

Original article:

Comparative Evaluation of Efficacy of Antibiotic in Treating Bacterial Enteritis in Children: A Hospital Based Study

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Abstract

Introduction- Acute gastroenteritis (AGE) is commonly occurring ailments in infants and young children. The present study was conducted to compare the efficacy of ciprofloxacin and azythromycin in children with bacterial enteritis.

Materials & Methods- The present study was conducted on 64 children age ranged 3-6 years visited the department with history of enteritis. Symptoms such as fever, diarrhea, abdominal pain and vomiting were recorded. Children were divided into 2 groups of 32 each. Group I was given syrup ciprofloxacin 1 tsp B.D and group II was given syrup azythromycin 1 tsp B.D for 5 days. Along with ORS solution was prescribed in all children.

Results- Group I had 32 children who were given ciprofloxacin and group II had 32 children who were given azythromycin. The difference was non- significant (P= 1). In both groups there was decrease in fever from 38 degree C at day 1 to 36.2 degree C in group I and 36.4 degree C in group II. The difference was non- significant (P> 0.05). At 1st day in group I children had 7 or more stools which gradually decreased to 3 at 5th day. In group II, at 1st day stools were 8 which decreased to 3 on 5th day. The difference was non- significant (P> 0.05).The number of vomiting was 5 on 1st day in group I which decreased to 1 on 5th day. The number of vomiting was 4 on 1st day in group I which decreased to 0 on 5th day. The difference was non- significant (P> 0.05).

Conclusion- Both ciprofloxacin and azythromycin found to be equally effective in management of cases. However, ORS is an essential rehydration tool in most of the cases.

Key words- Acute gastroenteritis, Azythromycin, Ciprofloxacin

Introduction

Acute gastroenteritis (AGE) is commonly occurring ailments in infants and young children. A wide range of organisms such as viral, bacterial, and parasitic agents play an important role in AGE. Acute diarrhea has high morbidity and mortality rates, leads to 2 million deaths annually.

The most common bacterial agent is Shigella whereas Vibrio cholerae still causes epidemics. Other common bacterial pathogens are Campylobacter,

Salmonella spp., enteropathogenic E. coli (EPEC), and enteroaggregative E. coli. Common symptoms are dehydration, toxemia, marked leucocytosis, highgrade fever, severe welfare depression, tenesmus, gross fecal blood loss and dissemination of infection.¹

Antibiotic treatment of acute gastroenteritis has generally been discouraged because the disease is usually self-limiting, and often the patient is recovering by the time the microbiological diagnosis

is made. Antibiotics are ineffective for viral infections, and the view has long been that antibiotics do not reduce the duration of symptoms of bacterial gastroenteritis and may indeed prolong gastrointestinal carriage of the pathogen. Oral rehydration therapy is the universal therapy.²

Active treatment with probiotics and antidiarrheal agents is suggested in adjunct to rehydration, as it reduces the duration and intensity of symptoms independently from etiology. There is continue debate whether there is need to prescribe antibiotic or which antibiotic should benefit then children. A wide range of antibiotic is considered such as ciprofloxacin, azythromycin, amoxicillin etc. Antibiotics are useful in cases of acute bacterial enteritis which is confirmed after culture sensitivity.³The present study was conducted to compare the efficacy of ciprofloxacin and azythromycin in children with bacterial enteritis.

