

To evaluate the clinical and demographic profile of patients suffering from diarrhoea in children

Sunil Agarwal

Associate Professor, Department of Paediatrics, Sakshi Medical College & Research Centre, Guna, Madhya Pradesh, India

ABSTRACT:

Aim: The purpose of this research is to ascertain the clinical and demographic profile of diarrheal patients of paediatric age in order to better treat them. **Methods:** This prospective observational study was carried out in the Department of Pediatrics, after taking the approval of the protocol review committee and institutional ethics committee. The sample size was 200 with 2 groups A and B having 100 patients each. Only those infants and children who fulfilled inclusion criteria such as those aged between 6 months - 5 years, suffering from acute diarrhea and presenting to the Pediatric Department at this set-up for treatment; were included in the study. **Results:** Almost 41 (41%) and 31 (31%) patients in groups A and B respectively had continued breastfeeding during the study. In the remaining 59(59%) and 69(69%) group A and B patients respectively, breastfeeding was carried out till 1, 1.5, or 2 years. In group A, a majority of 55(55%) patients were not given bottle feeding while the remaining 45(45%) were given. Almost 60 (60%) patients were not given bottle-feeding whereas 40 (40%) were given in group B. Maximum patients 57(57%) of A and 51 (51%) of B group had no dehydration whereas remaining 43 (43%) and 49(49%) patients had some dehydration respectively. In group A, a maximum of 31 patients had no dehydration and malnutrition while 22 had no dehydration but mild malnutrition. Some dehydration with no malnutrition was noted in 11 patients while 15 and 17 patients with some dehydration had mild and moderate malnutrition respectively as shown in Table 4. In group B patients with no dehydration; 34, 15 and 2 patients had no, mild and moderate malnutrition respectively. **Conclusion:** The symptoms of having a fever and vomiting were almost often associated with having diarrhoea. Just a hair under half of the children's who participated in the study exhibited some signs of dehydration.

Keywords: Fever and vomiting, diarrhea, dehydration

Corresponding author: Sunil Agarwal, Associate Professor, Department of Paediatrics, Sakshi Medical College & Research Centre, Guna, Madhya Pradesh, India

This article may be cited as: Agarwal S. To evaluate the clinical and demographic profile of patients suffering from diarrhoea in children. J Adv Med Dent Scie Res 2017;5(9):154-156.

INTRODUCTION

Diarrhea is defined as, 'passage of three or more loose or liquid stools per day or more frequent passage than is normal for the individual.^{1,2} It is one of the biggest public health problems globally. All children tend to suffer from diarrhea at some time during their childhood. WHO has estimated that globally there are nearly 1.7 billion cases of childhood diarrheal disease every year and that it remains the 2nd leading cause of death in children under 5 years worldwide.² Sometimes, diarrhea may co-exist with vomiting, fever, abdominal pain etc. depending upon its etiology. Diarrheal diseases can also lead to significant malnutrition and dehydration. Repeated attacks of diarrhea, infections, poor hygiene etc. may be responsible for such outcomes.³ Basically, each diarrheal episode deprives the child of nutrition along with fluid loss, thus aggravating the severity of malnutrition and dehydration.

MATERIAL AND METHODS

This prospective observational study was carried out in the Department of Pediatrics, after taking the approval of the protocol review committee and institutional ethics committee. The sample size was 200 with 2 groups A and B having 100 patients each.

Only those infants and children who fulfilled inclusion criteria such as those aged between 6 months - 5 years, suffering from acute diarrhea and presenting to the Pediatric Department at this set-up for treatment; were included in the study. Here, patients were alienated into 2 groups according to the probiotic preparation being administered. Accordingly, their clinical and demographic profile was also noted and studied in 2 groups. Various parameters analyzed were age and gender distribution, chief complaints, feeding practices, nutritional status and estimation of dehydration.

STATISTICAL ANALYSIS

The data was accumulated and entered in a worksheet computer program and then exported to data SPSS version 23.0. For all tests, confidence level and level of significance were set at 95% and 5% correspondingly.

