

Original Article

Assessment of Rotavirus diarrhea in children

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ABSTRACT:

Background: The most common cause of severe diarrheal illnesses and dehydration in infants and young children under the age of five years old worldwide is rotaviruses. The present study was conducted to assess Rotavirus diarrhea in children. **Materials & Methods:** 94 Rotavirus cases in children of both genders were confirmed by immuno-chromatographic test. The stool was collected directly from the anus during the process of defecation. The SD BIOLINE Rotavirus test kits were utilized. **Results:** Age group <6 months had 7 males and 5 females, 6-12 months had 25 males and 20 females, 13-18 months had 18 males and 12 females and >18 months had 5 males and 3 females. Loose stool on day 1 was seen in 65%, on day 2 in 52%, on day 3 in 30%, on day 4 in 17%, on day 5 in 11%. Fever was seen maximally on day 3 in 82%, vomiting was seen maximally on day 1 in 82%, perianal excoriation was seen maximally on day 2 in 45%. The difference was significant ($P < 0.05$). **Conclusion:** Maximum cases were seen in 6-12 months. Fever was seen maximally on day 3, vomiting was seen maximally on day 1, and perianal excoriation was seen maximally on day 2.

Key words: rotavirus, immuno-chromatographic, diarrhea

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INTRODUCTION

The rotavirus was initially identified in 1963 as a cause of infantile murine diarrhea. At the Royal Children's Hospital in Melbourne, Australia, Bishop and his colleagues discovered a 70 nm virus in the duodenal epithelium of children who had diarrhea ten years later, in 1973. Due to its "wheel-like appearance," Flewitt and colleagues later proposed the name "rotavirus" in 1974.¹

The most common cause of severe diarrheal illnesses and dehydration in infants and young children under the age of five years worldwide is rotaviruses.² According to estimates, rotavirus infections cause 111 million episodes of diarrhea that necessitate home care, 2 million hospitalizations due to the same cause, and over 4,40,000 under-five deaths, 82% of which take place in underdeveloped nations. Only in India do about 100,000 people each year pass away, whereas the figure in African nations is twice as high.³

Reducing carbohydrates are a marker of substantial carbohydrate malabsorption since they are present in the feces. Respiratory symptoms are more frequently linked to rotavirus infection than diarrhea from other

causes. Therefore, it is imperative that Rotavirus infections are diagnosed quickly.⁴ Numerous diagnostic tests have been created to find the virus and/or show the serological reaction the virus caused in the host. As far as specificity and sensitivity are concerned, data from electron microscopy, enzyme immunoassays, ELISA, latex agglutination, polyacrylamide gel electrophoresis (PAGE), rapid immunochromatographic tests, etc. have been quite similar.⁵ The present study was conducted to assess Rota virus diarrhea in children.

MATERIALS & METHODS

The present study consisted of 94 Rota virus cases in children of both genders. Parents gave their written consent to participate in the study. All cases were confirmed by immuno-chromatographic test.

Data such as name, age, gender etc. was recorded. The stool was collected directly from the anus during the process of defecation. The SD BIOLINE Rotavirus test kits were utilized. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Age groups	Male	Female
<6 months	7	5
6-12 months	25	20
13-18 months	18	12
>18 months	5	3

Total	55	40
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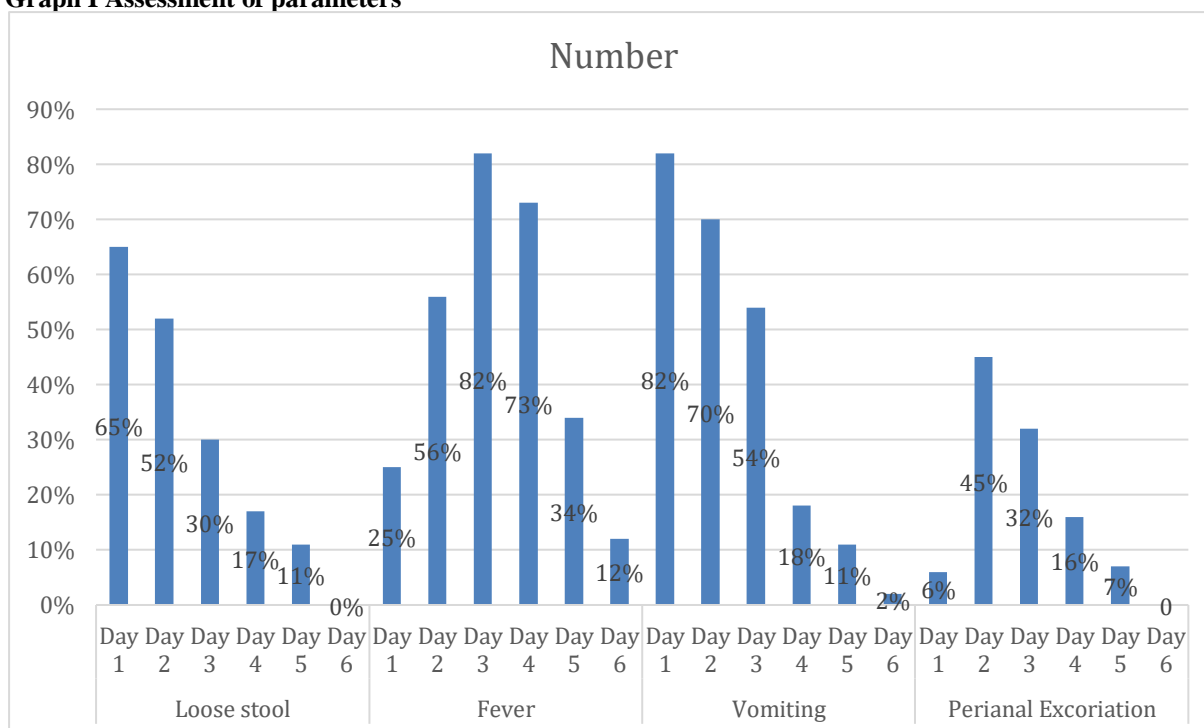
Table I shows that age group <6 months had 7 males and 5 females, 6-12 months had 25 males and 20 females, 13-18 months had 18 males and 12 females and >18 months had 5 males and 3 females.

