

# Pre-Admission Management of Acute Gastroenteritis in Children: Too Much or Too Little?

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## Summary

Two hundred and ninety five children admitted with acute gastroenteritis from January 1, 1996 to December 31, 1996 to the Paediatric unit, University of Malaya Medical Centre, Kuala Lumpur, were reviewed. Eighty-nine percent of children received treatment before admission. Information regarding the type of treatment received were available in 152 (52%) cases. Eighty percent of them were prescribed medications, 40% were prescribed glucose-electrolyte mixtures, and 13% were advised a change of formula. Only 18 children (12%) were advised to take glucose-electrolyte mixtures alone. The four most common prescribed drugs were: antibiotics (43%), antipyretics (39%), antidiarrhoeal agents (30%), and antiemetics (24%). The use of antibiotics, antiemetics and antidiarrhoeal drugs for children with acute gastroenteritis among primary care doctors appears to be common. The use of glucose-electrolyte mixtures was uncommon.

**Key Words:** Acute gastroenteritis, Therapy, Malaysia.

## Introduction

The two most important aspects in the management of acute gastroenteritis in childhood are maintenance or restoration of adequate hydration and electrolyte balance with provision of adequate nutritional intake.<sup>1</sup> Antidiarrhoeal compounds are generally not recommended because of their potentially harmful effects.<sup>2</sup> Currently, no antibiotics are available for the treatment of patients with gastroenteritis caused by viral enteropathogens.<sup>3</sup> Antimicrobial agents may be indicated in specific circumstances such as in infectious diarrhoea caused by bacteria. These include antimicrobial-associated colitis, salmonellosis in certain high-risk populations, shigellosis, and certain *Campylobacter* infections.<sup>3</sup>

There has been concern about the quality of pre-admission treatment received by children with acute gastroenteritis.<sup>4,5</sup> Up to 50% of children were given

drugs, and there was still underuse of glucose-electrolyte mixtures.<sup>4-6</sup> No information is available regarding this aspect from Malaysia. We reviewed the pre-admission treatment received by a group of children with acute gastroenteritis who were admitted to the Paediatric Unit, University Hospital, Kuala Lumpur, Malaysia over a period of twelve months.

## Materials and Methods

The case notes of all children who were admitted to the Paediatric Unit, University Hospital, Kuala Lumpur, from January 1, 1996 to December 31, 1996 with a diagnosis of acute gastroenteritis were retrieved. The pre-admission treatment stated in the referral letter from referring doctors, which include general practitioners, medical officers from the family clinic and casualty departments of the hospital, or obtained from the carers of the patients and as

recorded in the case notes, were reviewed. Prescription of drug(s), glucose-electrolyte mixture or advice about change of feeding practice were considered as pre-admission treatment.

## Results

There were 358 admissions with a diagnosis of acute gastroenteritis to the Paediatric Unit during the study period, representing 6.6% of the total medical admissions of the year. Two hundred and ninety five (83%) case notes were available for review. 143 children (49%) were infants aged below one year.

One hundred and sixteen children (40%) were referred by general practitioners or medical officers from the casualty department and family clinics of the hospital. Ten (3%) were referred by private paediatricians. No information were available regarding the source of referral of the remaining 169 (57%) children.

Two hundred and sixty four children (89%) received some pre-admission treatment. Information regarding type(s) of treatment received were available in 152 (52%) of them. In the remaining 112 (38%) children who received pre-admission treatment, the carers were either unaware of the treatment received or the information were not available in the referral letter. Thirty one (11%) children did not receive any pre-admission treatment.

Of the 152 children where information were available, 123 (80%) had been given drugs: 53 had been given one drug, 41 two drugs and 26 three drugs. Three children were prescribed four drugs. This gave an average of 1.8 medicines per patients. Table I shows the number of patients who received the various drugs prescribed. Glucose-electrolyte mixtures were prescribed to 62 (40%) children. In 44 patients this was given in conjunction with other drug(s), while the remaining 18 (12%) were given glucose-electrolyte mixture alone. Parents of 20 (13 %) children were advised to change formula feeding. In nine, this was the only treatment received. The four most common prescribed drugs

**Table 1**  
**Pre-admission treatments of 152 children with acute gastroenteritis**

Treatment	No of children	%
Antibiotics	66	43
Glucose-electrolyte mixtures	62	41
Antipyretics	60	39
Antidiarrhoeal agents	46	30
Antiemetics	37	24
Change of formula	20	13
Antihistamines	10	7
Diazepam	3	2
Antacids	2	1
Anthelmintics	2	1
Antispasmodic (Buscopan)	1	1
Diocahedral smectitie (Smecta ®)	1	1

were antibiotics, antipyretics, antidiarrhoeal agents, and antiemetics. The commonest antibiotics were amoxycillin and trimethoprim-sulfamethoxazole. Three children received rectal diazepam as they presented with febrile convulsions.

