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Original Research Article.

Comparative Evaluation of Various Treatment Modalities in Treating Diarrhoea Patients at a Tertiary Care Teaching Hospital

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ABSTRACT

Background: Diarrhoea is described as three or more loose or watery stools a day. Infection commonly causes acute Diarrhoea. Noninfectious etiologies are more common as the duration of Diarrhoea becomes chronic. Hence; under the light of above mentioned data, we planned the present study assess and compare the efficacy of various treatment modalities in the Treating diarrhoea patients.

Materials & Methods: A total of 160 patients with diarrhoea were included in the present study. All the patients were broadly divided into four study groups with 40 patients in each group: group 1- patients who were given Nitazoxanide therapy while group 2- included patients who were given metronidazole therapy, group 3- patients who were given cefixime therapy, and group 4 – patients who were given norfloxacin therapy. Stool samples were obtained from patients of both the study groups for assessing the effectiveness of treatment therapy. Both clinical and microbiological success was recorded. All the results were recorded and analysed by SPSS software.

Results: Clinical success was recorded in 95 percent of the patients of group 1 and it was recorded in 97.5 percent of the patients of group 2. Microbiological and clinical success among subjects of group 3 was 90 percent and 92.5 percent respectively. Microbiological and clinical success among subjects of group 4 was 92.5 percent and 92.5 percent respectively. Non-significant results were obtained while comparing the efficacy of both the antibiotics in treating diarrhoea patients.

Conclusion: All the antibiotics can be used with equal efficacy in treating diarrhoea patients.

Key words: Diarrhoea, Metronidazole, Nitazoxanide.

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INTRODUCTION

Diarrhoea is described as three or more loose or watery stools a day. Infection commonly causes acute Diarrhoea. Noninfectious etiologies are more common as the duration of Diarrhoea becomes chronic. Treatment and management are based on the duration and specific etiology. Rehydration therapy is an important aspect of the management of any patient with Diarrhoea. Prevention of infectious Diarrhoea includes proper handwashing to prevent the spread of infection.[1-3]

Along the small bowel both absorption and secretion of fluid and electrolytes occur; normally there is net absorption. Diarrhoea can result when either decreased absorption or increased secretion occurs. Classic secretory Diarrhoea is caused most commonly by toxins produced by various bacterial pathogens such as Staphylococcus, Escherichia coli, and Vibrio cholerae. Certain hormones, when produced in excess, such as vasoactive intestinal peptide (VIP) and gastrin produced by pancreatic tumors, and calcitonin produced by medullary cancer of the thyroid, can also stimulate excessive mucosal secretion, leading to Diarrhoea.[4-6]

Hence; under the light of above mentioned data, we planned the present study assess and compare the efficacy of different treatment modalities in treating diarrhoea patients.

MATERIALS & METHODS

The present study was planned in the Department of General Medicine, Saraswathi Institute of Medical Sciences, Anwarpur, Hapur, Uttar Pradesh (India) and it included assessment and comparison of different treatment modalities in Treating diarrhoea

patients. Ethical approval was obtained from institutional ethical committee and written consent was obtained from all the patients after explaining in detail the entire research protocol. A total of 160 patients were analysed. All the patients were broadly divided into four study groups with 40 patients in each group: group 1- patients who were given Nitazoxanide therapy while group 2- included patients who were given metronidazole therapy, group 3- patients who were given cefixime therapy, and group 4 – patients who were given norfloxacin therapy. Stool samples were obtained from patients of both the study groups for assessing the effectiveness of treatment therapy. Both clinical and microbiological success was recorded. All the results were recorded and analysed by SPSS software. Chi- square test was used for assessment of level of significance.

Table 1: Age-wise and gender-wise distribution of patients

Parameter		Group 1	Group 2	Group 3	Group 4
Age group (years)	**Less than 30**	10	12	11	12
	30 to 45	15	14	15	15
	More than 45	15	14	14	13
Gender	**Males**	25	24	25	23
	Females	15	16	14	17

Table 2: Clinical history

Parameter		Group 1	Group 2	Group 3	Group 4
Stools frequency	**3 to 4 per day**	15	12	14	13
	More than 4 per day	25	28	26	27
Consistency of stools	**Liquid**	10	12	11	12
	Liquid and semi-solid	18	15	16	16
	Semi-solid	22	23	23	22

Table 3: Efficacy

Treatment	Group 1		Group 2		Group 3		Group 4		p- value
	n	%	n	%	n	%	n	%	
Microbiological success	37	92.5	38	95	36	90	37	92.5	0.55
Clinical success	38	95	39	97.5	37	92.5	37	92.5	0.28

