



# Herpes simplex virus (HSV) In pregnancy

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- Herpes simplex virus (HSV) infection is prevalent worldwide among women of childbearing age.
- During pregnancy, the major concern of maternal HSV infection is transmission to the neonate, as neonatal infection can result in serious morbidity and mortality.



# classification

- **Primary** – Patient has a first occurrence of a genital HSV lesion and no pre-existing herpes simplex virus type 1 (HSV-1) or herpes simplex virus type 2 (HSV-2) antibodies.
- **No primary first-episode** – Patient has a first occurrence of a genital HSV lesion, but has preexisting HSV antibodies that are different from the HSV type recovered from the genital lesion. For example:
  - HSV-2 is recovered from the genital lesion of a patient with pre-existing HSV-1 antibodies and no HSV-2 antibodies.



**Recurrent** – The HSV type recovered from the genital lesion is the same type as pre-existing antibodies in the serum.

- For patients with previously asymptomatic genital infection, a recurrence may be the first-recognized episode of genital herpes.



- Accurate classification is particularly important during pregnancy because a newly acquired genital infection (primary or nonprimary first-episode) near the time of delivery is a major risk factor for transmission to the neonate.
- The risk of neonatal transmission at delivery is much lower in patients with recurrent genital infection.



# DIAGNOSIS

- The clinical diagnosis of genital herpes simplex virus (HSV) infection is generally made by the finding of vesicular or ulcerated lesions but should be always confirmed with laboratory testing.



- The gold standard diagnostic test to detect the presence of herpes virus infection has been **viral culture**.
- However, **PCR** to detect HSV DNA is probably the most useful diagnostic test. Results are available in a matter of hours, and PCR is more sensitive than culture.



- Both type-specific serologic and virologic assays are usually required for accurate classification
- Type-specific antibodies to HSV generally develop within the first **12 weeks** after infection and persist indefinitely .





- For women without a history of genital HSV who present with an active genital ulcer during pregnancy, we perform a direct viral test on the lesion and type-specific serologic testing.
- The vesicle can be unroofed and a swab of the vesicular fluid and ulcer base sent for PCR.



- For women with genital ulcers and a high clinical suspicion for HSV infection but negative tests for virus detection and for antibody, we repeat serologic testing **three to four** weeks later.
- If this repeat testing demonstrates seroconversion of either type-specific antibody, the diagnosis of primary infection (or nonprimary first-episode, if the other type-specific antibody was positive at baseline) can be made.
- If there is no seroconversion, the genital ulcers are unlikely to represent HSV infection.



# VERTICAL TRANSMISSION

- General principles — Transmission of herpes simplex virus (HSV) to the neonate usually occurs during labor and delivery as a result of direct contact with virus shed from infected sites (cervix, vagina, vulva, perianal area).
- Most mothers of newborns with perinatally-acquired HSV infection lack a history of clinically evident genital herpes.



- The highest risk for neonatal infection occurs in women with a primary genital HSV infection acquired near the time of delivery.



- Trans placental infection of the fetus resulting in congenital infection is a rare complication of maternal infection. Only a few such documented cases have been reported.
- The major perinatal problem is neonatal herpes infection.



# Neonatal herpes infection

- The disease manifests at the end of the first week of life. The presentation may include skin lesions, cough, cyanosis, tachypnea, dyspnea, jaundice, seizures, and disseminated intravascular coagulation.



# TREATMENT

- **Acyclovir**, 400 mg PO three times daily, is highly effective for treatment of primary or recurrent infection. The usual course of treatment is **5 to 10 days**.
- **Valacyclovir** is better absorbed and has a longer half-life than acyclovir; however, it is significantly more expensive.

The appropriate dose of valacyclovir for treatment of infection is 1000 mg twice daily.



- A less commonly used alternative is **Famciclovir**. According to the manufacturer, the recommended dose for treatment of an initial infection is 250 mg three times daily for 7 to 10 days.
- This drug is more expensive than acyclovir and relatively comparable to the cost of valacyclovir.





# MANAGEMENT OF HERPES INFECTION IN PREGNANCY



- For women without a history of genital HSV infection who present with a new genital ulcer during pregnancy, we recommend

empiric antiviral therapy while awaiting viral studies.

- Although newly acquired genital HSV is self-limited, treatment can reduce the duration of active lesions, symptoms, and viral shedding, and can also decrease the risk of complicated primary infection.



- For gravidas with recurrent genital herpes, treatment with acyclovir (400 mg three times daily) starting at **36 weeks'** gestation decreases the proportion of patients with clinical lesions at the time of labor and lessens the need for cesarean delivery.
- Women with one or more symptomatic genital HSV infections during pregnancy are most likely to benefit
- There are no data supporting a risk to the fetus from maternal administration of acyclovir or valacyclovir.



- However, we believe that **acyclovir** should be the drug of choice for suppression of recurrent genital herpes during the third trimester, because this drug has been the most extensively studied.



# Current recommendations for prenatal and intrapartum care



- Obstetricians should ask all pregnant women about a history of genital herpes.
- If the diagnosis of genital herpes has not been previously confirmed by culture or PCR, specimens should be obtained during an active episode of apparent HSV infection.



# Antepartum obstetric procedures

- **Trans cervical** procedures (eg, cerclage, chorionic villus sampling) should be avoided in women with genital lesions to reduce the risk of infecting the placenta or membranes, but may be performed in asymptomatic patients.
- **Trans abdominal** procedures (eg, amniocentesis, fetal blood sampling) are not contraindicated in women with active genital disease.



- The patient with a history of genital herpes should be instructed to come to the hospital early in labor or immediately if PROM has occurred.
- When the patient is admitted for labor or with ruptured membranes, a careful pelvic examination should be performed. If no lesions are present, vaginal delivery is acceptable. If lesions are observed, a cesarean delivery should be performed.





- We agree with recommendations from the Centers for Disease Control and Prevention (CDC) and ACOG to offer **cesarean delivery as soon as possible** after the onset of labor/rupture of membranes to women with a history of genital HSV and either of the following:
  - 1-Active genital lesions (including those that have **crusted**)
  - 2-Prodromal symptoms (eg, pain, burning)



- For women with a history of recurrent HSV but no active lesions or prodromal symptoms, the risk for neonatal HSV is too low (estimated to be 2/10,000) to warrant cesarean delivery.



- For those women whose primary or nonprimary first-episode genital infection occurred during the latter weeks of pregnancy, we suggest cesarean delivery given the possibility of a high risk of neonatal transmission.
- Royal College of Obstetricians recommends **cesarean delivery** for women who present with a first-episode genital herpes infection in the third trimester, particularly those who develop symptoms within **six weeks** of expected delivery.



## Non genital HSV

- Similarly, we **do not** perform cesarean delivery in women with active non genital HSV lesions (eg, back, buttock, thigh); although the risk of genital shedding is higher than in asymptomatic women, the risk of neonatal transmission is still likely not high enough to warrant cesarean, and the non genital lesions do not confer a measurable risk of transmission in the absence of direct contact.
- These lesions should be covered with an **occlusive dressing** during labor and delivery.



Thank you