Results

Table I Distribution of children

Total- 64		
Group I (ciprofloxacin)	Group II (azythromycin)	P value
32	32	1

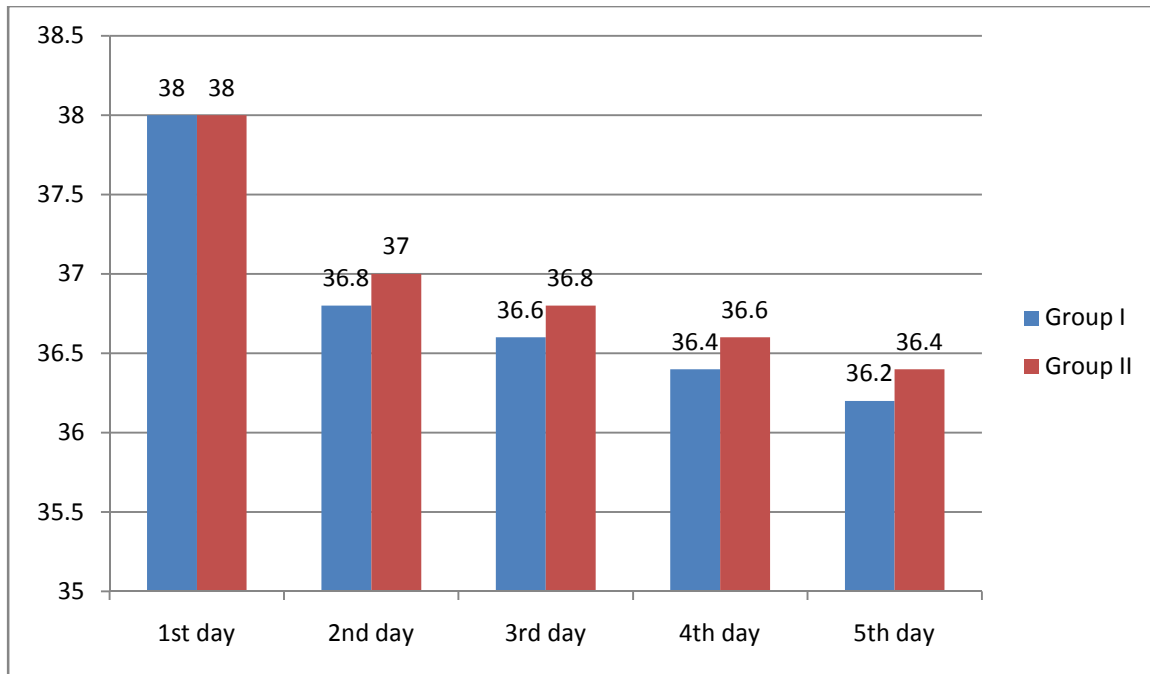
Table I shows that group I had 32 children who were given ciprofloxacin and group II had 32 children who were given azythromycin. The difference was non- significant (P- 1).

Materials & Methods

The present study was conducted in the department of Pediatrics of Mahatma Gandhi Hospital, Bhilwara, Rajasthan. It comprised of 64 children age ranged 3-6 years visited t the department with history of enteritis. Parents were informed regarding the study and written consent was obtained. Ethical clearance was taken from institutional ethical committee.

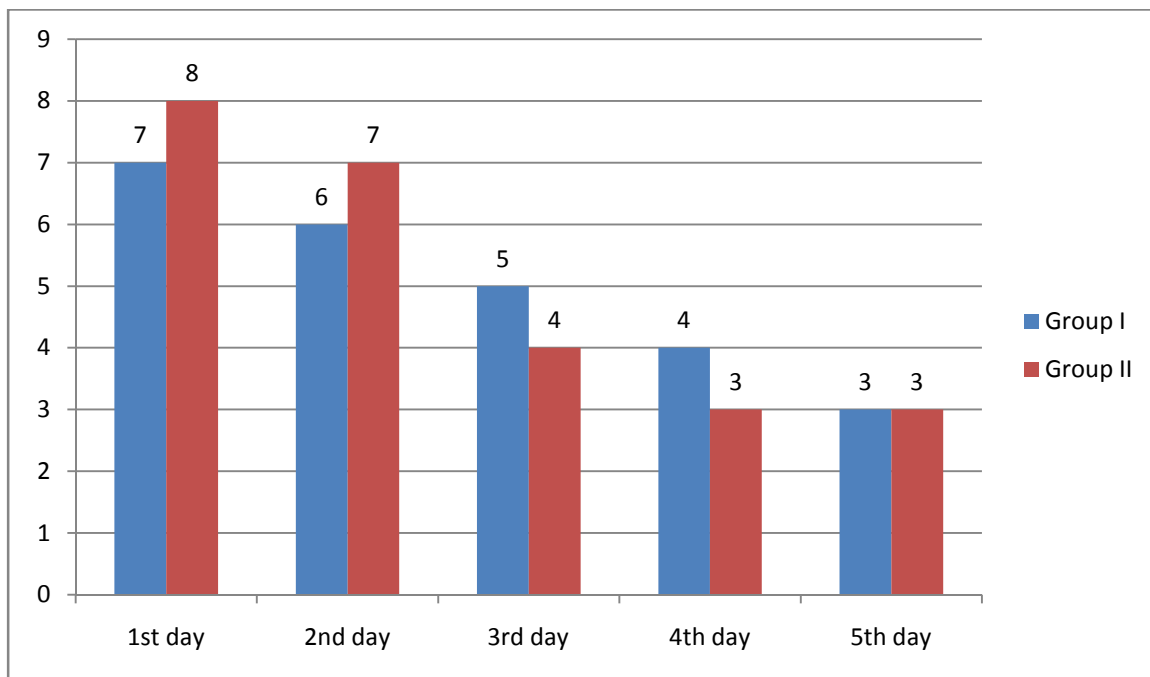
General information such as age, name, gender etc. was noted. Symptoms such as fever, diarrhea, abdominal pain and vomiting were recorded. Children were divided into 2 groups of 32 each. Group I was given syrup ciprofloxacin 1 tsp B.D and group II was given syrup azythromycin 1 tsp B.D for 5 days. Along with ORS solution was prescribed in all children. Symptoms were compared in both groups. Results thus obtained were subjected to statistical analysis using chi- square test. P value less than 0.05 was considered significant.

