outcomes recorded were percentage of patients having diarrhea, median Stool frequency and percentage of patients switched to complete oral re-hydration on day 3 and day-7.

RESULTS

Out of 42 children in each group whose data were analyzed, 27 patients received intravenous rehydration therapy + Racecadotril (1.5mg/Kg) three times a day and remaining 15 received intravenous rehydration therapy alone. All patients were age and gender matched, however percentage of patients who were moderately dehydrated were marginally higher in Racecadotril add on group. More than 50% reduction in stool frequency was seen in Racecadotril group. Percentage of patients having diarrhea and percentage of patients who were switched to complete oral re-hydration therapy were significantly higher in Racecadotril add on group than standard care on day-3. However, outcome variables were similar on day-7.

CONCLUSION

Add on Racecadotril to intravenous rehydration therapy acutely reduces stool frequency and switch children to complete oral rehydration therapy as compared to intravenous therapy alone. However cost effectiveness has to be addressed in large sample size studies.

KEYWORDS

Acute Gastro Enteritis (AGE), Diarrhea, Rehydration therapy, Racecadotril.

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INTRODUCTION: Acute gastroenteritis (AGE) is a diarrheal disease of rapid onset, with or without accompanying symptoms and signs, such as nausea, vomiting, fever, or abdominal pain.^{1,2}

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The most common causes are bacterial and viral infections and such infections cause intestinal hypersecretion leading to fluid loss and dehydration. While the infection underlying acute diarrhoea typically is self-limiting, the associated dehydration can be life-threatening, particularly in children. World Health Organization (WHO) and UNICEF data in developing countries shows there are about two billion cases of diarrheal disease worldwide every year and 1.9 million children younger than 5 years of age perish from diarrhoea each year.⁽³⁾ The severity of the acute gastroenteritis varies widely depending on the volume of fluid loss the child experiences through vomiting and

diarrhoea. Preventing the development of dehydration and rehydration therapy is the mainstay of emergency department treatment. Enkephalins (endogenous opiate peptides) act as neurotransmitters along the entire digestive tract where they mediate intestinal absorption without affecting intestinal transit time or motility.⁴ Racecadotril, an intestinal enkephalinase inhibitor, has been used as treatment because it would decrease the duration of acute diarrhoea and fluid loss.⁵ Racecadotril was consistently effective in various forms of acute diarrhoea by inhibiting pathologic (but not basal) secretion from the gut without changing gastro-intestinal transit time or motility, particularly less rebound constipation.⁶ Racecadotril has sufficient proven efficacy in the treatment of acute diarrhoea in children.⁷ Several guidelines recommend the use of Racecadotril as addition to oral rehydration treatment in children with acute diarrhoea. To this purpose we also evaluated the clinical outcome with add on Racecadotril versus standard care in paediatric gastroenteritis.

METHODS: It is an open-label randomized study was undertaken at department of Pediatrics, Medical College, for a period of two years A total 42 children, age group between 3-10 years of age having watery non-bloody diarrhoea with mild to moderate dehydration were enrolled in the study. Patients with severe dehydration, bloody diarrhoea or hypersensitivity to Racecadotril were excluded from the study. Institutional ethics committee has approved and informed consent was obtained from the parents. All enrolled paediatric patients had a baseline dehydration score in the range between 6 to 21. The patients were randomly assigned to receive intravenous rehydration therapy + Racecadotril (1.5mg/Kg) three times a day or intravenous rehydration therapy alone. The bedside nurse or care giver was instructed to administer the medication. All patients received standardized follow-up care for 7 days. The primary outcomes recorded were percentage of patients having diarrhoea, median Stool frequency and percentage of patients switched to complete oral re-rehydration on day 3 and day-7. Diarrhoea was primarily defined as three or more watery stools per day.

STATISTICAL ANALYSIS: Data was presented as mean, SD, range, actual numbers and Percentages. Statistical analysis was carried by using chi-square and Mann Whitney test.

RESULTS: Out of 42 children in each group whose data were analyzed, 27 patients received intravenous rehydration therapy + Racecadotril (1.5mg/Kg) three times a day and remaining 15 received intravenous rehydration therapy alone. It can be interpreted from table-1, that all patients were age and gender matched, however percentage of patients who were moderately dehydrated were marginally higher in Racecadotril add on group. More than 50% reduction in stool frequency was seen in Racecadotril group. Percentage of patients having diarrhoea and percentage of patients who were switched

to complete oral re-rehydration therapy were significantly higher in Racecadotril add on group than standard care on day-3. However, outcome variables were similar on day-7.

	I.V therapy Group	I.V therapy Group + Racecadotril (1.5mg/Kg) three times a day	P value
n	27	15	-
Age	7.4±1.8	8.6±2.2	p>0.05
Weight	20.2±5.1	26.2±5.6	p>0.05
Gender	15(M)/12(F)	9(M)/6(F)	p>0.05
Dehydration Score Mild	12 (45%)	5 (33%)	P>0.05
Dehydration Score Moderate	15 (55%)	10 (67%)	
Median Stool frequency	6	8	p>0.05
Follow Up On Day 3			
Diarrhea	20/27 (74%)	5/15 (33%)	P<0.05
Median Stool frequency	4	3	p>0.05
Switch to complete oral re-rehydration therapy	7/27 (26%)	10/15 (67%)	P<0.05
Follow Up On Day 7			
Diarrhea	4/27 (14.8%)	2/15 (13.3%)	p>0.05
Median Stool frequency	3	3	p>0.05
Switch to complete oral re-rehydration	25/27 (92.6%)	15/15 (100%)	p>0.05

Table 1

DISCUSSION: Acute gastroenteritis (AGE) in children is very common and accounts for a large number of emergency department visits and hospitalizations.⁸ Dehydration associated with gastroenteritis is a serious complication. Oral rehydration is an effective and inexpensive treatment, but some physicians prefer intravenous methods. A meta-analysis found no clinically important differences between oral (ORT) and intravenous (IVT) rehydration therapy, however, the ORT group were having a higher risk of paralytic ileus whereas, the IVT group risks of intravenous therapy.⁹ As an adjunct to oral rehydration solution, Racecadotril has a clinically relevant effect in reducing diarrhoea (duration, stool output and stool number), irrespective of baseline conditions.¹⁰ Meta-analysis showed significantly shorter duration of diarrhoeal symptoms in patients in the Racecadotril group compared with patients receiving placebo or no intervention. Another study found a similar duration of diarrhoeal symptoms between Racecadotril and loperamide groups. Racecadotril did not improve the symptoms of diarrhoea compared with standard

oral rehydration therapy in a prospective, randomized, parallel group outpatient treatment for acute gastroenteritis.¹¹

CONCLUSION: Add on Racecadotril to intravenous rehydration therapy acutely reduces stool frequency and switch children to complete oral rehydration therapy as compared to intravenous therapy alone. However cost effectiveness has to be addressed in large sample size studies.

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