



CODEN [USA]: IAJ PBB

ISSN: 2349-7750

**INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES**<http://doi.org/10.5281/zenodo.1323238>Available online at: <http://www.iajps.com>

Research Article

**STUDY OF THE ROTA VIRUS DIARRHEA CLINICAL
FEATURES AND ITS FREQUENCY UNDER FIVE YEARS OF
AGE CHILDREN**¹Dr. Shehzad Ahmad, ²Dr. Anam Tanveer, ³Dr. Ambreen Hussain Cheema¹Medical Officer, DHQ Hospital, Sheikhpura²BHU, Ram Thaman Kasur³Rafique Anwar Memorial Trust Hospital, Gujranwala**Abstract:**

Objective: To know the clinical features and frequency of acute rotavirus juvenile diarrhea (AWD) in below or 5 years of children age.

Study design: cross-sectional study.

Place and Duration: Pediatrics Unit-II Department, Services Hospital, Lahore for the period of one year from December 2016 to December 2017.

Materials and methods: After the parents' consent was received, a child under 180 years of age was taken to work. Data; nutritional status, demographics, and presence or absence of rotavirus and degree of dehydration after the stool (ELIZA).

Findings: 48 (27%) out of 180 children had AWD caused by rotavirus. 45 (93%) from 48 cases were under 2 years of age. (66.7%) were male. According to the Z classification, severe malnutrition noted in 6 (12.5%) cases. severe dehydration noted clinically in 25 (52.1%) of children.

Conclusion: under 5 years the incidence of rotavirus diarrhea in children is 27%. It is common in children who are malnourished. one of the most common presentations in these children was Severe dehydration.

Key words: acute watery diarrhea, rotavirus, dehydration, Gastroenteritis due to Rota virus.

*** Corresponding author:**

Dr. Shehzad Ahmad,
Medical Officer,
DHQ Hospital,
Sheikhpura

QR code



Please cite this article in press Shehzad Ahmad *et al.*, Study of the Rota Virus Diarrhea Clinical Features and Its Frequency Under Five Years of Age Children., Indo Am. J. P. Sci, 2018; 05(07).

INTRODUCTION:

Acute watery diarrhea (AWD) is defined as 4 or more loose or liquid stools per day or more frequent stools per person for <14 days¹. In children under the age of five acute diarrheas is the second most common cause of infant deaths. Worldwide, about two billion cases of acute diarrhea are noted and about 1.5 million deaths each year. Such Noroviruses and viral agents such as rotavirus, enteric adenovirus, astrovirus and human calcivirnicos as sapovirus considered to be the main cause of sporadic cases and epidemics of childhood diarrhea. In group A particularly rotavirus is the main cause of serious diarrheal diseases and dehydration, causing young children and infants throughout the world to adhere to the hospital. In Pakistan The prevalence of rotavirus diarrhea is 20-40% approximately. This study was performed to evaluate the clinical characteristics of rotavirus AWD in children under 5 years of age and its frequency.

MATERIALS AND METHODS:

This cross-sectional study was performed in Pediatrics Unit-II Department, Services Hospital, Lahore for the period of one year from December 2016 to December 2017. After receiving approval, 180 total children under 5 years of age according to the clinically presentation of AWD (3 or more loose stools / day pass with a shorter period of 14 days). A sample size of 180 cases (lower 6% in patients with acute AWD, ie 95%, a margin of error of 3.5%, and heavy dehydration were calculated with a confidence

level of one percent expected). Excludes bloody diarrhea and other comorbid conditions (eg, immunodeficiency, systemic infection and chronic disease examination evaluation and history). Each case was recorded for demographic data (gender, age, height, weight and direction). Nutritional status was assessed according to the degree of dehydration (ie, two or more of the following characteristics, nervousness, thirst, sunken eyes, skin pinch comes back slowly), dehydration, or severe dehydration (two or more characteristics, numbness, sunken eyes, drinks in small quantities, twitching turns very slowly). A 5 ml sample of stool was then taken from the liquid section in a container and closed. The sample is labeled with the date of collection and a specific number. An ELISA application form was sent immediately to the microbiology laboratory and was examined by a trained laboratory staff to determine the presence or absence of the rotavirus. In a specially designed proforma all information was recorded. Into the SPSS version 15 data from all cases were entered analyzed and programmed for the statistical package.

RESULTS:

Rotavirus was detected in 48 (27%) of 180 cases (Figure-1). While 15 cases (31.2%) of maximal rotavirus were detected between the ages of 10-18 months, they were not seen in the age group of 49-60 months. None of the cases were isolated between 37-48 months (Figure-2).