RESULTS

A total of 160 patients were analysed. All the patients were broadly divided into four study groups with 40 patients in each group: group 1- patients who were given Nitazoxanide therapy while group 2- included patients who were given metronidazole therapy, group 3- patients who were given cefixime therapy, and group 4 – patients who were given norfloxacin therapy. 15 patients of group 1 and 14 patients of group 2 belonged to the age group of 30 to 45 years. Among the subjects of group 3 and group 4, 15 patients each belonged to the age group of 30 to 45 years. Among the subjects of group 3 and group 4, there were 25 and 23 males respectively. Mean age of the subjects of group 1 and group 2 was 44.8 years and 45.2 years respectively. Mean age of the subjects of group 3 and group 4 was 43.8 years and 44.1 years respectively. There were 25 males and 15 females in group 1, while there were 24 males and 16 females in group 2. Among 15 patients of group 1 and 12 patients of group 2, patients gave history of 3 to 4 stools per day. In the present study, microbiological success was recorded in 92.5 percent of the patients of group 1 and it was recorded in 95 percent of the patients of group 2. Clinical success was recorded in 95 percent of the patients of group 1 and it was recorded in 97.5 percent of the patients of group 2. Microbiological and clinical success among subjects of group 3 was 90 percent and 92.5 percent respectively. Microbiological and clinical success among subjects of group 4 was 92.5 percent and 92.5 percent respectively. Non-significant results were obtained while comparing the efficacy of both the antibiotics in treating diarrhoea patients.

DISCUSSION

Diarrhoea is categorized into acute or chronic and infectious or non-infectious based on the duration and type of symptoms. Acute Diarrhoea is defined as an episode lasting less than 2 weeks. An infection most commonly causes acute Diarrhoea. Most cases are the result of a viral infection, and the course is self-limited. Chronic Diarrhoea is defined as a duration lasting longer than 4 weeks and tends to be non-infectious. Common causes include malabsorption, inflammatory bowel disease, and medication side effects.[7- 9]

In the present study, a total of 160 patients were analysed. All the patients were broadly divided into four study groups with 40 patients in each group: group 1- patients who were given Nitazoxanide therapy while group 2- included patients who were given metronidazole therapy, group 3- patients who were given cefixime therapy, and group 4 – patients who were given norfloxacin therapy. 15 patients of group 1 and 14 patients of group 2 belonged to the age group of 30 to 45 years. Mean age of the subjects of group 1 and group 2 was 44.8 years and 45.2 years respectively. There is an ongoing battle between the host microbiome of normal flora and microbial invaders from the outside. When the invaders win, a range of problems can be created for the host—symptomatic infections can alter intestinal barrier and absorptive functions or lead to rapidly fatal dehydrating Diarrhoea, toxic megacolon, or shock. Asymptomatic infections can go unrecognized, but have long-lasting consequences for children's growth and development (1;2). So, proper diagnosis and treatment are of critical importance—not only for the

individual, whose life and cognitive development are at risk, but for the communities among whom uncontrolled pathogens can spread. Most are acquired through contaminated food or water; however, only very small numbers of some pathogens (such as Shigella, Cryptosporidium, Giardia, rotaviruses or noroviruses) can cause infection. These infections can spread by direct person-to-person contact, such as in crowded conditions or in institutions like day-care centers.[10, 11]

There were 25 males and 15 females in group 1, while there were 24 males and 16 females in group 2. Among 15 patients of group 1 and 12 patients of group 2, patients gave history of 3 to 4 stools per day. In the present study, microbiological success was recorded in 92.5 percent of the patients of group 1 and it was recorded in 95 percent of the patients of group 2. Clinical success was recorded in 95 percent of the patients of group 1 and it was recorded in 97.5 percent of the patients of group 2. Non-significant results were obtained while comparing the efficacy of both the antibiotics in treating diarrhoea patients. Ali AAE et al compared the effect of nitazoxanide and metronidazole in treatment of protozoal Diarrhoea in children. This study was carried out on 160 diarrheic patients (83 males and 77 females), aged from 1-11 years old collected from the-clinics of pediatric department. Patients were divided into two groups. Group A received Nitazoxanide 100 mg in 1-4 years aged patients and 200 mg in 4-11 years aged patients twice daily for 3 days respectively, Group B received Metronidazole 50 mg/Kg/body weight daily for 7 days. Patients were represented to full history taking, physical examination, laboratory investigations in the form of stool analysis, culture and complete blood count (CBC). There was a significant increase in the number of cases resolved by Nitazoxanide compared to Metronidazole group in both amebiasis and giardiasis (p-value < 0.05) with similar clinical improvement when using Nitazoxanide for 3 days and Metronidazole for 7 days. This study confirmed the efficacy and safety of nitazoxanide as a 3-day treatment of Diarrhoea due to giardiasis & amebiasis in children. A 3-day course of nitazoxanide could replace much longer regimens of metronidazole.[11]

Often, in severe conditions, early empiric therapy is needed while awaiting the results of investigations. If clinical conditions are severe, parenteral therapy should be started soon. For parenteral therapy of Diarrhoea, ceftriaxone or ciprofloxacin may be considered, as both are effective against Gram-negative bacteria. Oral metronidazole can be considered for sequential therapy after parenteral administration. Oral metronidazole is used for prolonged Diarrhoea, although there is little evidence of efficacy of antibiotics.[12]

CONCLUSION

Under the light of above obtained data, the authors conclude that all the antibiotics can be used with equal efficacy in treating diarrhoea patients. However; further studies are recommended.

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