

Respiratory Syncytial Virus (RSV)

By Centers For Disease Control, *cdc.gov*, January 2008

Clinical features

Respiratory syncytial virus (RSV) is the most common cause of **bronchiolitis** and pneumonia among infants and children under 1 year of age. Illness begins most frequently with fever, runny nose, cough, and sometimes wheezing. During their first RSV infection, between 25% and 40% of infants and young children have signs or symptoms of bronchiolitis or pneumonia, and 0.5% to 2% require hospitalization. Most children recover from illness in 8 to 15 days. The majority of children hospitalized for RSV infection are under 6 months of age. RSV also causes repeated infections throughout life, usually associated with moderate-to-severe cold-like symptoms; however, severe lower respiratory tract disease may occur at any age, especially among the elderly or among those with compromised cardiac, pulmonary, or immune systems.

The virus

RSV is a negative-sense, enveloped RNA virus. The virion is variable in shape and size (average diameter of between 120 and 300 nm), is unstable in the environment (surviving only a few hours on environmental surfaces), and is readily inactivated with soap and water and disinfectants.

Epidemiologic features

RSV is spread from respiratory secretions through close contact with infected persons or contact with contaminated surfaces or objects. Infection can occur when infectious material contacts mucous membranes of the eyes, mouth, or nose, and possibly through the inhalation of droplets generated by a sneeze or cough. In temperate climates, RSV infections usually occur during annual community outbreaks, often lasting 4 to 6 months, during the late fall, winter, or early spring months. The timing and severity of outbreaks in a community vary from year to year. RSV spreads efficiently among children during the annual outbreaks, and most children will have serologic evidence of RSV infection by 2 years of age.

Diagnosis

Diagnosis of RSV infection can be made by virus isolation, detection of viral antigens, detection of viral RNA, demonstration of a rise in serum antibodies, or a combination of these approaches. Most clinical laboratories use antigen detection assays to diagnose infection.

Treatment

For children with mild disease, no specific treatment is necessary other than the treatment of symptoms (e.g., acetaminophen to reduce fever). Children with severe disease may require oxygen therapy and sometimes mechanical ventilation. Ribavirin aerosol may be used in the treatment of some patients with severe disease. Some investigators have used a combination of immune globulin intravenous (IGIV) with high titers of neutralizing RSV antibody (RSV-IGIV) and ribavirin to treat patients with compromised immune systems.

Prevention

Development of an RSV vaccine is a high research priority, but none is yet available. Current prevention options include good infection-control practices, RSV-IGIV, and an anti-RSV humanized murine monoclonal antibody. RSV-IGIV or the anti-RSV humanized murine monoclonal antibody can be given during the RSV outbreak season to prevent serious complications of infection in some infants and children at high risk for serious RSV disease (e.g., those with chronic lung disease and prematurely born infants with or without chronic lung disease). Frequent handwashing and not sharing items such as cups, glasses, and utensils with persons who have RSV illness should decrease the spread of virus to others. Excluding children with colds or other respiratory illnesses (without fever) who are well enough to attend child care or school settings will probably not decrease the transmission of RSV, since it is often spread in the early stages of illness. In a hospital setting, RSV transmission can and should be prevented by strict attention to contact precautions, such as handwashing and wearing gowns and gloves (read about CDC Guidelines for Preventing Nosocomial Pneumonia).

References

American Academy of Pediatrics. Respiratory Syncytial Virus. In: Peter G, ed. *1997 Red Book: Report of the Committee on Infectious Diseases*. 24th ed. Elk Grove Village, IL: American Academy of Pediatrics; 1997: 443.

Collins PL, McIntosh K, Chanock RM. Respiratory Syncytial Virus. In: Fields BN, Knipe DM, Howley PM, eds. *Fields Virology*. 3rd ed. Philadelphia: Lippincott-Raven; 1995: 1313-51.

McIntosh K. Respiratory Syncytial Virus. In: Evans A, Kaslow R, eds. *Viral Infections in Humans: epidemiology and control*. 4th ed. New York: Plenum; 1997:691-705.

###