Graph I Fever in both groups



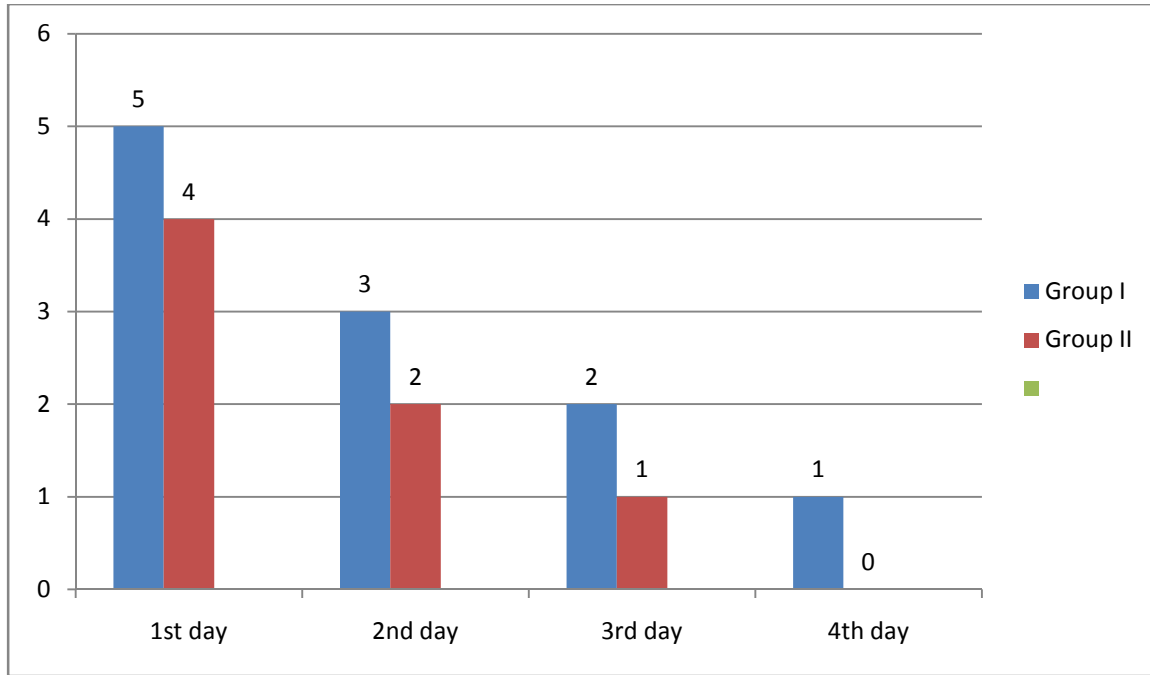
Graph I shows that in both groups there was decrease in fever from 38 degree C at day 1 to 36.2 degree C in group I and 36.4 degree C in group II. The difference was non- significant ($P > 0.05$).

