CYTOMEGALOVIRUS

REPORTING INFORMATION
- Class A(3) (Congenital Only)
- Report by close of work week
- Confidential Case Report Card (3812.11 rev. 12/81), lab report (3833.11) or telephone

AGENT
Cytomegalovirus (CMV), human (beta) herpesvirus 5.

CASE DEFINITION
CDC has not published a case definition for cytomegalovirus infection. Report based on the signs and symptoms and serological changes as described below.

SIGNS AND SYMPTOMS
Intrauterine or congenital infection with CMV occurs in 0.5% - 2% of all births and is usually asymptomatic. Severe disease with manifestations at birth occurs in about 5% of infants infected in utero, producing symptoms such as lethargy, convulsions, jaundice, petechiae, purpura, hepatosplenomegaly, chorioretinitis, intracerebral calcifications, and pulmonary infiltrates. Surviving infants might have mental retardation, motor disabilities, hearing loss, and chronic liver disease. Primary infection of the mother during the pregnancy, rather than reactivation of prior CMV disease, is associated with such severe manifestations in the offspring. Primary infection in normal children is usually asymptomatic, although hepatosplenomegaly is occasionally seen. Adults might exhibit symptoms resembling those of infectious mononucleosis, with prolonged fever and mild hepatitis. Pneumonia and retinitis are common manifestations of CMV infection in immunocompromised individuals.

DIAGNOSIS
Viral isolation - from urine, saliva, cervical secretions, semen, breast milk, tissue.
Serology - Significant rises in serum antibody titers are necessary for diagnosis.

EPIDEMIOLOGY

Source
Humans are the only known reservoirs. Cytomegaloviruses found in many animal species are not infectious to humans.

Occurrence
Infection occurs throughout the world. The prevalence is inversely related to socioeconomic status within the United States and is higher in women than in men (possibly related to contact with children).

Mode of Transmission
Intimate exposure to infectious secretions or excretions is involved. Virus is excreted in urine, saliva, cervical secretions, breast milk, and semen. Infection is mainly acquired from the mother in utero or at birth, or from other infected children through close personal contact in early childhood. By the end of the first year of life, between 10% and 40% of infants excrete CMV in their urine. Primary infection of adolescents and young adults probably occurs most commonly through sexual contact. Sixty percent (60%) to 85% of adults show serologic evidence of past CMV infection. Spread of CMV in households is well documented, but the exact mode is unknown. Published results from a longitudinal study of children in a day-care center indicate that the majority of children acquired CMV after joining the center and that the estimated cumulative infection rate might be as high as 80% for children during their second year of life. CMV is also transmitted via infected donor organs for transplant and via blood transfusion.

Period of Communicability

Virus is excreted in urine or saliva for many months and can persist for several years following primary infection. As with other herpesviruses, once primary infection occurs, CMV persists in the body for the lifetime of the host despite the development of a vigorous immune response. Reactivation of latent virus with limited virus excretion is a common event. The presence of circulating antibody does not prevent reactivation or exogenous reinfection. About 3% of healthy adults are pharyngeal excretors.

Incubation Period

The incubation period for CMV is unknown for person-to-person transmission. Illness following transfusion with infected blood begins within 3-8 weeks. Infections acquired during birth are first demonstrable 3-12 weeks after delivery. Disease following tissue transplantation becomes apparent in 4 weeks to 4 months.

PUBLIC HEALTH MANAGEMENT

Case

Treatment

It is not clear whether antiviral therapy is beneficial. Ganciclovir and foscarnet are licensed for the treatment of CMV retinitis in AIDS patients, and ganciclovir is used for prevention of CMV disease in transplant patients. Treatment needs to be continued indefinitely. Ganciclovir with immunoglobulin might be beneficial in CMV pneumonia; hyperimmune immunoglobulin might be helpful.

Isolation

No infant or child with CMV infection should be excluded from any educational program for which s/he is otherwise eligible. The risk of exposure from such children is minimal in comparison to the unavoidable exposures to the many children in the general population who are unrecognized excretors of CMV. Hand washing, particularly after secretion contact or changing diapers, should be thorough. Secretion precautions are indicated for hospitalized patients.

Contacts

The risk of spread of CMV infection is not fully known.

Prevention and Control

Mass screening of patients and children for CMV excretion is impractical as CMV is shed intermittently and laboratory tests are time-consuming and expensive. Screening for immunity is not recommended since the presence of antibody does not prevent reactivation of latent virus or exogenous reinfection. There is no evidence that deferring a pregnant woman from working with a known CMV-infected person will reduce her risk for acquiring the disease. Emphasis on regular, thorough handwashing and maintenance of good hygiene are the most effective means of preventing transmission of CMV. Seronegative transplant patients should receive organs from seronegative donors, if possible. Vaccines, not yet available, would be targeted at seronegative mothers and seronegative transplant recipients.