

## **HIV Infection In Infants and children**

Acquired Immunodeficiency Syndrome (AIDS) is an increasingly growing pandemic. Human Immunodeficiency virus (HIV) is the virus responsible for transmission of infection which is increasingly concentrating in younger age groups. More than 95 percent of the people with HIV infection now live in developing countries, also 95 percent of the deaths were recorded there.

The majority of HIV infected children acquire the infection from their mothers whether during pregnancy or during their passage through the birth canal or through breast feeding, the role of placenta in transmitting the virus during pregnancy is still under research, but some scientists think that infection occurs if some maternal blood enters the fetal circulation. Some factors which may increase the risk of infection are: severe inflammation of fetal membranes, prolonged time between rupture of membranes, and delivery of the baby. Some children as well as adults may acquire the infection through contaminated blood transfusion or sexual abuse by HIV infected adults.

Studies have shown that breast feeding increases the risk of transmission of the virus from a nursing mother to her baby by 10-15 percent, so it's better to advise mothers about the risks and benefits of breast feeding. In countries where there is a feasible and safe alternative to breast feeding, this alternative should be encouraged.

HIV infection showed two patterns of illness in children; 20% of the affected children suffered from a serious illness in their first year of life and died by the age of four, while 80% showed slower disease progression. Most of the children showed poor weight gain, delay in development of mental and motor milestones such as crawling, walking, talking and poor school achievement. Like adults, children become more liable to opportunistic infections especially fungal infections as Candida, However the leading cause of death is pneumocystis carinii pneumonia. Children with HIV infection

suffer from more severe symptoms of the common childhood diseases in the form of seizures, fever, pneumonia, diarrhea and dehydration.

It is difficult to diagnose HIV infection in infants as infected babies especially in the first few months of life, show no symptoms and appear normal. Moreover, newborns have passive immunity against HIV as antibodies cross the placenta from the maternal circulation to the fetal circulation and thus give the newborn immunity for about 18 months. This makes it useless to test HIV infection in infants as the antibodies reflect the mother's immunity and not the infants' immunity.

All HIV exposed infants should undergo virologic testing for HIV at birth, at four to seven weeks of age, and again at eight to 16 weeks of age to reasonably exclude HIV infection as early as possible. If any test result is positive, the test should be repeated immediately for confirmation. Recently, polymerase chain reaction (PCR) is used to detect HIV infection, as this technique depends on detecting even minute amount of the virus present in the blood it's considered an accurate and a reliable test. Another technique is to culture infant's blood and test it for the presence of HIV. With the use of these techniques nearly 90% of HIV infected infants can be identified by the age of 2 months and 95 % by the age of 3 months.

Whenever possible, maternal HIV infection should be identified before or during pregnancy, because this allows for earlier initiation of care for the mother and for more effective interventions to prevent perinatal transmission. Some drug combinations play a role in prevention of mother to child transmission such as AZT regimen which is given during the second or third trimester and continued during labor; however this regimen is expensive and thus is not available for many people. Recent studies have proven that short-course therapy with nevirapine have reduced the risk of HIV transmission in the first 18 weeks of life by 50%. These findings have significant implications because this low-cost regimen will be an alternative for AZT in developing countries. In addition, elective caesarian section may help reduce vertical transmission especially if it's combined with AZT therapy.

Some drug examples which may be used in treatment of HIV infection in infants are:

1-Nucleoside Reverse Transcriptase Inhibitors like: Lamivudine and Zidovudine.

2-Nonnucleoside Reverse Transcriptase Inhibitors like: delaviridine and nevirapine.

3-Protease Inhibitors like: amprenavir and tipranavir.

4-Fusion Inhibitors like: enfuvirtide.