Graph II Diarrhoe in both groups



Graph II shows that at 1st day in group I children had 7 or more stools which gradually decreased to 3 at 5th day. In group II, at 1st day stools were 8 which decreased to 3 on 5th day. The difference was non- significant ($P > 0.05$).

Graph III Vomiting in both groups



Graph III shows that number of vomiting was 5 on 1st day in group I which decreased to 1 on 5th day. The number of vomiting was 4 on 1st day in group I which decreased to 0 on 5th day. The difference was non- significant ($P > 0.05$).

Discussion

There are no clear indications for antimicrobial therapy; however, antibiotics are frequently prescribed. Overuse of antibiotics is associated with increased rates of antibiotic-resistant bacteria, unnecessary costs, and significant incidence of adverse events, and current guidelines are highly restrictive in recommending empiric antimicrobial therapy for AGE.⁴

In present study, we included 64 children of both genders. They were divided into 2 groups. Group I was prescribed syrup ciprofloxacin 1 tsp B.D and group II was given syrup azythromycin 1 tsp B.D for 5 days. This is in agreement with Dinizet al.⁵

We found that common symptoms were abdominal pain, vomiting, diarrhea and fever. In both groups there was decrease in fever from 38 degree C at day 1 to 36.2 degree C in group I and 36.4 degree C in

group II. At 1st day in group I children had 7 or more stools which gradually decreased to 3 at 5th day. In group II, at 1st day stools were 8 which decreased to 3 on 5th day. This is similar to Ulutanet al.⁶ We found that number of vomiting was 5 on 1st day in group I which decreased to 1 on 5th day. The number of vomiting was 4 on 1st day in group I which decreased to 0 on 5th day.

Bacterial infections may be associated with the presence of specific clinical features, notably fever, abdominal pain, blood in the stool, and fecal leukocytes. However, none of these features is reliable to support a bacterial etiology. In addition, many children with bacterial enteritis have negative stool cultures and, conversely, it is not uncommon to detect multiple bacterial and viral pathogens, making it difficult to give a causative role to a specific microorganism.⁷

Diarrhoe is the prominent features which can lead to dehydration. There are cases which show that excessive watery stools can be the cause of deaths in children especially in developing countries. There is need to look after etiology behind it. Excessive stools also the cause of abdominal cramps which becomes difficult to bear. Vomiting is another important features which leads to water loss in the body. Excessive vomiting also the reason for nutrition imbalance in the body and there is requirement of consulting the Pediatrician immediately to prevent developing complications out of it.⁸

Ciprofloxacin, a fluoroquinolone, is active against all the recognized bacterial causes of gastroenteritis. It concentrates at high levels within the enteric mucosa, does not greatly affect the normal anaerobic bowel flora, and penetrates effectively into macrophages; all of these characteristics make this agent an effective drug for treatment of bacterial gastroenteritis. Ciprofloxacin has been effective in the treatment of enteric fever, traveler's diarrhea and acute diarrhea in patients admitted to the hospital as well as those presenting to the hospital.

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A study by Neil MA et al⁹ found that it is the major cause of deaths worldwide. The harmful effects of vomiting can be judged on the basis that sometimes condition becomes critical and life threatening. Another study by Dryden et al¹⁰ on asymptomatic foodhandlers as the source of nosocomial salmonellosis confirmed the role of salmonella in the gastroenteritis. Bacterial gastroenteritis in healthy persons is uncomfortable and disrupts their life.

Proper handling of food and drinking safe water is key to prevent developing disease in children. Food contaminated with dust particles or unhygienic consumption of food beverages are common causes of the condition.

Conclusion

Both ciprofloxacin and azithromycin found to be equally effective in management of cases. However, ORS is an essential rehydration tool in most of the cases.

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