

Treatment Aspect of Human Immunodeficiency Virus in Children

Dr. Vinayak Chauhan¹, Dr. Anand Chaudhary²

¹ Assistant Professor, Department of Medicine, Adani Institute of Medical Science, Bhuj, Gujarat, India

Abstract: *With the availability of antiretroviral therapy (ART), HIV infection, which was once considered a progressively fatal illness, has now become a chronic treatable condition in children, as in adults. However, the challenges these children are forced to face are far more daunting. The most significant shortcoming in the response to paediatric HIV remains the woefully inadequate prevention of mother to child transmission, allowing a large number of children to be born with HIV in the first place, in spite of it being largely preventable. Care for HIV-positive infants and children are most successful when provided in the context of care for the entire family. Most caregivers are also HIV positive and must take care of their own health needs to meet the needs of their children. Unique challenges must be recognized and understood in order to provide appropriate holistic management enabling them to become productive citizens of tomorrow. To address these multi-factorial issues, there is an urgent need for a concerted, sustainable and multipronged national and global response.*

Keywords: Antiretroviral therapy, children, HIV

1. Introduction

The biggest challenge that the man is trying to overcome in the world of infection is HIV and hepatitis infection. Mankind was triumphant, penicillin was the wonder antibiotic promising more to come, small pox was fast being eradicated. Disease were on the decline, life expectancies was on the rise. Man thought, we have conquered the microscopic world or so, but along came two of deadliest disease to scourge mankind i.e. AIDS and hepatitis.

Around the world, millions of children have lost one or both parents to AIDS, and millions more live with sick and dying family members. The profound trauma of losing one or both parents has devastating long-term implications, not only for a child's well-being and development, but for the stability of some communities. AIDS is killing not only parents, but also brothers and sisters, aunts and uncles, neighbors, teachers and other members of the community. It is emptying schools, wiping out families and extinguishing hope.

In many countries, significant numbers of children are temporarily or permanently cared for in residential care. The exact numbers of boys and girls living in such circumstances is not known, although it is argued to be at least two million globally, and likely to be many more [1]. Evidence suggests that the phenomenon of residential care has been growing in recent years due to a complex interplay of different factors, among them HIV and AIDS[2,3].

Over the years, many challenges have been overcome in the fight against the disease and its damaging social and economic effects. Paramount among them is a growing focus on the need to ensure that children and adults know their HIV status and have access to antiretroviral therapy to prevent vertical transmission; and to support children to stay in families and communities. Despite these successes, some children continue to lack access to parental and community-based care[4]. Like all children, boys and girls living with and affected by HIV are known to thrive better – both

physically and emotionally – in supportive family settings, rather than in residential care[5].

Globally an estimated 2.5 million children are living with HIV/AIDS, 10,000 becoming infected daily and 2, 60,000 deaths of children under 15 occur due to AIDS related illnesses[6]. The estimated 2,60,000 [1,50,000- 3,60,000] children who died from AIDS-related illnesses in 2009 were 19 per cent fewer than the estimated 3,20,000 [2,10,000-4,30,000] who died in 2004. This trend reflects the steady expansion of services to prevent transmission of HIV to infants and an increase (albeit slow) in access to treatment for children[7].

2. Clinical Diagnosis of HIV

Children differ from adults in that they have high rates of viral replication, very high HIV-1 viral load, high rates of CD4+ cell destruction, viral mutation, faster rate of disease progression and good immunologic response to ART. Clinical symptoms vary widely between infants, children and adolescents; most are asymptomatic at birth and do not have any abnormal findings[8]. In view of the availability of ART since the global roll out, there has been a changing spectrum of opportunistic infections (OIs) from the pre- ART era. The spectrum of infections also varies in those on ART but non-adherent to therapy. Clinical staging of children who have confirmed or highly suspected HIV infection helps to assess the severity of illness, plan treatment options, assess disease progression and determine when to start, stop or switch ARV therapy

3. Critical Issues

Today, most children with HIV are born to women who receive inadequate prenatal care. Interventions, such as routine HIV screening of pregnant women, use of ARV drugs for treatment and prophylaxis, avoidance of breastfeeding, and use of elective cesarean delivery when appropriate, have lowered the number of cases of HIV/AIDS in infants born to

HIV-positive mothers from a peak of 1,650 in 1991 to 65 in 2006 in the 25 States with confidential HIV reporting[9].

When AZT is administered appropriately, the risk of passing HIV from mother to child is less than 2 percent, compared with transmission rates of 24 to 30 percent with no intervention[10]. Access to care for pregnant women is therefore critical for reducing HIV infection in infants.

Children with HIV/AIDS face an array of difficult issues, including stigma. Unlike adults, school-age children often have no choice about disclosing their HIV status to others. As a result, children often must grapple with adult issues associated with living with a chronic illness, especially an illness that is stigmatized by society. Children lack the maturity to effectively manage these issues on their own.⁸ Caregivers of young children may attempt to protect them from anticipated stigma by postponing telling them about the diagnosis. This decision may be motivated by the caregiver's fear that the child, unaware of the social repercussions of disclosure, will inappropriately reveal the diagnosis[10].