No adverse effects towards the prescribed drugs were observed whilst in the ward. The children received glucose-electrolyte mixtures or intravenous fluids for severe dehydration or persistent vomiting. No antiemetics or antidiarrhoeal agents were prescribed. Antipyretics was given as required. One child, aged five months, who had watery diarrhoea for 14 days, was severely dehydrated and malnourished, died soon after admission due to septicaemia.

## Discussion

The two most important aspects in the management of acute gastroenteritis in children are restoration and maintenance of adequate hydration status and provision of nutrition.<sup>1,2</sup> The development of oral rehydration therapy for the treatment of diarrhoea was the most important therapeutic advance in the field of diarrhoeal diseases in recent years.<sup>7</sup> Its safety and efficacy has been established in clinical trials in North America and Europe,<sup>8,9</sup> and has been recommended as the preferred treatment of fluid and electrolyte losses caused by diarrhoea in children with mild to moderate dehydration.<sup>2</sup> However, as has been noted in other studies,<sup>6,10</sup> only 40% of children in this study were prescribed glucose-electrolyte mixture. In most instances, it was prescribed in combination with drugs. Only in 12% of children was it the sole therapy prescribed.

Although the routine use of antiemetics and antidiarrhoeals are not recommended,<sup>2</sup> their continuing and widespread use among general practice is a cause for concern.<sup>5</sup> Antiemetics, prescribed in 24% of children in this study, are generally ineffective in controlling vomiting due to gastroenteritis. Both prochlorperazine (Stemetil ®) and metoclopramide (Maxolon ®) may cause extrapyramidal side effects.<sup>11</sup> The use of antidiarrhoeal agents was even more frequent than antiemetics, and was prescribed in 30% of children in this study. The most popular antidiarrhoeal drugs used noted in this study is diphenoxylate atropine sulphate (Lomotil ®, Searle). Less commonly prescribed was loperamide (Imodium ®, Janssen-Cilag). Intoxication in children treated with diphenoxylate atropine sulphate for acute diarrhoea has been reported.<sup>12</sup> Although loperamide has been shown to reduce the duration and severity of diarrhoea,<sup>13</sup> but there are doubts about its safety in children.<sup>14</sup> Therefore there is no convincing evidence that any of these drugs used for symptomatic relief are useful in childhood gastroenteritis. Their use is associated with unwanted

effects, adds unnecessary cost, and tends to divert away from the central importance of oral rehydration.

There are limited indications in the use of antibiotics in the management of acute infectious diarrhoea.<sup>3</sup> It has certainly no place in the management of acute viral infectious diarrhoea. In some instances of bacterial diarrhoea, such as *Salmonella* gastroenteritis and possibly infection with enterohaemorrhagic *E. coli*, antibiotic therapy may be detrimental.<sup>14</sup> Despite this, antibiotics was the most common form of medications prescribed by general practitioners in this study in the management of acute gastroenteritis. More than four out of ten children were prescribed antibiotics. Since bacterial gastroenteritis only accounts for a small percentage of acute diarrhoea in this country,<sup>15,16</sup> and stool cultures are not routinely obtained in general practice, routine use of antibiotics in children with acute gastroenteritis cannot be justified.

Both cow's milk protein-sensitive enteropathy and carbohydrate intolerance following acute gastroenteritis have been shown to be the factors associated with prolongation of diarrhoea following acute gastroenteritis.<sup>17,18</sup> However, recent studies have shown that the incidence of lactose intolerance following acute gastroenteritis to be extremely low.<sup>16,19</sup> Therefore a special infant formula or food should not be advised in the routine management of gastroenteritis.<sup>20</sup>

This study has shown that the primary care received by urban Malaysian children with acute gastroenteritis were too dependent on drugs that are costly, with little benefit and potentially harmful. There was little adherence to proven effective measures such as provision of glucose-electrolyte mixture. Greater efforts should be made to educate the general public about the efficacy of oral rehydration in the management of mild to moderate diarrhoea; and to encourage its usage among general practitioners in Malaysia.

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