



## Pediatric HIV in India - Current Issues

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HIV in India has now been there over three decades. By this time, India now has the dubious distinction of being the country with second highest number of people living with HIV/AIDS. As per UNAIDS, around 5.7 million people in India are affected with AIDS (1). The estimated number of children living with HIV/AIDS in India is 202,000 as per UNAIDS. However half of these children die undiagnosed before their 2nd birthday. WHO program of “3” by “5” whereby 3 million people would be given antiretroviral therapy (ART) by the year 2005 also included that of these 10 to 15% of would be children. However, very few children in India had access to ART till year 2005 and thus even though children represent about 4% of the total population of HIV/AIDS, they accounted for almost 18% of the deaths in 2005.

The predominant mode of transmission of HIV in children is vertical i.e., it is acquired through intrauterine, intrapartum or through breast feeding from an HIV infected mother (2). Other routes such as sexual transmission and blood transfusion are not as common. With good PPTCT programs, (prevention of parent to child transmission of HIV) countries in Western Europe and USA have number of newly acquired perinatally transmitted HIV in children less than 500/year. Thus, pediatric HIV in these countries is on the decline and new cases are almost unheard of. In India, as per UNAIDS, percentage of pregnant women receiving treatment to reduce mother-to-child transmission is only 1.6% (1). Thus, in India, HIV in children is unchecked and will keep on rising till an effective PPTCT program is into place.

*Prevalence of HIV in Children* : India is a vast country and the burden of HIV is not the same everywhere.

Though the national HIV prevalence is 0.8%, there are certain areas such as Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Manipur and Nagaland that account for over 80% of all reported AIDS cases in the country. Prevalence of HIV in children in these high risk areas especially a study in Mumbai by the author herself has found the prevalence of HIV to be about 2.8% in children (3).

*HIV in Children* : HIV is a virus that leads to immune deficiency. In adults, after the initial seroconversion period, there is a latent phase which may last for 10-15 years where an infected patient will be asymptomatic. However during this period, there is a continual battle between the CD4 cells and the HIV virus. When the HIV virus starts overcoming the CD4 cells, the disease presentation starts and progression towards AIDS begin.

In children, the immune system is immature to begin with. The initial HIV burden that is acquired perinatally is quite high. Children are also susceptible to lot of infections due to absence of antibodies to various organisms. Thus, this biologically weaker immune system is more prone to faster disease progression and in children most of the children become symptomatic within 1-2 years of acquisition of HIV infection and majority if untreated die by 76-90 months of age.

*Prevention of Parent to Child Transmission of HIV (PPTCT)* : with approximately 27 million pregnancies a year and overall prevalence of 0.7% of HIV infection among pregnant women, it is estimated that about 1,89,000 HIV infected women are delivering every year. However, with current uptake coverage of HIV testing in pregnant women in India, over 90% of these exposed infants remain unknown. Also without intervention, there

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is 25-45% risk of transmission from an infected mother to her child. Thus, there is an urgent PPTCT program needed in place to decrease this transmission which in turn will decrease prevalence of HIV in children. At our centre, it was found that with effective PPTCT program, the risk of transmission can be decreased to 2.1% (4) India is revising its PPTCT guidelines to include wider range of ARV regimens to improve on the PPTCT intervention efficiency and to provide treatment to pregnant mothers that need HAART. Countries in Europe and USA have achieved transmission rates of < 1% with effective PPTCT programs and India has to strive for the goal of less than 1% transmission from mother to child.

**Clinical Features of HIV in Children :** The clinical presentation of HIV commonly seen in children is hepatosplenomegaly, generalized lymphadenopathy and failure to thrive. Common opportunistic infections are tuberculosis (TB), herpes zoster and simplex, recurrent pneumonias, chronic diarrhea and oral thrush. PCP pneumonia is common in infants. Organ dysfunctions due to HIV are seen in older children and include HIV encephalopathy, HIV cardiomyopathy, hematological problems and proteinuria (2, 5, 6). Thus, untreated HIV in children is associated with high morbidity and mortality.

**Diagnosis of HIV in Infants :** Tests commonly used for diagnosis of HIV in adults and children more than 18 months of age are ELISA and Western blot. However in children less than 18 months of age, HIV ELISA cannot be used for diagnosis due to presence of transplacentally acquired maternal antibodies to HIV which gives a false positive result in an infant. Thus in infants, the tests of choice are PCR or viral culture. Viral culture is done only in research institutes and is time consuming and expensive. Thus, the test commonly done in infants is HIV DNA PCR for diagnosis of HIV. However, PNA PCR results need to be interpreted caution due to a low specificity (57%) in India leading to false positive results (7). Thus, diagnosis of HIV in infants still remains a challenge.

**Antiretroviral Therapy :** Effective management of HIV in children is essential for affected children. With the advent of antiretroviral therapy, HIV has become a chronic manageable disease from what was considered earlier as a fatal disease. However, antiretroviral therapy is very expensive. Additionally pediatric drug formulations cost more than adult formulations and even though one in every six AIDS death each year is a child yet children form less than one of every 25 people getting ART today. Thus, to ensure effective management of HIV infected children, it is essential that antiretroviral drugs (ARV) are made available and are affordable. In addition, it is essential that all doctors prescribing ART should be aware of the HIV disease, its problems, drug doses and drug interactions as well as adverse effects with ART. Most of the ARVs in children have to be prescribed as mg/kg body weight or mg/body surface area and doses need to be adjusted as the child grows older.

**Conclusion :** Current HIV scenario in children in India is grim. Effective PPTCT programs, good diagnostic facilities and accessible as well as affordable ART are the need for the hour.

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