CYTOMEGALOVIRUS (CONGENITAL AND NEONATAL)

Disease Overview

Cytomegalovirus (CMV) is a DNA virus. It is a member of the *Herpesvirus* group (herpesvirus 5) and the most common cause of a congenital infection, affecting infants. CMV virus can cause serious disease in babies infected in utero.

Symptoms

CMV is a common infection it often passes undiagnosed as a febrile illness without specific characteristics, 80% of congenital infections never develop symptoms. About 10% of infants infected in utero may display severe generalized infection especially involving central nervous system (microcephaly convulsions mental retardation), and liver (jaundice, hepatomegaly, petechiae), others will appear initially healthy. Deafness and vision loss are the major complications resulting from CMV infection. Less specific findings include failure to thrive and recurrent respiratory infections.

Reservoir

Humans

Mode of Transmission

The infection may occur during either a primary or reactivation or reinfection in the mother. Primary infections carry a higher risk for severe symptomatic disease. Primary infections during pregnancy are much less common than reactivation or reinfection infections.

Incubation Period

4-12 weeks for perinatal infections. Incubation period in utero is unknown.

Period of Communicability

CMV virus can exist in bodily fluids such as urine and saliva of newborns for many months. After neonatal infection, virus may be excreted for 5-6 yrs. Risk to the fetus is highest when the mother acquires disease or has a reactivation during the first half of gestation. The virus can survive at room temperature for a few days.

Risk Factor

Increased risk of acquiring and/or severe diseases

- Fetuses, premature infants and infants with low birth weights. Risk to the fetus is highest when the mother acquires disease or has a reactivation during the first half of gestation.

Surveillance Case Definition

Confirmed Case[1]

Newborns with or without clinical illness[§] with CMV infection confirmed in the first three weeks of life by any of the following laboratory methods:

- Culture of CMV from an appropriate clinical specimen*

OR

- Polymerase chain reaction (PCR) positive for CMV from an appropriate clinical specimen*

OR

- Presence of CMV-specific IgM in the neonatal or cord blood[†]

[§] Clinical illness includes stillbirth, intrauterine growth retardation, fulminant cytomegalic inclusion disease (jaundice, hepatosplenomegaly, petechial rash, multiple organ involvement) and/or central nervous system findings (microcephaly, motor disability, chorioretinitis, cerebral calcifications). There may be onset of lethargy, respiratory distress or seizures soon after birth.

* Urine, throat, blood, CSF or tissue biopsy

[†] Please note that serology (i.e., TORCH screen) is not a reliable way of making a diagnosis. Many newborns with congenital CMV do not produce detectable IgM. Viral isolation or identification is the most reliable diagnostic method.

Diagnosis and Laboratory Guidelines

Optimal diagnosis in the newborn is through virus isolation or PCR usually from urine. Positive test for IgM antibodies to CMV are also useful in diagnosing. Congenital CMV infection cannot be diagnosed if the baby is tested more than -3 weeks after birth as a positive test cannot distinguish between congenital infection and infection that occurred after birth.

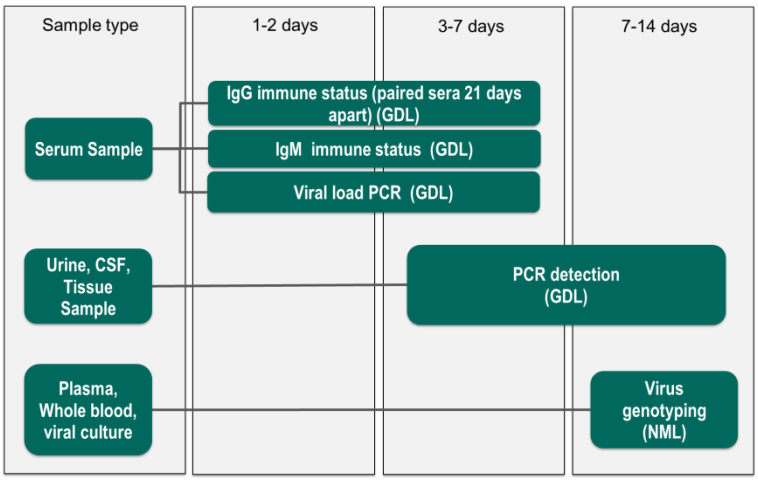
Laboratory Guidelines

Basic laboratory diagnosis for CMV is done by serological tests. A positive IgM serological test is indicative of a recent infection. A fourfold increase is IgG between paired sera collected at least 21 days apart is indicative of an infection. Viral charge is done through PCR. PCR detection tests are also available on urine samples, as well as CSF samples and tissue samples.

In New Brunswick, all CMV testing is done at the George-L.-Dumont university Hospital Centre. The National Microbiology Laboratory in Winnipeg offers antiviral resistance genotyping of suspected antiviral resistant CMV, although this assay is considered mainly for research purposes.

[1] Adapted from the Canadian Pediatric Surveillance program (www.cpsp.cps.ca)

Figure 1: CMV testing timelines:



Reporting

Per Policy 2.2 Disease and Event Notification to OCMOH and Disease and Event Reporting section.

- Routine Surveillance (RDSS) of all confirmed cases.

Case Management

Education

The parents of case or relevant caregiver should be informed about:

- Nature or infection, length of communicable period and mode of transmission
- Hand washing. This includes women working in daycare centers, with preschoolers, and persons who are unable to maintain personal hygiene, handwashing after contact is vital. Handwashing is particularly important after changing diapers or assisting with toileting.
- Women of childbearing age who work in hospitals (particularly labour and delivery, and pediatric wards) should use handwashing and other routine practices.
- Breastfeeding by CMV-positive mothers outweighs the minimal risk of acquiring CMV from the breast milk. Physicians and mothers should take into account the potential risk of transmitting CMV when making decisions about breast-feeding very premature infants.

Investigation

Not applicable

Exclusion/Social Distancing

Not applicable.

Treatment

There is no treatment or cure for congenital CMV. Symptomatic treatment and antibiotics may be given.

Immunization

Not applicable

Contact Management

Education

Per case management

Investigation

Not applicable.

Exclusion/Social Distancing

Not applicable

Prophylaxis

Not applicable

Outbreak Management

Activate the local outbreak plan when an outbreak is declared