Diarrhea remains one of the major threats to global child survival with greatest impact in developing countries. It is the second most common cause of childhood morbidity and mortality after acute respiratory infections. An estimated annual death of 2 million (17% of all deaths) children younger than 5 years of age is attributed to diarrhea (Kosek et al., 2003). Diarrhea (from the Greek word "diarrhoia" means "a flowing through") is the condition of having frequent loose or liquid bowel movements due to pathologic state of gastrointestinal tract usually articulated by nonspecific term gastroenteritis (http://emedicine.medscape.com/article/775277-overview). A wide spectrum of etiological agents including bacteria, viruses, parasites, helminthes and unidentified pathogens induce gastroenteritis that leads to severe diarrhea. Relative importance of these agents varies, bacteria and parasites playing an important role in developing countries whereas a large proportion of severe childhood diarrhea in developed countries is attributed to viruses. However in both settings, the agent responsible for greatest proportion of acute dehydrating diarrhea in children under 5 years of age is rotavirus. Rotavirus causes 29-45% of all hospital admissions for diarrhea and more than 0.6 million deaths that represents ~5% of all childhood deaths occurring globally every year (Parashar et al., 2006).

Rotavirus is a genus of the family Reoviridae and is comprised of seven antigenically distinct groups (A-G). Only groups A-C have been found to be associated with human disease. The most known cases of rotavirus gastroenteritis in children have been caused by group A rotavirus strains. Rotaviruses are characterized by three shells (outer capsid, inner capsid and core) that surround 11 segments of double stranded (ds) RNA (Estes M, 2001). Ten gene segments encode one protein each, whereas segment 11 encodes two proteins. Two segments that encode outer capsid proteins, VP7 (G, a glycoprotein) and VP4 (P, a protease sensitive protein) are the key genes employed in characterization of rotavirus strains. Accordingly, 27 G (G1-G27) and 35 P (P[1]-P[35]) types have been reported to date and of these 12 G and 15 P types are identified in strains of human infections (Matthijnssens et al., 2011). However, five rotavirus strains (G1P[8]; G2P[4]; G3P[8]; G4P[8]; G9P[8]) have
been commonly detected worldwide along with unusual, reassortant strains and mixed infections in developing countries (Santos et al., 2005; Kang et al., 2009).

In the tropical regions HRV infections prevail throughout the year while in temperate regions, rotavirus associated diarrhea peaks during the winter. Rotaviruses are usually transmitted by fecal-oral route, though occasional aerosol transmission has also been suggested (LeBaron et al. 1990). Improvement in personal hygiene and sanitary conditions does not seem to protect against transmission of rotavirus. This is due to the small dose (<100 particles) of virus capable of inducing infection and recalcitrance of the rotavirus virions to inactivation in the environment (Payment and Morin 1990). Once ingested, virus not neutralized by stomach acid enters into small intestine and infects the mature enterocytes in the tip of the villi. During an incubation period of 48 hours, the virus releases a potent enterotoxin NSP4 that induces diarrhea and destroys the epithelial surface leading to blunting of villi and shedding of massive quantities of virus (10^{10} particles per gram) in stool (Bresee et al., 2000). The primary clinical symptom is watery diarrhea preceded by sudden onset of vomiting and subsequent presentation of fever and dehydration. The diarrhea can last 2-7 days and might lead to severe to fatal dehydration. The routine diagnosis of rotavirus infection employs antigen capture enzyme immunoassay and latex test available commercially or RNA polyacrylamide gel electrophoresis (Gray et al., 2008). Rotavirus infection produces both humoral and cellular immune responses. The virus specific IgA and IgG antibodies are considered as proxy of protection (Ruggeri et al., 1998; Westerman et al., 2005).

Oral Rehydration Therapy (ORT) has been successful in management of diarrheal diseases to a large extent. Various formulations of oral rehydration salt solutions have been shown to be effective in treatment of dehydration caused by rotavirus diarrhea. In addition, administration of some strains of lactobacilli to children with rotavirus diarrhea has been found to be beneficial in reducing duration of diarrhea and augmenting a strong rotavirus specific IgA immune response (Kaila et al., 1995).

The investigations of natural rotavirus infections suggest that a protective immune response develops after primary infection and diminishes the severity of reinfections and disease. Currently available oral rotavirus vaccines (Rotarix from GlaxoSmithKline and Rota Teq from Merck, Lanzhou Lamb rotavirus vaccine in China) are based on this scientific rational. These vaccines have been reported
to be safe and effective with 85-98% efficacy against severe rotavirus disease requiring hospitalization and 42-59% reduction in gastroenteritis hospitalizations of all causes (Dennehy 2008). However, because of the challenges in the practicability of active immunization of children against rotavirus infections in developing countries, passive immunization and therapeutic approaches acquire importance.

Oral administration of rotavirus antibodies from various sources such as eggs from immunized hens or milk formula containing bovine milk immunoglobulins from cows hyperimmunized with human rotaviruses has been shown to be effective in preventing or modifying rotavirus illness in animals and humans (Ebina, 1996; Hammarstrom 1999; Sarkar et al, 2001). Anti-rotavirus bovine colostral preparations are commercially available while development and commercialization of egg derived anti-rotavirus antibodies are yet in the experimental stage. Besides, several organic and chemically synthesized compounds with antisecretory and antidiarrheal actions are considered promising candidates for the treatment of HRV infection in humans (Ebina 1990; Salazar-Lindo et al., 2000; Takahashi et al., 2002).