HIV/AIDS TRANSMISSION: MOTHER TO CHILD

Breastfeeding

Even if HIV transmission is prevented with antiretroviral therapy during pregnancy, breastfeeding contributes to the overall risk of HIV transmission postpartum, and the risk increases with the duration of breastfeeding.

UNAIDS guideline recommend infected women replacement feed when acceptable, feasible, affordable, sustainable, and safe. According to UNAIDS supplying a breast milk substitute requires access to potable water for successful replacement feeding.

Treatment goals are both to prevent HIV transmission and also to reduce the risk of treatment failure in the future for the infected mother, and in the child should they become infected.

By D Baumgardner

The Joint United Nations Programme on HIV/AIDS

According to the Joint United Nations Programme on HIV/AIDS, the number of women living with HIV/AIDS globally is rising. Almost two-thirds of all humans with HIV/AIDS live in sub-Saharan Africa of which 60% of the adults are women.

Fewer than 6% of pregnant women in Saharan Africa have access to a prevention of mother-to-child HIV transmission service. A pregnant woman with HIV/AIDS can infect her baby with HIV while the baby is in her womb, during birth or after birth by breastfeeding.

Without interventions, the risk of mother-to-child transmission (MTCT) of HIV is 15-30%, if the mother does not breastfeed the child. The risk can rise to 30-45% with prolonged breastfeeding.

By A Hunter

Clinical studies of MTCT

In a study of 80 mothers who gave birth to 82 children at Fort Portal District Hospital in the Kabarole District in Uganda, a single dose of nevirapine given to the mother before and the child immediately after birth reduced the likelihood that the child would acquire HIV/AIDS according to a 2006 report in J Acquir Immune Defic Syndr. by Dr Kunz and others.

In Uganda, 626 pregnant women with HIV/AIDS were given nevirapine just before birth and nevirapine was given to the newborn baby as soon as it was born. The rate of infant infection or death up to 18 months was reduced by 37% according to reports in the Lancet in 1999 and 2003.

Nevirapine is reported to be a safe and effective drug to reduce the likelihood of mother-to-child transmission, according to the HIVNET 012 Study reported by the United States Health and Human Services. and the Avert Organization.

By BG Birenbaum

Recommendations from the World Health Organization

Despite advances in therapy for treating HIV infection that extend quality of life and help prevent transmission, women and children continue to experience high rates of new infections. According to WHO, approximately 540,000 children were newly infected with HIV in 2005 alone; about 90% of these new infections occurred in sub-Saharan Africa.

Mother-to-child transmission (MTCT) during pregnancy, labor and delivery or during breastfeeding is responsible for most of the new infections in children. Transmission rates are as high as 30% for infected women who bottle feed and as high as 45% for those who breastfeed. However, in addition to obstetrical interventions such as elective caesarean delivery, the risk of MTCT can be diminished to less than 2% through the use of antiretroviral prophylaxis given to women during pregnancy and labor and to the infant in the first weeks of life.

In 2006 WHO revised its recommendations for the use of antiretroviral drugs in pregnant women in resource-limited settings to protect their own health and to prevent transmission of the HIV virus to their infants. The document aims to not only reduce the risk of MTCT, but to also minimize the consequences of resistance to nevirapine from the use of a single-
dose of the drug (Sd-NVP) for preventing transmission from mother to child.

Overall, WHO reports that the criteria for initiating antiretroviral therapy for pregnant women are the same as for non-pregnant women, with one notable exception: therapy should be initiated in pregnant women who have clinical stage 3 disease and a CD4 cell count below 350 cells/mm3 (if the count is not available, WHO recommends all women receive antiretroviral therapy). In addition, antiretroviral therapy in pregnant women is recommended for all women in clinical stage 4 regardless of CD4 cell count, and those in clinical stage 1 and 2 with a CD4 cell count of under 200 cells/mm3.

Recommendations by WHO specifically address women who become pregnant while receiving antiretroviral treatment, first-line antiretroviral therapy regimes for treating pregnant women and prophylactic regimen for infants, regimens for pregnant women who are not yet eligible for antiretroviral therapy, women in labor who have not received antiretroviral prophylaxis, and infants born to women living with HIV/AIDS who have not received antiretroviral therapy during pregnancy or labor.