People infected with HIV during childhood are living longer than ever. Many have grown into adolescence and face the normal challenges of teenagers. Children and adolescents, however, are at greater risk for the number and severities of psychosocial complications related to HIV infection, such as mental illness, and are likely to experience body image concerns resulting from delayed development, chronic dermatologic conditions, or lipodystrophy.

4. Treatment

After the availability of free global ART roll out, HIV infection which was once considered a progressive fatal illness, has now become a chronic treatable illness. The barriers to efficient management of paediatric HIV/AIDS are delayed infant HIV diagnosis, lack of appropriate paediatric ARV formulations and lack of skilled health personnel. All infants with a positive virological test should be started on ART and it is well established that initiation of ART at an early age can reduce morbidity and mortality[11].

The use of three ARV medications is the standard treatment for HIV infection in order to achieve the best possible viral suppression, increase CD4 count and improve clinical staging[12].

It is appropriate to initiate ART for all HIV infected children < 2 yr of age irrespective of the CD4 count and clinical staging because of high mortality (upto 50%) and poor predictability of immunologic status by CD4 count[12]. In children less than two years of age who are not exposed to ARV during antenatal, natal and postnatal period, it is appropriate to start with NNRTI (nevirapine, NVP) based regimen.

The use of triple NRTI regimen can be considered an option for initial therapy in some special circumstances like HIV-TB co-infection in children <3 yr where EFV cannot be used as a

substitute to NVP. The bottom line in ART is to ensure >90 per cent adherence to maximize the long term benefits of virological suppression, immunological improvement and clinical recovery. Co-trimoxazole (CTX) prophylaxis is given to all HIV exposed infants from 6 wk onwards and continued till 5 yr of age irrespective of clinical/ immune category because it provides prophylaxis against *Pneumocystis carinii* pneumonia (PCP) and other common childhood infections¹³. When HIV infection has been excluded or a child >5 yr of age who is on ART with a sustained CD4 >25 per cent, CTX prophylaxis can be stopped[12]

Monitoring and follow up of children on ART After commencing an infant or child on ART it is vital for frequent clinical monitoring at 2 wk after initiation and every 4 wks thereafter. These visits are to evaluate growth and development, immunization status and provide nutrition counselling. There is also an opportunity to educate the parents and care providers on adverse drug reactions, ART adherence and symptoms of common OIs[12].

5. Conclusion

The most significant shortcoming in the response to paediatric HIV remains the woefully inadequate prevention of mother-to-child transmission (PMTCT), allowing a large number of children to be born with HIV in the first place, in spite of it being largely preventable. There are several barriers to efficient management: delayed infant diagnosis, lack of appropriate paediatric formulations, lack of skilled health personnel, *etc.* Poorly developed immunity allows greater dissemination throughout various organs. Unique challenges must be recognized and understood in order to provide appropriate holistic management enabling them to become productive citizens of tomorrow. To address these multi-factorial issues, there is an urgent need for a concerted, sustainable and multipronged national and global response.

References

- [1] UNICEF *Progress for Children: A Report Card on Child Protection*, New York 2009: UNICEF.
- [2] Dunn, A, Parry-Williams, J. *Alternative Care for Children in Southern Africa: Progress, Challenges and Future Directions*, ESARO Working Paper, Nairobi 2008: UNICEF.
- [3] Williamson, J. and Greenberg, A. *Families Not Orphanages*, Better Care Network Working Paper 2010. <http://www.crin.org/docs/Families%20Not%20Orphanages.pdf>.
- [4] UNICEF *State of the World's Children 2012*, New York: UNICEF.
- [5] UNICEF *Taking Evidence to Impact: Making a Difference for Vulnerable Children Living in a World with HIV and AIDS*, New York 2011: UNICEF.
- [6] HIV/AIDS in the context of other global challenges, Global 2015, Special report for the UN high level meeting on AIDS. 2011.
- [7] UNAIDS report on the global AIDS epidemic. 2010. Available from:

www.unaids.org/globalreport/global_report.htm,

Accessed on August 13, 2014.

- [8] Abuzaitoun O, Hanson I. Organ-specific manifestations of HIV disease in children. *Pediatr Clin North Am* 2000; 47 :109-25.
- [9] CDC. *HIV/AIDS Surveillance Report*. 2006; 18:27. Table 23.
- [10] CDC. Achievements in public health: reduction in perinatal transmission of HIV infection—United States, 1985–2005. *MMWR*. 2006;55:592–7. Available at: www.cdc.gov/MMWR/preview/mmwrhtml/mm5521a3.htm. Accessed April, 2014.
- [11] Violari A, Cotton M, Gibb D. Early antiretroviral therapy and mortality among HIV-infected infants. *N Engl J Med* 2008; 359 : 2233-44.
- [12] WHO. Antiretroviral therapy for HIV infection in children: Towards universal access. Recommendations for a public health approach. Geneva: World Health Organisation. 2010. Available from: http://www.searo.who.int/linkfiles/hiv-aids_artpaediatricguidelines_web.pdf, accessed on October 2012