This is such a great time of year; the kids are back in school, the weather is turning cooler, and the leaves are changing colors. This year, though, we in the healthcare field have extra concerns with the early outbreak of the H1N1 virus along with the annual influenza season. In the midst of treating these contagious viruses we may forget that this is the same season for rotavirus gastroenteritis. By five years of age, a child has a 1 in 200,000 chance of dying from rotavirus, a 1 in 14 chance of either an emergency room visit or hospitalization from rotavirus, and a 1 in 10 chance of requiring an outpatient visit from the virus.¹ This newsletter provides some good reminder information about rotavirus and the rotavirus vaccines currently available.

Our practice is always available to help you treat our area’s children. Besides our four physicians, we have two registered dieticians and a psychologist who are always taking referrals. Please visit our website at www.giforkids.com for more information on all of the pediatric services our office provides to the area.

Sincerely,

Youhanna Al-Tawil, MD
Medical Director
GI for Kids, PLLC
East Tennessee Children’s Hospital
Gastroenterology and Nutritional Services
Medical Office Building
2100 Clinch Avenue, #510
Knoxville, TN 37916

While rotavirus does not gain the same news headlines like the influenza virus or H1N1, it is a very contagious virus that places a significant burden on our healthcare system. In infants and children, rotavirus is the most common cause of severe diarrhea in the United States and around the world, and most children are infected by two years of age.²,³ In children less than five years of age, the virus is responsible for 5% - 10% of the diarrhea episodes and 40% - 50% of the diarrhea-related hospitalizations.¹

Rotavirus outbreaks are seasonal in temperate climates usually going from November to May each year with a lull in the summer months.³ Typically in the United States, outbreaks begin in the Southwest and move to the Northeast.¹ Each year rotavirus is responsible for:

- >400,000 doctor visits
- >200,000 emergency room visits
- 200,000 hospitalizations
- 55,000 – 77,000 hospitalizations
- 20 – 60 deaths

While these numbers are large, it is alarming to know that rotavirus has approximately the same number of hospitalization incidents as influenza in children aged 0-4 years.¹ This fall and winter it is going to take every health care provider’s concerted effort to keep our children strong and healthy by correctly diagnosing each child, and this includes rotavirus.


Rotavirus Statistics

Friends,

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Rotavirus Vaccines
By Kathy F. Butcher, MPH

Currently, the Food and Drug Administration (FDA) has approved two live vaccines in the prevention of rotavirus gastroenteritis in infants and children. Both vaccines are given orally in either two or three doses beginning at six weeks of age. Neither vaccine is associated with intussusception, an uncommon type of bowel obstruction, and they are both different from the rotavirus vaccine used in the late 1990’s. Below are the specifics for each vaccine: RotaTeq®:
- Prevention of rotavirus caused by G1, G2, G3, G4 serotypes
- Dosage: three 2ml doses; first dose at 6-12 weeks of age with subsequent doses administered in 4-10 week intervals with the last dose not given after 32 weeks of age
- Contraindications: hypersensitivity to vaccine or any component of it
- Warnings: no safety or efficacy data are available for patients who are potentially immunocompromised, or have a history of gastrointestinal disorders

Rotarix®:
- Prevention of rotavirus caused by G1, G3, G4, G9 serotypes
- Dosage: two 1ml doses; first dose beginning at six weeks of age and second dose at least 4 weeks later with the last dose given before 24 weeks of age
- Contraindications: history of uncorrected gastrointestinal disorders
- Warnings: previous hypersensitivity to any component of the vaccine including latex rubber, infants with primary or secondary immunodeficities; delayed administration of the vaccine to any infant with acute diarrhea or vomiting

Both the CDC’s Advisory Committee on Immunization Practices (ACIP) and the American Academy of Pediatrics policy statement, February 11, 2009, recommend the use of rotavirus vaccine for each vaccine:

Diagnosing Rotavirus
By Youhanna Al-Tawil, MD

Rotavirus primary mode of transmission is fecal-oral. It is stable in the environment, and therefore transmission can occur from ingesting contaminated food or water or coming in contact with a contami-

tated surface. The virus survives in low humidity environments and is relatively resistant to hand soaps and common disinfectants. It takes a relatively high concentration of alcohol, chlorine, or iodine to kill it. Consequently, rotavirus vaccine is common in childcare settings, and most children who attend will get the virus once if not twice. After exposure, incubation is less than 48 hours. The spectrum of presenting signs and symptoms range from asymptomatic infection, with more than half of the infections being asymptomatic. Typical signs and symptoms include fever, upper gastrointestinal tract symptoms, vomiting, and diarrhea. The vomiting and diarrhea can last anywhere from 3-8 days. A child can have 10-20 episodes of watery diarrhea per day, and the most severe cases are usually in infants and young children aged 6-24 months.

Positive diagnosis of rotavirus can be made through a rapid antigen detection test sample by using an enzyme linked immunosorbent assay (ELISA). Infected stool can have 10 billion plaque forming units per gram of feces, and it only takes as little as 10 plaque forming units to cause infection. After infection, im-

munity is incomplete and repeat infections can occur, although they are usually less severe than the original case. In healthy infants and children, rotavirus is usually self-limiting. Since there is no antiviral agent effect-

ive against rotavirus, the primary treatment usually consists of oral rehydration therapy. Infants and children with any underlying immunodefi-

ciency are particularly at risk for sustained symptoms. One study found that immune compromised children had diarrheas for 2-3 weeks. It is extremely important to make sure these children stay hydrated until the vomiting and diarrhea subside. A rehydration plan should be given to the parents of these children as soon as any signs of possible dehydration occur. See subsequent articles for more information.

Replacing Fluids for a Dehydrated Child
By Ashley Rogers MS, RD, LDN

Dehydration is a physiologic dis-

turbance due to a reduction of body fluid, and it remains one of the lead-

ing causes of mortality and mortal-

ity in children. Children are more susceptible to dehydration due to their higher fluid requirements rela-
tive to weight and to the frequency of acute illnesses associated with vomiting and diarrhea. The most important treatment of dehydration for diarrhea and vomiting is intravenous fluids or an oral rehydration solution to ensure that fluid elec-
trolyte deficits are replenished. It is proven that oral rehydration solutions should be the first line of treat-

ment in children. They are just as effective as intrave-

rous methods for replenishing the body with mild to
different causes of morbidity and mortal-

ity in children.

Myth 1: Avoid drinking fluids for fear of vomiting
- Re-hydrate quickly to replace electrolytes such as sodium and potassium

Myth 2: I should only eat bland foods
- The diet should be:
  - As normal as possible and practical
  - Should provide adequate calories for repair
  - Should be started as soon as possible
- The diet is:
  - No longer limited to the BRATT diet (bananas, rice, applesauce, toast and tea)
  - Should include complex carbohydrates and foods such as lean meats, yogurt, fruits, and vegetables.

Myth 3: Sodas are best during acute vomiting and diarrhea
- Sweet/sugary products are high in osmolality and have low sodium concentrations making them unsuitable as an effective treatment for dehydration and could cause more osmotic diarrhea.
- Oral rehydration fluids should be close to the osmolality of the blood (270-285 mOsmol/L) for best results.

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Myth 4: Drinking fluids fast will re-hydrate more quickly
- Small sips are better than gulps (5 mls every 1-2 minutes delivers 150-300 ml/hr)

Nutrition Myth-Busters: Diarrhea, Vomiting, and Dehydration
By Sandy R. Altizer, RD, LDN