For women receiving antiretroviral therapy who become pregnant, WHO recommends that NVP should be substituted for efavirenz during the first trimester if the mother is receiving an EFV-containing regimen. Women in the second or third trimesters receiving EFV may continue with that regimen, WHO recommends, adding that infants born to mothers receiving antiretroviral therapy should receive zidovudine (azidothymidine, AZT) for 7 days after birth.

Recommended first-line antiretroviral therapy for treating pregnant women and prophylactic regimen

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**The Global HIV Prevention Working Group**

The Global HIV Prevention Working Group released a report that addressed new HIV/AIDS prevention approaches. The report *New Approaches to HIV Prevention: Accelerating Research and Ensuring Future Access* was released August 2006 at the XIV international AIDS Conference in Canada. Recommended for prevention: male circumcision, cervical barriers, preexposure prophylaxis with antiretrovirals, Herpes suppression, microbicides, HIV vaccines, of which all but the last 2 methods are possible now.

The Working Group was launched in 2002 to focus on fighting the HIV/AIDS epidemic with global prevention policies and programs. The Working Group:

1) conducts analyses of urgent HIV prevention issues
2) builds consensus on effective prevention strategies
3) advocates for a comprehensive international response to HIV/AIDS that integrates prevention, treatment, and care
4) provides information and guidance to donors, media, and countries affected by HIV/AIDS.

**Bill and Melinda Gates Foundation**

The Bill and Melinda Gates Foundation focuses on developing countries on improving health, reducing extreme poverty, and increasing access to technology in public libraries. On their website (www.gatesfoundation.org) the foundation reports that their Global Health Program prioritizes the diseases and health conditions that represent the greatest burden in developing countries and the solutions that promise to improve health for the greatest number of humans. The Gates Foundation goal is to help with access to clinically tested health tools and helps create the development of new tools to prevent and treat serious diseases.

By December 2006 the HIV/AIDS, tuberculosis and reproductive health grants awarded by the foundation totaled over USD2 billion. In January 2007, the foundation awarded the New York-based Treatment Action Group USD4.7 million to increase tuberculosis and HIV/AIDS research advocacy.

*By AL Hunter*
for infants include AZT, 3TC and NVP twice daily for the mothers before, during and after birth, and a 7-day course of AZT for the infants.

WHO's recommended prophylactic ARV regimes for asymptomatic pregnant women include AZT for the mother starting at 28 weeks of pregnancy, intrapartum treatment with Sd-NVP and AZT/3TC (lamivudine), and postpartum treatment with AZT/3TC for a week to prevent resistance to NVP. Infants are recommended to receive Sd-NVP and AZT for a week after birth.

The NVP dose for the mother may be omitted if she received a minimum of 4 weeks of AZT before giving birth, WHO recommends, and NVP may be given to the newborn immediately after birth or up to 72 hours after delivery. However, if the mother received less than 4 weeks of AZT before giving birth, WHO recommends extending the AZT dose for infants from 1 to 4 weeks. If a woman gives birth within 2 hours of receiving Sd-NVP, the infant should receive Sd-NVP immediately after delivery and AZT for 4 weeks.

For women in labor who have not received antiretroviral therapy, WHO recommends Sd-NVP, AZT and 3TC during the intrapartum period, and AZT and 3TC for a week after birth. The NVP dose should be omitted if delivery is expected "imminently," WHO says.

In either circumstance newborns should receive Sd-NVP immediately after or within 12 hours of delivery, and AZT for 4 weeks. The regimen is better at reducing MTCT than a single dose of NVP to the newborn.

Antiretroviral treatment for pregnant women "not only addresses their health and well-being but also dramatically reduces the risk of MTCT, particularly for women," is in the WHO report. The organization's recommendations aim to guide national health ministries in providing antiretroviral treatment to pregnant women to prevent transmission to their children while considering the needs and constraints of those health systems.

by J Long MJ, MS