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Original Article

Study of clinical profile of rotaviral gastroenteritis among patients admitted in a tertiary care hospital

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ABSTRACT

Objectives: To study the incidence and clinical profile of rotaviral gastroenteritis (RVGE) among patients admitted with acute gastroenteritis (AGE) in Jehangir hospital.
Methods: 75 children aged 1 month to 5 years admitted with AGE during Jan 2012 to July 2013 were studied. Detailed history and clinical profile were documented. Their stool samples were sent for routine examination, rotaviral and adenoviral studies by immunochromatographic test.
Results: We studied 75 children with AGE, of which, 27 (36%) were positive for rotavirus and 6 (8%) for adenovirus.

Out of the 27 rotaviral diarrhea patients, 15 (55.5%) were infants, 10 (37%) were between 1 and 3 years and 2 (7.4%) were in 3–5 age group.

There was clustering of cases in the first quarter of the year without any remarkable seasonal variability.

The average duration of rotaviral diarrhea was 4.7 days and average hospital stay was about 3.8 days. None of these RVGE patients progressed to persistent diarrhea or required hospitalization beyond 7 days.

The common presenting features were vomiting, loose motions and fever. The degree of dehydration was mild in all patients.
Conclusion: This study documents the high incidence of rotaviral diarrhea in our population. It also highlights the fact that rotaviral diarrhea predominantly occurs in younger children, particularly infants. Early health care access and good nutritional status probably accounted for the mild disease in our population.

1. Introduction

Globally diarrhea is major cause of morbidity and mortality in children under 5 years.[1] Diarrhea is third leading killer of infants and under five children in India and is responsible for 13% deaths in this age group.[2]

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Rotavirus is the major cause of severe gastroenteritis in infants and young children worldwide. It is estimated that rotavirus disease is responsible for more than half million deaths annually among under five children. Majority of these deaths occur in developing countries.[1]

Rotavirus is leading cause of severe diarrhea in Indian children under 5 years and has been projected to cause large number of hospitalizations and 1.22–1.53 million deaths annually.[3]

Unlike many other pathogens, the proportion of diarrhea caused by rotavirus does not vary widely between developed and developing countries.[4] However there are significant differences like age of first infection, serotypes, seasonality and severity of the disease.[5,6]

We studied the incidence and clinical profile of rotavirus gastroenteritis admitted in our hospital.

2. Methodology

2.1. Study site

This study was conducted in Jehangir hospital (Apollo group hospital), Pune which is a tertiary care hospital catering mainly to middle and upper middle class urban population.

2.2. Enrollment criteria

All children less than 5 years who were admitted in our hospital with acute gastroenteritis (AGE) from Jan 2012 to July 2013 were enrolled.

Children with bacillary dysentery, chronic diarrhea and immunodeficiency were excluded.

2.3. Clinical assessment

Detailed history and clinical profile were documented as per the proforma. Details of onset, frequency and duration of diarrhea, and other symptoms like fever, vomiting were recorded. Degree of dehydration and treatment details were recorded. Nutritional assessment was done by weight for age using WHO (World Health Organization) growth charts and IAP (Indian Academy of Paediatrics) classification for assessment of nutritional status. Stool samples were sent for routine examination, rotaviral and adenoviral studies by immunochromatographic test (RIDA QUICK Rotavirus/Adenovirus Combi kit). All stool samples were transported to laboratory within 2 hours and kept at 4 °C until testing. Other investigations were done as required.

3. Results

75 children were admitted with acute gastroenteritis out of which 27 (36%) were positive for rotavirus and 6 (8%) for adenovirus (Fig. 1).

Out of 27 patients with rotaviral diarrhea 15 (55.5%) were <1 year, 10 (37%) were between 1 and 3 years and 2 (7.4%) were in 3–5 years age group. Amongst them, 18.5% were less than 6 months (Fig. 2).

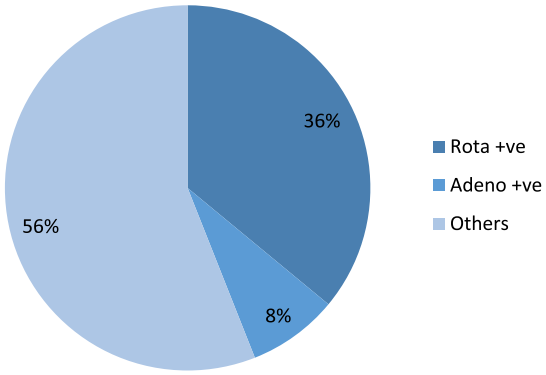

Fig. 1 – Incidence of rotaviral gastroenteritis in study site.

Of the 27 children with rotaviral gastroenteritis, 16 (59.2%) were boys and 11 (42.5%) were girls.

There was clustering of cases in the months of January (14.8%), February (14.8%) and March (29.62%). During rest of the year, distribution of cases was similar (Fig. 3).

All children were well nourished except one child who had grade I malnutrition.

The average duration of diarrhea in rotavirus positive children was 4.7 days and their average duration of hospital stay was about 3.8 days. None of them progressed to persistent diarrhea or required hospitalization beyond 7 days.

Patients presented with fever, loose motion, vomiting or combination of these. Out of the 27 children, 12 (44.44%) presented with fever, loose motions and vomiting, 7 (25.92%) with loose motions and vomiting, 7 (25.92%) with loose motions and fever and 1 (3.7%) with only loose motions (Fig. 4).

Degree of dehydration was mild in all children.

4. Discussion

Rotavirus is an icosahedral RNA virus. Seven serogroups have been described (A–G). Group A rotaviruses cause most human disease (Fig. 5). Rotavirus is composed of 3 concentric protein shells surrounding the genome. The outermost layer of virus is composed of two surface proteins VP7 which determines the G serotype and VP4 which determines the P serotype. Each rotavirus strain is designated by its G serotype number followed by P serotype number.[7]

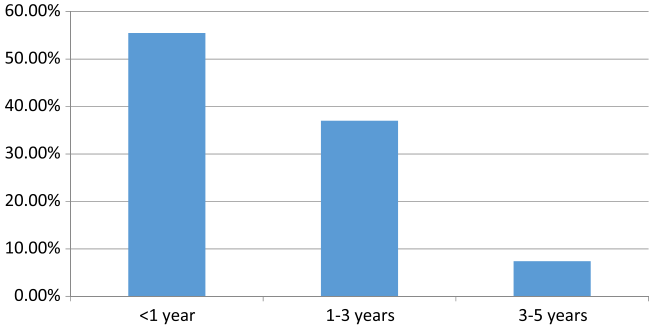

Fig. 2 – Agewise incidence of rotavirus gastroenteritis in study site.