Learn simply

Human Immunodeficiency Virus

Human immunodeficiency virus (HIV)[1]

- Identify risk factors for HIV[2]
- Understand the risks to the mother[3]
- Understand the potential risks to the fetus[4]

Routine serologic screening of all pregnant women[5]

Serologic screening negative

- Discuss prevention of sexually transmitted infections (STIs), including HIV[6]
- *Consider repeat screening in the 3rd trimester in high-risk pregnancies*

Continue routine prenatal care

Serologic screening positive

Confirm the diagnosis[7]

Diagnosis confirmed

- Screen for other STIs (syphilis, GC/chlamydia)
- √ PAP smear, CBC and liver function tests (LFTs), Hepatitis B & C, PPD testing to exclude TB
- **√ baseline viral load (VL) and CD4 count**
- Recommend screening of sexual partner(s)
- Report to Department of Public Health, if required
- Ultrasound for gestational age and fetal wellbeing
- **Initiate or continue antiretroviral therapy in all women**[8]
- Immunizations for HIV+ women (Pneumococcal, Hepatitis A & B)[9]
- Consider PCP and/or TB chemoprophylaxis[9]
- Manage in conjunction with an HIV specialist
- Serial ultrasound for growth q month after 24 weeks

Serial CBC, LFTs, VL and CD4 counts q trimester if stable or q 4–6 weeks if abnormal

VL <1,000 copies/mL

- **Continue antiretroviral therapy**
- Delivery timing and mode should follow routine obstetrical indications[11]
- Consider offering elective cesarean at 38 weeks[11]

VL >1,000 copies/mL

- Consider non-compliance, failed treatment (resistance, poor antiviral drug selection)
- *Consider checking viral genotype/susceptibilities*

Recommend elective cesarean delivery at 38 weeks[11]

Diagnosis not confirmed

- If symptoms persist, consider alternative diagnoses[10]
- Discuss STI prevention[6]
- *Consider repeat screening in the 3rd trimester in high-risk pregnancies*

Continue routine prenatal care

1. HIV is a single-stranded DNA virus that causes acquired immune deficiency system (AIDS). In women, it is primarily (although not exclusively) a sexually transmitted infection (STI) acquired through heterosexual intercourse. It can also be acquired through blood transfusion, intravenous drug abuse, or transplacental infection (perinatal or vertical transmission). Once acquired, it cannot be eradicated.

2. Risk factors for HIV include prostitution/multiple sexual partners, unprotected intercourse, other sexually transmitted infections, drug abuse, HIV-positive/bisexual partner, late/no prenatal care, new immigrant from a high prevalence area (such as Africa), and a prior blood transfusion (especially before 1985).

3. HIV causes AIDS. Pregnancy does not increase progression to AIDS. Pregnant women with HIV should receive pneumococcal and hepatitis A & B inactivated vaccines to reduce the risk of acquiring these infections during pregnancy. HIV in pregnancy is associated with an increased risk of preterm birth, preterm premature rupture of membranes (PROM) and possibly poor fetal growth in women receiving combination antiretroviral (ARV) therapy. Routine fundal height measurements or interval ultrasound assessment should be used to monitor fetal growth.

1. The major risk to the fetus is vertical transmission. HIV-positive infants may develop AIDS with a high mortality rate. Baseline rates of vertical transmission without treatment range from 20–30%. The risk is highest during labor and delivery.
2. Monotherapy with zidovudine (ZDV), formerly (azidothymidine (AZT)) administration to the mother throughout pregnancy, during labor, and in the first 6 weeks of newborn life can reduce vertical transmission to around 8%, but is no longer the mainstay of treatment.
3. Three-drug combination antiretroviral therapy (ART) is now the gold-standard and can reduce the perinatal transmission rate to 1%. Perinatal transmission is related to the circulating viral load (VL). If the circulating VL is undetectable (<50 copies/mL), the risk of perinatal transmission decreases to <1%.