Table II Assessment of parameters

Parameters	Variables	Number	P value
Loose stool	Day 1	65%	0.05
	Day 2	52%	
	Day 3	30%	
	Day 4	17%	
	Day 5	11%	
	Day 6	0%	
Fever	Day 1	25%	0.94
	Day 2	56%	
	Day 3	82%	
	Day 4	73%	
	Day 5	34%	
	Day 6	12%	
Vomiting	Day 1	82%	0.04
	Day 2	70%	
	Day 3	54%	
	Day 4	18%	
	Day 5	11%	
	Day 6	2%	
Perianal Excoriation	Day 1	6%	0.02
	Day 2	45%	
	Day 3	32%	
	Day 4	16%	
	Day 5	7%	
	Day 6	0	

Table II, graph I shows that loose stool on day 1 was seen in 65%, on ay 2 in 52%, on day 3 in 30%, on day 4 in 17%, on day 5 in 11%. Fever was seen maximally on day 3 in 82%, vomiting was seen maximally on day 1 in 82%, perianal excoriation was seen maximally on day 2 in 45%. The difference was significant (P< 0.05).

Graph I Assessment of parameters



DISCUSSION

Rotavirus infection is a highly contagious viral infection that primarily affects infants and young children. It is one of the leading causes of severe diarrhea and vomiting in children worldwide.⁶ There is frequently exposure to other kids who are unwell with diarrhea, and the incubation period lasts from 1 to 3 days, though it usually only lasts 48 hours. Anorexia, vomiting, mild to severe pyrexia, watery, bloodless diarrhea, and cramping in the abdomen are the first symptoms.⁷ Dehydration is frequently the initial complaint. Physical abnormalities include weight loss, disproportionate tachycardia, diaper rashes, tachycardia, and symptoms of dehydration. The most frequent physical finding is hyperactive bowel noises.⁸ Rotavirus is primarily spread through the fecal-oral route, which means that it is transmitted when a person comes into contact with the feces of an infected individual. This can happen through contaminated hands, objects, food, or water.⁹ The present study was conducted to assess Rota virus diarrhea in children.

We found that age group <6 months had 7 males and 5 females, 6-12 months had 25 males and 20 females, 13-18 months had 18 males and 12 females and >18 months had 5 males and 3 females. Sarangi G¹⁰ found that 60% (48) of the patients had body weights that exceeded 80% of the benchmark. Marasmic (11%, or 9 cases) means that the weight was less than 60% of the norm. This suggests that nutrition is most likely not a factor in reducing the prevalence or severity of the condition. The gap between weight and hospital admission is not that great. The well-nourished group with body weight greater than 70% experienced diarrhea on average for a longer period of time. 4.93 days were spent with a body weight over 80%, and 4.33 days with a body weight under 50%. However, the average number of days spent vomiting was 3.68 in well-nourished children (body weight greater than 80%) and 3.71 in undernourished children (body weight less than 80%).

We found that loose stool on day 1 was seen in 65%, on day 2 in 52%, on day 3 in 30%, on day 4 in 17%, on day 5 in 11%. Fever was seen maximally on day 3 in 82%, vomiting was seen maximally on day 1 in 82%, perianal excoriation was seen maximally on day 2 in 45%. Sarvanan et al¹¹ found that out of 745 stool samples analysed 168 were found to be positive for rotavirus. Among these 118 could be assigned a subgroup (SG), serotype and electropherotype (E-type). The study has evidenced the predominant

occurrence of strains with short E-type, SGI and serotype G2 in 66.1% of the samples. The presence of strains representing 10 different E-types and mixed genotype specificities with G2 P[4,8] and G1-G2 P[4,8] has documented the prevailing high genomic diversity of rotaviruses in this geographical area. The limitation of the study is small sample size.

CONCLUSION

Authors found that maximum cases were seen in 6-12 months. Fever was seen maximally on day 3, vomiting was seen maximally on day 1, and perianal excoriation was seen maximally on day 2.

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