RESULTS

The mean, age for group A patients was 2.42 ± 0.78 years. A majority of 55 were toddlers. Similarly, for group B patients mean age was 2.71 ± 0.85 years. Here also, 41 patients were toddlers. The remaining were infants and pre-school children. Out of 100 patients in

group A, 54 (54%) males exceeded 46(46%) females, with a male: female (M: F) ratio of 1.17:1. Similarly in the case of Exclusive breast-feeding: Exclusive breastfeeding (EBF) for 6 months was given in a large no. of group A and B patients i.e. 57 (57%) and 63(63%) respectively. Few others were given for 4, 5, or 7 months. [Table 2] Almost 41 (41%) and 31 (31%) patients in groups A and B respectively had continued breastfeeding during the study. In the remaining 59(59%) and 69(69%) group A and B patients respectively, breastfeeding was carried out till 1, 1.5, or 2 years.

In group A, a majority of 55(55%) patients were not given bottle feeding while the remaining 45(45%) were given. Almost 60 (60%) patients were not given

bottle-feeding whereas 40 (40%) were given in group B.

Maximum patients 57(57%) of A and 51 (51%) of B group had no dehydration whereas remaining 43 (43%) and 49(49%) patients had some dehydration respectively. [Table 3 and 4]

In group A, a maximum of 31 patients had no dehydration and malnutrition while 22 had no dehydration but mild malnutrition. Some dehydration with no malnutrition was noted in 11 patients while 15 and 17 patients with some dehydration had mild and moderate malnutrition respectively as shown in Table 4. In group B patients with no dehydration; 34, 15 and 2 patients had no, mild and moderate malnutrition respectively.

Table 1: Gender distribution of patients

Gender	Group A		Group B	
	Number	Percentage	Number	Percentage
Male	54	54	60	60
Female	46	46	40	40
Total	100	100	100	100

Table 2: Duration of exclusive breast-feeding among diarrheal patients

Months	Group A		Group B	
	Number	Percentage	Number	Percentage
04	19	19	7	7
05	19	19	19	19
06	57	57	63	63
07	5	5	11	11

Table 3: Severity of malnutrition and degree of dehydration in group A

Duration of exclusive breastfeeding	Degree of dehydration		Total no of patients
	No	Some	
No	31	11	42
Mild	22	15	37
Moderate	4	17	21
Total	57	43	100

Table 4: Severity of malnutrition and degree of dehydration in group B

Duration of exclusive breastfeeding (months)	Degree of dehydration		Total no of patients
	No	Some	
No	34	9	43
Mild	15	20	35
Moderate	2	20	22
Total	51	49	100

DISCUSSION

The present study covered the clinical and demographic profile of infants and children aged 6 months to 5 years and presenting with chief complaints of acute diarrhea to the Department of Pediatrics.⁴ In our study, analysis of the socio-demographic profile of the study population showed that a large no. of patients belonged to the toddler age group in groups A and B respectively. The mean, age for group A patients was 2.42± 0.78 years. A majority

of 55 were toddlers. Similarly, for group B patients mean age was 2.71± 0.85years. Infants and preschool children were relatively lesser affected in both study groups. Gender distribution in our study showed male preponderance in both the groups as mentioned in table 1. Lee et al,⁵ in their research total number of 27 children were assessed. Male: female ratio 1.1:1. Aluntas et al,⁶ done their study on 70 children of which 52% female, 48% male. Infants and preschool children again had a greater number of males than