4. HIV-positive women who are on ART and found to be pregnant may need their regimen adjusted. For the majority of women, pregnancy is an opportunity for universal screening, regardless of risk.
5. Pregnant women with HIV are generally asymptomatic and may or may not have risk factors. Physical examination is usually unhelpful, but may identify non-specific features (weight loss, skin lesions) or evidence of thrush, vaginitis, cervical lesion, or generalized lymphadenopathy.

1. Now that combination ART can effectively prevent vertical transmission, all pregnant women should be screened for HIV at their first prenatal visit with an opt-out approach. It may be valuable to rescreen high-risk patients again in later pregnancy. This would include patients with a history of STIs, opportunistic infections (such as pneumocystis carinii pneumonia (PCP)), or cervical dysplasia/ cancer that may suggest the diagnosis of HIV. The traditional ELISA for HIV has been supplanted by newer combination antigen-antibody testing

2. Prevention of HIV includes avoidance of unprotected intercourse, routine use of barrier contraception, and stopping drug abuse/ needle sharing. Needle exchange programs have been shown to be effective in preventing HIV infection.
3. To confirm the diagnosis, the US Centers for Disease Control and Prevention (CDC) recommend the fourth-generation assay that detects HIV p24 antigen and HIV1/2 antibodies, which can be processed more quickly and is more likely to detect early infection.
4. HIV-1/HIV-2 differentiation immunoassay in combination with the viral load (HIV RNA level) is used to confirm the screening results and determine which HIV serotype is involved.
5. Women who were not antenatally tested or whose HIV status is unknown when presenting with labor should be offered rapid screening (results in < 1 hr) and receive immediate antiretroviral prophylaxis prior to laboratory confirmation.

1. HIV-positive women who become pregnant should generally continue their ART in consultation with their HIV specialist. For women with a new diagnosis of HIV, multi-drug ART is recommended to arrest maternal HIV disease and reduce perinatal transmission by achieving an undetectable VL.
2. HIV-positive women should be treated in pregnancy with three-drug combination ART that addresses drug safety, known toxicity, efficacy, and pragmatic considerations such as convenience, adherence potential, tolerability, potential for drug interactions with other medications, and the resistance characteristics of the specific HIV serotype in an effort to maximally reduce VL. Because these ART regimens are complicated, rapidly changing over time, and require long-term compliance, it is advisable to involve an HIV specialist.
3. Multi-drug ART includes nucleoside inhibitors (AZT, DDI, 3TC, D4T), protease inhibitors (indinavir, nelfinavir, ritonivir, sequanavir), and/or other drugs (nivaripine, delacirone, etacirenz). Some drugs (such as efavirenz) are best avoided pre-conceptually and in the first trimester, because of the risk of neural tube defect (NTD). Similarly, other ART (darunavir, dolutegravir, and elvitegravir) are best avoided because of the lack of experience in pregnancy.
4. Treatment should include AZT since it is best proven to prevent vertical transmission. Women should be followed closely for drug side-effects (such as rash, bone marrow depression, and liver dysfunction).

1. If CD4 count is <200 cells/mm3, PCP chemoprophylaxis (bactrim, inhaled pentamidine) is indicated. If CD4 < 50 cells/mm3, administer TB prophylaxis.
2. Alternative diagnoses include, among others, viral hepatitis, pneumonia, and anorexia.
3. Women on combination ART with a low VL (<1,000 copies/mL) should be allowed to deliver vaginally, regardless of duration of labor or rupture of membranes since there is no evidence that perinatal transmission is reduced when delivered by cesarean. There also appears to be no benefit in adding intrapartum ZDV in these women provided they are consistently taking their ART and VL is low. The plan of care should be discussed with the patient with input from her HIV specialist. In contrast, in women with an elevated VL (>1,000 copies/mL), elective cesarean delivery at 38 0/7 weeks will decrease vertical transmission to <1% (range, 0–2%). Amniocentesis for fetal lung maturity testing is not required.
4. However, once there is rupture of membranes or labor, the protective effect appears to disappear. If a vaginal delivery is planned, every effort should be made to avoid early amniotomy, prolonged rupture of membranes, and fetal scalp electrode placement. All infants born to HIV-infected mothers should receive ART prophylaxis, typically in the form of ZDV for 6 weeks after birth to decrease the risk of acquiring HIV.