

Congenital/Neonatal *H. Simplex* Infection



Case Definition

Isolation of *Herpes simplex* virus from any site in an infant less than one month old who demonstrates one of the following:

- generalized systemic infection involving the central nervous system, liver, or other organs compatible with congenital herpes simplex virus infection;
- focal nervous system disease;
- localized infection involving the skin, eyes or mouth.

Reporting Requirements

- Congenital/neonatal *H. simplex* infection is not reportable in Manitoba.

Clinical Presentation/Natural History

In newborns, congenital herpes presents as a generalized, systemic infection involving the central nervous system, liver and other organs; or as a focal central nervous system disease; or as a localized infection that may involve the skin, eyes, and/or mouth. It is frequently severe, with a high mortality rate and significant neurologic and/or ocular impairment in survivors, especially in the absence of antiviral therapy.

Etiology

The two etiologic agents are herpes simplex virus (HSV) types 1 and 2.

Epidemiology

Reservoir and Source: Humans are the reservoir of infection, and pregnant women with active genital infections (particularly primary infections) are the most common source for the fetus or newborn. Most infants who develop HSV infection are born to women without a history suggestive of active

infection during pregnancy (most women are asymptomatic or have nonspecific symptoms).

Transmission: Transmission to the neonate usually occurs through contact with genital tract mucous membrane or skin during passage through the birth canal or just after birth. Transmission may also occur during the intrauterine period or from postpartum exposure, either from the mother, another care giver or a health provider, who may for example have a cold sore. The risk of HSV infection in an infant born vaginally to a mother with a primary genital infection is high (40 to 50%); the risk to an infant born to a mother with recurrent infection at delivery is much lower (less than 5%).

Occurrence:

General: Worldwide, 50-90% of adults possess circulating antibodies against HSV 1; HSV 2 antibody is found in about 20-30% of American adults. The prevalence is greater (up to 60%) in lower socioeconomic groups and among persons with multiple sex partners. Neonatal herpes is, of course, much less common.

Manitoba: Approximately three to five cases of congenital herpes occur annually in Manitoba.

Incubation Period: Two to twelve days. Infection in newborns, however, may be present at birth, and can occur as late as four to six weeks post-partum.

Susceptibility and Resistance: Susceptibility is universal, but may be reduced in the presence of maternal antibody.

Period of Communicability: Persons with primary genital lesions are infective for about seven to 12 days, and with recurrent disease for about four to seven days. Reactivation of genital herpes may occur repeatedly in 50% of women following either symptomatic or asymptomatic primary infection; reactivation may be asymptomatic, with viral shedding only. Infected neonates are infectious for the duration of their illness.

Diagnosis

Diagnosis is generally by culture of the organism, usually from genital or oral tract lesions, and occasionally from brain biopsy in the case of encephalitis. Typing can be performed from the culture by direct fluorescent antibody testing. A rapid ELISA test (results within five hours) is also available.

HSV-DNA can be demonstrated in lesions in cerebrospinal fluid by nucleic acid amplification techniques (polymerase chain reaction, or PCR). PCR testing of CSF should be considered early in clinically suspected cases to establish the diagnosis and direct antiviral therapy.

Diagnosis of primary infection can also be confirmed by a four-fold rise in titre in paired sera in serologic tests; the presence of herpes-specific IgM is suggestive but not conclusive evidence of primary infection, and may not be detectable until up to three weeks after the first clinical signs of illness.

Key Investigations

- History of genital herpes.
- Clinical assessment for primary or recurrent genital herpes infection, particularly in late pregnancy or at the time of delivery.

Control

Management of Cases:

- Contact precautions are recommended for neonatal, and for disseminated or severe primary lesions; for recurrent lesions, drainage/secretion precautions are recommended.

Treatment:

- Treatment for symptomatic neonates consists of intravenous acyclovir, the dose and duration depending upon the gestational age and renal function. Consult with an infectious disease specialist.

Management of Contacts:

- No public health interventions are required.

Preventive Measures:

- Use of latex condoms may decrease the risk of genital herpes infection during pregnancy.
- Caesarean section before the membranes rupture is advised when primary genital herpes infection occurs in late pregnancy. After recurrent infection, caesarean section is advisable only when active lesions are present at delivery. Prophylactic treatment for the infant is not recommended.
- Use of scalp electrodes is contraindicated in women suspected of having HSV infection.
- Antiviral therapy should be considered for pregnant women with recurrent herpes.