

## Incidence of Rota Viral Infection in Younger than 2 Years Age Along With Its Diagnostic and Preventive Options

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**Background:** Like many regions of the world, Pakistan harbors the great burden of diarrheal illnesses under the age of 2 years, resulting in high mortality rates. Delima is the lack of awareness regarding the appropriate diagnostic, management and preventive options. The current review article will shed light on the statistics of Rota viral infection, its diagnosis, management and preventive option.

**Conclusion:** Rota viral infection is amongst the leading causes of gastroenteritis in age group of <2 years. The accurate diagnosis and hence management with intra venous fluid can reduce the morbidity and mortality rates.

**Keywords:** Rotaviral infection, Diarrhea, ELISA diagnosis, Rotaviral vaccine

### Introduction

According to the literature review, childhood diarrheal illnesses results in to 1.76 to 1.8 million deaths annually (1,2). A study report by Hoshino et al, narrated that it can even be the cause of high morbidity rate in younger age groups (3). According to the published statistic report of Control of Diarrheal Diseases Program (CDD) by WHO for the year 2014, Rota viral infection is considered to be the leading cause diarrhea amongst 3 months upto 3 years of age group Globally (4-7). It was estimated that about 527,000 children die in the early years of their lives from this vaccine-preventable infection (4, 8).

The infection can easily be acquired via fecal oral route, airborne droplets, directly through persons or an exposure with contaminated toys (4, 8). The infection can be seen in any community regardless of the socioeconomic status and season (9, 10). The incubation period is from 2 to 10 days (11). The clinical manifestations can be vomiting, abdominal pain, severe diarrhea followed by severe dehydration, and ultimately high mortality rates (4,12,13).

It was also emphasized in the WHO report that in order to achieve the Millennium Development Goal (MDG) for 2014 and 2015, immunization of Rota viral infection should be the

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part of National EPI schedule. This will be a step forward for the reduction of at least two third of childhood mortality (4, 11). Another published report for the year 2012 had shown that approximately 400-600 thousand children in under developed countries die annually by Rotavirus-associated dehydration (14).

### Literature Review

A study report by Nishio et al (2000); Karachi, had shown an estimated prevalence of 13.7% in age group of less than 2 years (11). While other published statistics revealed that the prevalence in Turkey is 39%, England 43%, Vietnam 50%, Poland 41%, and 45% in Kuwait (13,15). Gleizes et al, in 2006, showed the seasonal variation especially the winter season has a strong association with this infection (19). Various other studies narrated that there is no association of gender, height and weight of a child with infection predisposition (10,12,16).

Wang XY, in 2005, showed that the clinical presentation vary from mild to severe watery diarrhea with 12 to 14 episodes per 24 hours along with high grade fever, nausea and severe vomiting. The main pathogenesis includes the secretion of serotonin (5-hydroxytryptamine, 5-HT) by enterochromaffin (EC) cells resulting in vomiting and diarrhea (17,18). The laboratory diagnostic options included the detection of Rota viral antigens by ELISA test. The tests harbors as sensitivity of 72% (2).

The commonly seen complications of infection includes hypertonic dehydration seen in 9.1% cases, followed by seizures in 4% cases, encephalitis and severe dehydration requiring the intensive care support in 1.7% cases each, and lastly the fatal outcome in 0.1% cases (19). Sizmaz E narrated in his study that Necrotizing enterocolitis is another serious complication

amongst infantile age group having Rota viral infection (20).

In view of all the literature review it was found that this preventable infection had no specific predisposition and can only be prevented by vaccinating the child along with other scheduled EPI ones (21-23). A published data for the year 2015, showed that the inclusion of rota viral vaccine in African countries, as part of immunization has markedly declined the incidence of rota viral gastroenteritis and hospitalization rates (24). Moreover, the early case recognition especially by the detection of Rota viral antibodies by ELISA along with the addition of probiotics can be helpful to reduce the duration and intensity of infection (25).

### Conclusion

Rota viral infection is amongst the leading causes of gastroenteritis in age group of <2 years. The accurate diagnosis and hence management with intra venous fluid can reduce the morbidity and mortality rates.

### Recommendation

- The inclusion of Rota viral vaccine in EPI schedule can be helpful to reduce the prevalence, morbidity and mortality of disease in specific age group.
- Moreover according to the literature review addition of probiotics in the management can reduce the duration of illness.

### Conflict of Interests

The authors have no conflict of interest.

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