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Original Research

Comparative evaluation of different treatment regime in treating diarrhoea patients

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ABSTRACT:
Background: Diarrhoea is a common problem, affects all age groups.The present study was conducted to evaluate the efficacy of zinc-probiotic combination therapy and probiotic therapy alone in the treatment of acute paediatric diarrhoea. **Materials & Methods:** The present study was conducted on 180 children age ranged 1 year to 10 year of both genders. Patients were divided into 2 groups of 90 each. Group I received zinc along with probiotics and group II received probiotics only by oral route. Child above 1 year of age received 20 mg/day zinc for 2 weeks. The probiotic, Bacillus clausii was administered two times a day for 5 days. **Results:** Age group 1-2 years had 34 males and 30 females, 3-4 years had 24 males and 22 females, 5-6 years had 10 males and 14 females, 7-8 years had 16 males and 12 females and 9-10 years had 10 males and 8 females. In group I, maximum patients were of lower status (25) followed by upper lower (20) and upper middle (20). In group II, maximum patients were of lower (30) status followed by upper lower (20). The difference was significant (P< 0.05). In group I, 76 patients were severe before treatment which became nil after treatment. In group II, 12 remained severe after treatment. **Conclusion:** The administration of zinc along with probiotics proved to be effective in controlling diarrhoea as compared to probiotics alone.
Key words: Diarrhoea, Probiotics, Zinc

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INTRODUCTION

Diarrhoea is a common problem, affects all age groups. It is defined as the passage of loose and watery stools for 3 or more times in a day. A bacterial infection such as Campylobacter, E. coli, Salmonella and Shigella infections, viral infections such as Rotavirus, Cytomegalovirus, Norwalk, Hepatitis and Herpes simplex infections, intestinal parasites infections and food intolerances are some of the important causes of diarrhoea in both children and adults.[1] Administration of antibiotics and antacids containing magnesium may also lead to diarrhoea. Overcrowding, poor sanitation and lack of safe drinking water are some of the important issues closely associated with diarrhoeal disease.[2]

Travelers visiting less developed nations are commonly affected by episodes of acute watery diarrhea or travelers'diarrhea (TD), which is characterized per study definitionsby having at least three unformed stools within 24 hours frequently associated with other clinical symptoms, including vomiting, abdominal pain or cramping, and nausea. In general, TD is an acute syndrome commonly self-resolving within 3 to 5 days.[3]

Prompt adoption of empirical antimicrobial therapy is also useful in the setting of febrile acute bloody diarrhea in young children and is currently recommended by the World Health Organization. Probiotics are live microbes administered in sufficient quantity to develop a health benefit on the host. Either single or mixed culture of bacteria of genera Bacillus, Lactobacillus, Bifidobacterium and non-pathogenic yeast such as Saccharomyces boulardii are some examples for commonly used probiotics.[4] The present study was conducted to evaluate the efficacy of zinc-probiotic combination therapy and probiotic therapy alone in the treatment of acute paediatric diarrhoea.

MATERIALS & METHODS

The present study was conducted in the department of Pediatrics. It comprised of 180 children age ranged 1 year to 10 year of both genders. All parents of participants were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to commencement of study.

General information such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 90 each. Group I received zinc along with probiotics and group II received probiotics only by oral route. Child above 1 year of age received 20 mg/day zinc for 2 weeks. The probiotic, Bacillus clausii was administered two times a day for 5 days.

Duration and frequency of diarrhoea were monitored during hospitalization and also after discharge. The presence of any toxicity and side effects associated with zinc and probiotic administration such as nausea, vomiting, abdominal pain, and sepsis were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Age group (Years)	Males	Females
1-2	34	30
3-4	24	22
5-6	10	14
7-8	16	12
9-10	10	8

Table I shows that age group 1-2 years had 34 males and 30 females, 3-4 years had 24 males and 22 females, 5-6 years had 10 males and 14 females, 7-8 years had 16 males and 12 females and 9-10 years had 10 males and 8 females.

Table II Socio- economic status of patients

Socio- economic status	Group I	Group II	P value
Upper	10	5	0.05
Upper middle	20	10	
Lowe middle	15	20	
Upper lower	20	25	
Lower	25	30	

Table II, graph I shows that in group I, maximum patients were of lower status (25) followed by upper lower (20) and upper middle (20). In group II, maximum patients were of lower (30) status followed by upper lower (20). The difference was significant (P< 0.05).

