

11

HIV and Pregnancy: Prevention of Mother-to-Child Transmission

By

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Objectives

1. Understand the effects of HIV on pregnancy
 2. Discuss MTCT transmission, factors that may increase transmission, and measures that reduce transmission
 3. Describe how ART is used for the prevention of MTCT
 - Describe the various drug regimens for PMTCT that are used during pregnancy, intrapartum, and postpartum, including short course ART
 - Discuss issues related to breastfeeding, PMTCT, ART and WHO recommendations
 - Discuss national guidelines on infant feeding
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- Worldwide, each year, two million HIV infected women become pregnant, most of them in poor countries
 - Between 1/4 and 1/3 transmit the disease to their newborns either during labor, during delivery, or while breast-feeding (2,000 new AIDS-infected infants each day)
 - HIV infected children whose mothers die are left orphaned and harder to care for than the HIV negative infant
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- In [*participants' country*] _____% of women are HIV positive. Prevalence is higher in _____ areas
 - HIV presentation is the same in both sexes, but the disease has greater implications on a woman's reproductive health in terms of her ability to cope with pregnancy and transmission of the virus to her unborn and newborn child
 - During the asymptomatic phase of HIV, most women are unaware of their infection until the disease is diagnosed in their infants. This may cause conflict within the family and the woman might be blamed for bringing the infection into the family

Effects of HIV on Pregnancy,

- During the early stages of HIV infection, pregnancy does not accelerate disease progression
- Late HIV disease may affect the outcome of pregnancy, i.e., poor fetal growth, preterm delivery, low birth weight, prenatal and neonatal death
- With regard to common HIV-related problems, there is no difference between pregnant and non-pregnant women and they should be managed the same (except for drug management)

Mother-to-Child Transmission of HIV

- Transmission
 - Factors which may increase risk of transmission
 - Measures to reduce MTCT
- ARV Therapy and MTCT
 - HIV may be transmitted to the infant during pregnancy, at the time of delivery, and through breastfeeding; most transmission is thought to take place during delivery
 - For a mother known to be HIV-infected prenatally, the additional risk of transmission of HIV to her infant through breastfeeding has been estimated at 14%
 - The risk is as high as 29% for mothers who acquire HIV post-natally
 - Many studies indicate that the risk of breast milk transmission is higher in the first few months of life, with a subsequent tapering off of risk
 - The risk persists as long as the infant is breastfed
 - HIV transmission is also higher if the mother has mastitis
 - High maternal viral load: >5-10,000 copies/ml (e.g., at time of seroconversion and during late HIV disease: CD4 cell counts <100 cells/mm)
 - Recurrent STDs
 - Malaria interferes with placental functions and eases viral transmission across the placenta
 - Vitamin A deficiency
 - Preterm delivery
 - Infected amniotic fluid (chorioamnionitis) (*limited data; recent studies do not suggest increased risk*)

Measures to Reduce MTCT

During pregnancy:

- Provide voluntary counseling and HIV testing plus psychosocial support
- Diagnose and provide aggressive treatment of malaria, STDs and other infections as early as possible
- Provide basic antenatal care including:
 - Iron Supplementation
 - Education about MTCT and infant feeding options
 - ART for MTCT
 - Risk reduction/safer sex measures

Measures to Reduce MTCT

During Labor and Delivery:

- Delay rupturing of membranes (ROM)
- Do only minimal digital examinations after ROM
- Cleanse the vagina with hibitane or other viricides if available
- Reduce use of assisted delivery with forceps,
- Reduce use of episiotomy
- Elective caesarean section has a more protective effect against MTCT than vaginal delivery
- If not already on ART, give NVP

Measures to Reduce MTCT

After Delivery:

- Avoid mechanical nasal suction
- Clean the newborn immediately of all maternal secretions and blood
- Support safer infant feeding (according to national guidelines re: mother's choice to put the infant to breast within 30 minutes of birth)
- If breastfeeding is chosen as an option: encourage exclusive breastfeeding and advise early cessation (up to 6 months) or breast milk substitute
- Advise giving milk substitutes where conditions are suitable and no breastfeeding after 6 months

- Current WHO/UNAIDS/UNICEF guidelines recommend that women with HIV infection be fully informed of both risks and benefits of breastfeeding and be supported in their decision about feeding practices
- Safe alternatives may not be available in some resource-limited settings, in which case exclusive breastfeeding for the first six months of life is recommended

Breastfeeding by HIV Positive Mothers:

Risks to the Infant

- HIV infection
- Infection risk persists for as long as the infant is breastfeeding
- Children who receive mixed feeding seem to be at higher risk of HIV infection during the first months of life than children who receive exclusive breastfeeding or exclusive replacement feeding
- Shortening the period of breastfeeding may reduce the risk of HIV transmission and mixed feeding should be discouraged
- The alternative of exclusively giving replacement feeding also has considerable risks

Breastfeeding: Benefits to the Infant

- The immunological, nutritional, psychosocial, and child-spacing benefits are well recognized
- Breast milk plays an important role in preventing the infections that accelerate progression of HIV-related diseases in already infected children

ARV Therapy and MTCT, continued

- Short course of NVP (HIVNET 012) has been shown to reduce the risk of transmission by 47%
- This protocol is the most commonly used one because of its
 - demonstrated efficacy in clinical trials in reducing MTCT
 - low cost
 - ease of use in MTCT programs

Women on treatment with ARVs for HIV infection have very low transmission if their viral load is <1000 copies/ml

Women First Diagnosed with HIV Infection During Pregnancy

- Women in the first trimester may consider delaying initiation of ART
- Consider severity of maternal HIV disease and potential benefits and risks of delaying ART until after first trimester
- For women who are severely ill, the benefit of early initiation may outweigh theoretical risk to fetus; in these cases, recommend initiating with drugs such as AZT, 3TC, NVP, or NFV

HIV-infected Women on ART Who Become Pregnant

- Options are:
 - Suspend therapy temporarily during first trimester
 - Continue same therapy
 - Change to a different regimen
- Issues to consider:
 - Gestational stage of the pregnancy
 - Severity of maternal disease
 - Tolerance of regimen in pregnancy
 - Potential for adverse fetal effects

ART and Breastfeeding

- Women who require ART and are breastfeeding should continue their ongoing ART regimen
- Efficacy of a potent ART being given to the mother solely to prevent postnatal transmission of HIV through breast milk is unknown, but is currently being studied

Short-Course ARV prophylaxis and Treatment Postpartum

- Short-course ARV regimens, that do not fully suppress viral replication, may be associated with the development of ARV drug resistance

The Ugandan HIVNET 012 study of single dose intrapartum/newborn NVP for prevention of MTCT found that 19% of the women developed resistance to the drug. This

was associated with delivery, HIV viral load and CD4 cell count

Adherence to Therapy in Pregnancy and Postpartum

- Difficulty of adherence is greater in pregnant and postpartum women
- Obstacles to adherence: morning sickness, GI upset, fears about ARV harming the fetus
- If need to temporarily discontinue therapy during pregnancy, stop all drugs and then re-start simultaneously
 - This reduces the potential for emergence of resistance

Recommendations

- Exclusive breastfeeding for the first 6 months generally promoted and supported ---
 - serostatus of most mothers unknown
 - benefits to infants outweigh the risks regardless of their HIV status
 - The mother should make final choice about the feeding method
 - Whatever her choice may be, health staff should provide support to ensure optimal nutrition of mother and child
- [Refer to national HIV and infant feeding guidelines]