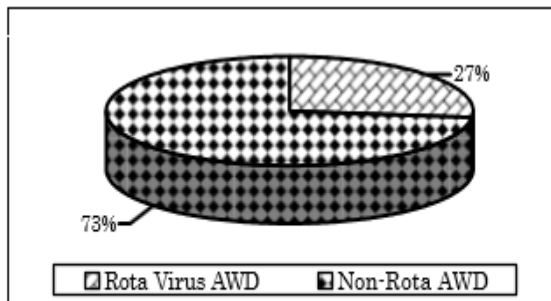


Fig 1: Frequency of Rotavirus AWD by ELIZA (n=180)

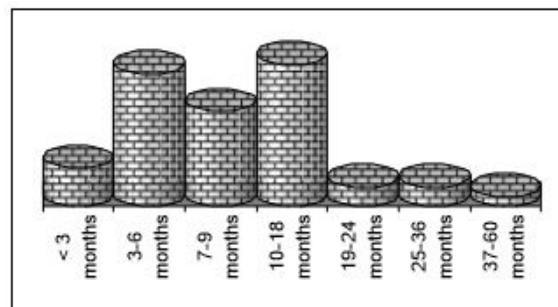


Fig 2: Age Distribution of Rotavirus cases (n=48)

From 48 positive cases, the male dominance was 32 (66.7%) as shown in Fig.

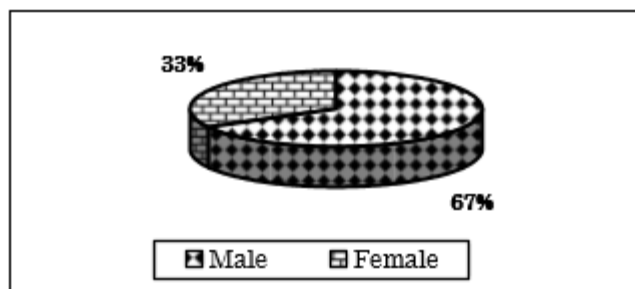


Fig 3: Gender Distribution of Rotavirus cases (n=48)

In positive rotavirus cases, nutritional and hydration status are shown in Tables I and II, respectively.

TABLE-I: Nutritional status (according to Z classification) of Rotavirus cases (n=48)

Variable	n (%)
No malnutrition	22(46)
Moderate malnutrition	20(42)
Severe malnutrition	06(12)

TABLE 2: Degree of dehydration of Rotavirus cases (n=48)

Variable	n (%)
No dehydration	01(02)
Some dehydration	22(46)
Severe dehydration	25(52)

DISCUSSION:

The mean age of 180 children under five years was 11.0 ± 11 months. (27%) 48 patients were infected with rotavirus. According to Rayan et al in our study The frequency of rotavirus diarrhea was 17% . Nevertheless, the results of Ann et al and Yang et al were 46.7 and 48%, respectively, of TAV with rotavirus. This difference in outcomes may be due to the short duration of our study and seasonal prejudice. This study proves that rotavirus AWD 93% of cases were occur in lesser than 2 years of age. Rotavirus infection is very common under 2 years of age proven in previous studies. 66% of positive cases occurs at 7-12 months reported by Yang and colleagues. In a study the incidence was 84.2% under 2 years of age. 20% of rotavirus cases were younger than 1 year, a study proven by Ali et al. Because of the protection of maternal antibodies, infections less than 3 months old were less common and less severe. 4 (8.3%) cases in our study were younger than three months. However, despite the fact that AWD was not sex-specific, this study showed the superiority of men (66%). These results were similar with previous study, which documented that in men rotavirus is more common. In another study, the incidence of infection was 46.9% in males and 53.1% in females. Relation to the nutritional status of the patient was also assessed by rotavirus infection. Among the 48 rotavirus infection cases, (45.8%)22 were malnourished, 20 (41.7%) were devoid of middle and 6 (12.5%) were malnourished. The results were compared with studies previously documented 13% of severely undernourished rotavirus infections. The

dehydration level of the study population was checked by WHO guidelines. Among rotavirus cases Hydration status proved that there was no dehydration in 1 (2.1%) of 48 cases, severe dehydration in 22 (45.8%) and 25 (52.1%) cases. These results clearly contrasted with previous studies results showing that rotavirus infection 94% of cases occurred with 6% of cases with severe dehydration¹⁵. The reason for the inequality may be that our outcomes are derived from a under developed country, and the study people linked to a tertiary care hospital, in which patients were often offered serious illnesses. In a study from South India, rotavirus diarrhea was more severe in a group of patients in a community than in a community . Previously the rotavirus infection severity has been studied and it has been shown that 20% of rheumatovirus cases have severe dehydration and 17 of them have dehydration in 52.1% when compared with our results. serious. This work had some limitations. It was done in six months and did not have 4 seasons. If the working period includes the entire calendar year, the results may be different. Numerous patients showed severe dehydration during presentation. This may be due to the environment of the tertiary hospital in which the severely ill patients are present, so the outcomes should be confirmed after studies at the community level.

CONCLUSION:

It was determined that rotavirus infection is responsible for 27% of cases of infant diarrhea in the sample under the age of 5 years. It became more tight

in children who were malnourished. Severe dehydration is one of the most common presentations and emphasizes the need for routine immunization and other preventive measures to decrease mortality and morbidity due to rotavirus diarrhea.

