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Reducing HIV Transmission from Mother to Infant

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Epidemiology

Perinatal HIV transmission is the most common cause of HIV infection in infants in the US, responsible for more than 90 percent of pediatric cases. It is estimated that about two-thirds of mother-to-child transmission occur at delivery and the rest in utero. The epidemiological pattern differs in many parts of the world, where it is estimated that breast feeding can account for up to 50 percent of HIV transmission from mother to infant.¹

Initiation of Treatment

In the nonpregnant HIV- infected individual treatment is initiated when:

- CD₄ count falls below 350 mm³ or,
- Plasma HIV RNA levels exceed 30,000 copies/mL (by b-deoxyribonucleic acid assay) or,
- Plasma HIV RNA levels exceeds 55,000 copies/mL (by reverse transcription polymerase chain reaction assay).

However, for pregnant women who are HIV positive, treatment including cesarean delivery is recommended for women when:

- Viral loads exceed 1,000 copies/mL (by reverse transcription polymerase chain reaction assay).²

Factors other than viral load that are associated with increased mother-to-child transmission include:

- Prolonged rupture of membranes,
- Vaginal delivery,
- Premature births,
- Maternal illicit drug use.

Treatment and Prognosis

Many studies have shown reduction of perinatal HIV transmission among women who received active anti-retroviral therapy (when viral loads were greater than 1000) and elective cesarean delivery.^{3,4} With such treatment, transmission rates can be reduced to approximately 1 percent. There has been more experience with zidovudine than with any other anti-retroviral therapy, and the current standard dose is 200mg three times a day or 300mg twice daily.

Women who are first identified as HIV-infected during labor (with no prior treatment) and the babies they deliver should be treated with any of the following regimens:⁵

Treatment	Woman	Neonate
Zidovudine	2mg/kg IV bolus, followed by continuous infusion of 1mg/kg/hr until delivery.	2mg/kg orally every 6 hours for 6 weeks.
Nevaripine	600mg orally at onset of labor, followed by 300mg orally every 3 hours until delivery.	A single dose (2mg/kg) at age 48 to 72 hours.
Zidovudine and lamivudine	Zidovudine-600mg orally at onset of labor, followed by 300mg orally every 3 hours until delivery and, Lamivudine-150 mg orally at onset of labor, followed by 150mg orally every 12 hours until delivery.	1 week of zidovudine 4mg/kg orally every 12 hours and lamivudine 2mg/kg orally every 12 hours.
Both nevaripine and zidovudine	Both nevaripine as above and the zidovudine regimen as above.	Both nevaripine as above and the zidovudine regimen as above.

References

1. Minkoff H. Human immunodeficiency virus infection in pregnancy. *Obstet Gynecol* 2003;101(4):797-810.
2. Ioannidis JPA, Abrams EJ, Ammann A, et al. Perinatal transmission of human immunodeficiency virus type 1 by pregnant women with RNA virus loads <1000 copies/mL. *J Infect Dis* 2001;182:539-545.
3. Mandelbrot L, Le Chenadec J, Berrebi A, et al. Perinatal HIV-1 transmission: interaction between zidovudine prophylaxis and mode of delivery in the French perinatal cohort. *JAMA* 1998;280(1):55-60.
4. Kind C, Rudin C, Siegrisi CA, et al. Prevention of vertical HIV transmission: additive protective effect of elective cesarean section and zidovudine prophylaxis. *AIDS* 1998;12(2):205-210.

5. US Public Health Service Taskforce. Recommendations for use of antiretroviral drugs in pregnant HIV-1-infected women for maternal health and interventions to reduce perinatal HIV-1 transmission in the United States. Accessed April 25, 2003.

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