Graph I: Socio- economic status of patients

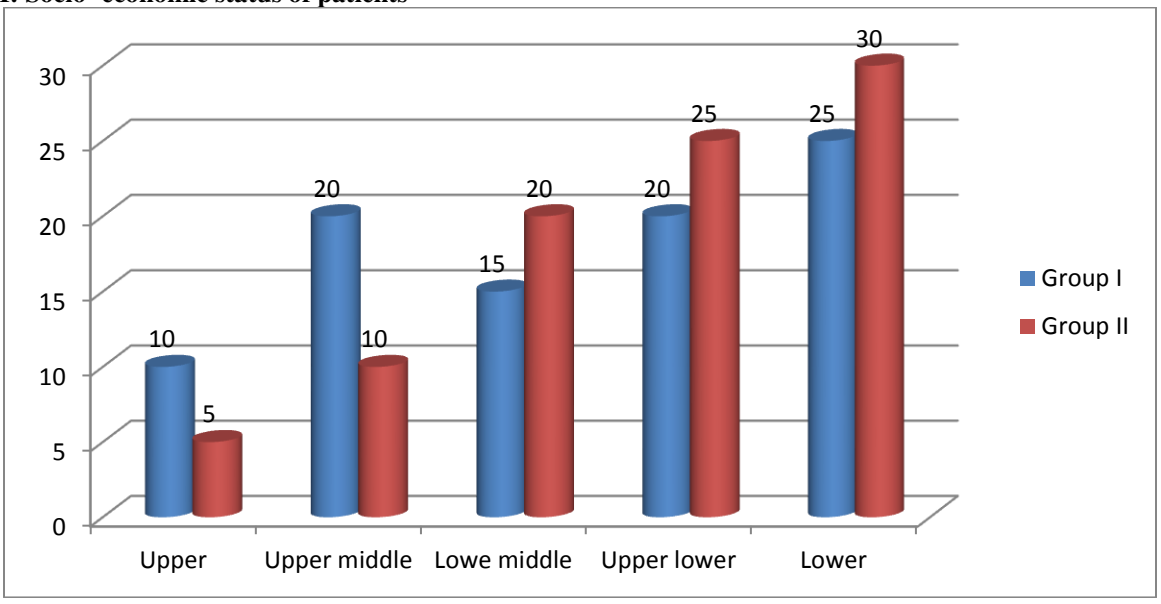

Table III Staging of diarrhoea before and after treatment

Stage	Group I		Group II	
	Before	After	Before	After
Mild	4	68	10	13
Moderate	10	22	8	65
Severe	76	0	72	12

Table III shows that in group I, 76 patients were severe before treatment which became nil after treatment. In group II, 12 remained severe after treatment.

DISCUSSION

There are several arguments against the empirical use of antibiotics for acute infectious diarrhea. The most compelling of them is the fact that acute infectious diarrhea is typically a self-limiting disease, regardless of its etiology, with most cases resolving in less than three days.[5] Moreover, one must consider the low incidence of treatable pathogens among the causative agents of acute diarrhea, the possible occurrence of side effects, the potential development of resistant strains, the cost of treatment, and possible noxious effects on the disease itself, as seen with enterohemorrhagic E. coli(EHEC) and non-typhoidal Salmonella.[6]

In present study, age group 1-2 years had 34 males and 30 females, 3-4 years had 24 males and 22 females, 5-6 years had 10 males and 14 females, 7-8 years had 16 males and 12 females and 9-10 years had 10 males and 8 females.

Karadag[7] in their review article suggested that the routine use of antibiotics for infectious diarrhea in children must be avoided, because it brings little benefit in most cases and is associated with the risk of increasing antimicrobialresistance, selected cases may require antimicrobial therapy, and the choice of the antimicrobialagent often has to be made empirically. Physicians prescribing antimicrobials in such a setting havenot only to be aware of the most likely pathogens, but also of their characteristic antimicrobialsusceptibility pattern and the safety profile of the various drugs.

We found that in group I, maximum patients were of lower status (25) followed by upper lower (20) and upper middle (20). In group II, maximum patients were of lower (30) status followed by upper lower (20). In group I, 76 patients were severe before treatment which became nil after treatment. In group II, 12 remained severe after treatment.

The study of Stefano et al[8]revealed that, in group 1, 54.6% of patients were males and in group 2, 58.6% were females. The mean age of affected children was 5.14±3.53. In both groups, the majority of patients were from outpatient (OP) departments. In group 1, majority of patients, 49.3% were resting in upper lower economic class followed by 30.7% were lower middle class. In the case of group 2, 34.6% patients were from lower middle and 28% were from upper middle class. Other medications such as antiemetic and antipyretic were administered to 127and 110 patients respectively. Antisecretory and antibiotic were administered to 31 and 26 patients respectively. Totally 8 patients were affected with adverse drug reactions such as rashes and swelling of lips. In both groups severity of diarrhoea was high before treatment and it was changed after effective treatment with drugs. Comparing with group 2, the duration and severity of diarrhoea and other associated symptoms in group 1 patients were significantly reduced after treatment. Before counseling, the majority of mothers had very poor knowledge about the diarrhoeal disease and its management. Evaluation after counselling showed a significant improvement.

CONCLUSION

Diarrhoea is a common problem. The administration of zinc along with probiotics proved to be effective in controlling diarrhoea as compared to probiotics alone.

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