females. Chen et al and Heulian et al in their respective studies noted male predominance and the majority of the patients (84%) were between 6 months to 2 years.^{7,8} Among the presenting complaints of diarrheal patients, vomiting, as well as fever, was noted in a majority. Similar observations were examined in the studies performed by Francavilla R et al, where 65% of patients had vomiting and 51% of study participants had fever associated with diarrhea.⁹ This may be due to higher incidences of infective origin diarrhea among patients. Depending upon the loss of fluid, fewer patients in both, groups A and B, also presented with symptoms of refusal to feed and decreased urinary output each. Patel K et al,¹⁰ described after vomiting and fever, (47.7%) with decreased oral intake and 12 (27.3%) with decreased urine output along with loose stools were noted. Exclusive breastfeeding (EBF) for an ideal 6 months was noted in the highest no. of study participants in groups A & B. Remaining patients showed EBF for 4, 5, or 7 months. Almost 41 (41%) and 31 (31%) patients in groups A and B respectively had continued breastfeeding during the study. In the remaining 59(59%) and 69(69%) group A and B patients respectively, breastfeeding was carried out till 1, 1.5, or 2 years. Reifen et al,¹¹ performed research on 3 children with prolonged, watery diarrhea ongoing in premature infancy, they establish dissimilar histologic and ultrastructural features that they elected tufting enteropathy. Termination of enteral feedings reduce the quantity of diarrhea to fewer than 500 ml per day in all 3 patients, 2 of 3 children accomplished standard enlargement velocity in equal height and weight within 6 months; equally, these children were still reliant on TPN at home at ages 8.5 and 6 years, correspondingly. Maximum patients 57(57%) of A and 51 (51%) of B group had no dehydration whereas remaining 43 (43%) and 49(49%) patients had some dehydration respectively. In group A, a maximum of 31 patients had no dehydration and malnutrition while 22 had no dehydration but mild malnutrition. Some dehydration with no malnutrition was noted in 11 patients while 15 and 17 patients with some dehydration had mild and moderate malnutrition respectively. In group B patients with no dehydration; 34, 15 and 2 patients had no, mild and moderate malnutrition respectively. This is similar to the observations from Francavilla R et al study where the control and placebo groups had the majority of patients with no dehydration i.e. 25 and 26 respectively.⁹ Literature also suggests that malnutrition can predispose a child to diarrhea and severity may be slightly higher in those patients causing fluid loss and dehydration. The knowledge of resistance patterns of common etiological agents in the local area can help practitioners to choose an adequate antimicrobial drug to start empirical therapy in a patient with severe diarrhea without knowledge of a specific pathogen.

This study can also be carried out at regular intervals to study any variations in the pattern of clinical profile of such patients. The effectiveness of treatment in these patients can also be studied in the future. Dehydration and malnutrition can also be prevented through patient education, availability of safe drinking water, adequate sanitation and hygiene.

CONCLUSION

The symptoms of having a fever and vomiting were almost often associated with having diarrhoea. Just a hair under half of the youngsters who participated in the study exhibited some signs of dehydration. The toddler age group comprises over half of the total population under observation in this research. Studies that are proportional to contributing agents like bacteria and viruses should be given greater prominence since they help in disease prevention strategies.

REFERENCES

1. Avachat SS, Phalke VD, Phalke DB, Aarif SM, Kalakoti P. A cross-sectional study of socio-demographic determinants of recurrent diarrhoea among children under five of rural area of Western Maharashtra, India. *Australas Med J.* 2011;4(2):72-5..
2. Boschi C, Velebit L.. Estimating child mortality due to diarrhoea in developing countries. *WHO Bulletin.* 2008;86:710–717.
3. Patwari AK. Diarrheal Diseases. IAP Textbook of Paediatrics. 2nd ed. New Delhi: Jaypee Brothers; 2002:414-419.
4. Yongsi HBN. Pathogenic Microorganisms Associated With Childhood Diarrhea in Low-and-Middle Income Countries: Case Study of Yaoundé – Cameroon. *Int J Environ Res.* 2008;5(4):213–229.
5. Lee WS, Boey CCM. Chronic diarrhoea in infants and young children: Causes, clinical features and outcome. *J Paediatr Child Health.* 1999;35(3):260–263.
6. Altuntaş B, Gül H, Yarali N, Ertan U. Etiology of chronic diarrhea. *Indian J Pediatr.* 1999;66(5):657–661
7. Chen JM, Ni YH, Hl C, Chary MH. Microbiology etiology of acute gastroenteritis in hospitalized children in Taiwan. *J Formos Med Assoc.* 2006;105(12):964–970.
8. Heulian HJ, Blackflow N. Enteric adenoviruses in children: Infection of the gastrointestinal tract; 1995.
9. Francavilla R, Lionetti E, Castellaneta S, Ciruzzi F, Indrio F, Masciale A. Randomised clinical trial: *Lactobacillus reuteri* DSM 17938 vs. placebo in children with acute diarrhoea - a double-blind study. *Aliment Pharmacol Ther.* 2012;36(4):363–369.
10. Patel K, Rana R.. Pedimune in Recurrent respiratory infections-The Indian experience. *The Indian Journal of Paediatrics.* 2006;73(7):585–591.
11. Reifen RM, Cutz E, Griffiths AM, Ngan BY, Sherman PM. Tufting enteropathy: a newly recognized clinicopathological entity associated with refractory diarrhea in infants. *J Pediatr Gastroent Nutr.* 1994;18(3):379–385