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Infectious Disease Epidemiology
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Rotavirus

The virus: A rotavirus has a characteristic wheel-like appearance when viewed by electron microscopy (the name rotavirus is derived from the Latin *rota*, meaning "wheel"). The virus is stable in the environment.

Clinical features: Rotavirus is the most common cause of severe diarrhea among children, resulting in the hospitalization of approximately 55,000 children each year in the United States and the death of over 600,000 children annually worldwide. The incubation period for rotavirus disease is approximately 2 days. The disease is characterized by vomiting and watery diarrhea for 3 - 8 days, and fever and abdominal pain occur frequently. Immunity after infection is incomplete, but repeat infections tend to be less severe than the original infection.

Epidemiologic features: The primary mode of transmission is fecal-oral, although some have reported low titers of virus in respiratory tract secretions and other body fluids. Because the virus is stable in the environment, transmission can occur through ingestion of contaminated water or food and contact with contaminated surfaces.

In the United States and other countries with a temperate climate, the disease has a winter seasonal pattern, with annual epidemics occurring from November to April.

Rotavirus infections are very common: Although rotavirus gastroenteritis results in relatively few deaths in Louisiana per year among children aged less than 5 years, it accounts for more than 8,000 physician visits and approximately 800 hospitalizations each year among children aged less than 5 years. Rotavirus is responsible for 30%-50% of all hospitalizations for diarrheal disease among children aged less than 5 years and more than 50% of hospitalizations for diarrheal disease during the seasonal peaks. Among children aged less than 5 years in the United States, 72% of rotavirus hospitalizations occur during the first 2 years of life, and 90% occur by age 3 years.

Virtually all children become infected in the first 3-5 years of life, but severe diarrhea and dehydration occur primarily among children aged 3-35 months.

Diagnosis: Diagnosis may be made by rapid antigen detection of rotavirus in stool specimens. Strains may be further characterized by enzyme immunoassay or reverse transcriptase polymerase chain reaction, but such testing is not commonly done.

Treatment: For persons with healthy immune systems, rotavirus gastroenteritis is a self-limited illness, lasting for only a few days. Treatment is nonspecific and consists of oral rehydration therapy to prevent dehydration. About one in forty children with rotavirus gastroenteritis will require hospitalization for intravenous fluids.

Adapted from the Centers for Disease Control web page www.cdc.gov