REFERENCES:

- Huyen, Dang Thi Thanh, Duong Thi Hong, Nguyen Thanh Trung, Tran Thi Nguyen Hoa, Nguyen Kieu Oanh, Ho Vinh Thang, Nguyen Thi Thanh Thao et al. "Epidemiology of acute diarrhea caused by rotavirus in sentinel surveillance sites of Vietnam, 2012–2015." *Vaccine* (2018).
- Anwari, P., Safi, N., Payne, D.C., Jennings, M.C., Rasikh, S., Waciqi, A.S. and Parwiz, S.M., 2018. Rotavirus is the leading cause of hospitalizations for severe acute gastroenteritis among Afghan children < 5 years old. *Vaccine*.
- Chau, Tran Thi Hong, Nguyen Ngoc Minh Chau, Nhat Thanh Hoang Le, Phat Voong Vinh, Nguyen Thi Nguyen To, Nguyen Minh Ngoc, Ha Manh Tuan et al. "A Double-blind, Randomized, Placebo-controlled Trial of Lactobacillus acidophilus for the Treatment of Acute Watery Diarrhea in Vietnamese Children." *The Pediatric infectious disease journal* 37, no. 1 (2018): 35-42.
- Mukaratirwa, A., Berejena, C., Nziramasanga, P., Ticklay, I., Gonah, A., Nathoo, K., Manangazira, P., Mangwanya, D., Marembo, J., Mwenda, J.M. and Weldegebriel, G., 2018. Distribution of rotavirus genotypes associated with acute diarrhoea in Zimbabwean children less than five years old before and after rotavirus vaccine introduction. *Vaccine*.
- Bonkougou, I.J.O., Ouédraogo, N., Tamini, L., Teguera, R.K., Yaméogo, P., Drabo, M.K., Medah, I., Barro, N., Sharma, S., Svensson, L. and Nordgren, J., 2018. Rotavirus and norovirus in children with severe diarrhea in Burkina Faso before rotavirus vaccine introduction. *Journal of medical virology*.
- Barbhuiya, Nazrul Islam, Nilratan Majumder, Tapan Majumder, and Jayanti Chakraborty. "Incidence and clinical profile of rotaviral infection among children below 5 years of age admitted with acute diarrhea in a tertiary care hospital of Tripura." *Indian Journal of Child Health* 5, no. 2 (2018): 86-88.
- Majumder, Nilratan, Nazrul Islam Barbhuiya, Tapan Majumder, and Shib Sekhar Datta. "Prevalence of rotaviral infection among children admitted with acute diarrhoea in a tertiary care hospital of tripura." *international journal of scientific research* 7, no. 3 (2018).
- Mulyani, Nenny Sri, Dwi Prasetyo, I. Putu Gede Karyana, Wayan Sukardi, Wahyu Damayanti, Dian Angraini, Retno Palupi-Baroto et al. "Diarrhea among hospitalized children under five: A call for inclusion of rotavirus vaccine to the national immunization program in Indonesia." *Vaccine* (2018).
- Simwaka, J. C., Evans M. Mpabalwani, Mapaseka Seheri, Ina Peenze, Mwaka Monze, Belem Matapo, Umesh D. Parashar et al. "Diversity of rotavirus strains circulating in children under five years of age who presented with acute gastroenteritis before and after rotavirus vaccine introduction, University Teaching Hospital, Lusaka, Zambia, 2008–2015." *Vaccine*(2018).
- Jacobsen, S., Höhne, M., Marques, A.M., Beslmüller, K., Bock, C.T. and Niendorf, S., 2018. Co-circulation of classic and novel astrovirus strains in patients with acute gastroenteritis in Germany. *Journal of Infection*, 76(5), pp.457-464.
- van der Westhuizen, F.P., Slogrove, A.L., Kunneke, H.M. and Kruger, M., 2018. Factors associated with severe dehydrating diarrhoea in the rural western cape, South Africa. *Journal of tropical pediatrics*.
- Glass, R.I., Jiang, B. and Parashar, U., 2018. The future control of rotavirus disease: Can live oral vaccines alone solve the rotavirus problem?. *Vaccine*, 36(17), pp.2233-2236.
- Chan- It, W. and Chanta, C., 2018. Emergence of G9P [8] rotaviruses in children with acute gastroenteritis in Thailand, 2015- 2016. *Journal of medical virology*, 90(3), pp.477-484.
- Nayak, Mukti Kant, Papiya De, Byomkesh Manna, Shanta Dutta, Uchhal Kumar Bhadra, and Mamta Chawla-Sarkar. "Species A rotaviruses isolated from hospitalized patients over 5 years of age in Kolkata, India, in 2012/13." *Archives of virology* 163, no. 3 (2018): 745-750.
- Nayak, Mukti Kant, Papiya De, Byomkesh Manna, Shanta Dutta, Uchhal Kumar Bhadra, and Mamta Chawla-Sarkar. "Species A rotaviruses isolated from hospitalized patients over 5 years of age in Kolkata, India, in 2012/13." *Archives of virology* 163, no. 3 (2018): 745-750.
- Agarwal, Astha, Navratan Kumar Gupta, Amit Upadhyay, R. K. Soni, Dheeraj Shah, and Vijay Jaiswal. "Serum zinc levels as a predictor of severity of acute diarrhea." *The Indian Journal of Pediatrics* 85, no. 3 (2018): 179-183.