

HIV/AIDS and Child and Adolescent Psychiatry: A Brief Review

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Abstract

1st of December every year is celebrated as the World AIDS Day to remind us of the seriousness of the problem and reinforce our commitment to find intelligent solutions. When it affects children and young people, it is heart breaking. Mental health professionals have a vital role to play in empowering them and help them to develop resilience. This is a brief and yet comprehensive review of the current state of the art.

INTRODUCTION

“The response to AIDS has to be unprecedented because this is an unprecedented epidemic, both as a crisis today and as a threat into the future. The normal rules and a ‘business as usual’ attitude cannot apply. At this juncture where success is within sight we have to intensify our efforts more than ever before. We have come so far that we cannot accept failure.”

Dr Peter Piot, UNAIDS Executive Director, at the launch of the 2005 AIDS Epidemic Update, New Delhi, India, 21st November 2005 (1).

Around the globe, 1st December is celebrated as the World AIDS Day. It commemorates the progress made in the battle against this epidemic and brings into focus the remaining challenges. The theme for this year is “Stop AIDS. Keep the promise.” This focuses on keeping the commitments to stop AIDS at all levels: personal, community, organizational and governmental (1). On 25th October 2005, UN Secretary General, Kofi Annan launched the UN campaign, “Unite for children, Unite against AIDS.” He described the impact of HIV/AIDS on children as one of the cruelest tragedies of our time. He indicated that worldwide, a young person was contracting the virus every 15 seconds. They often lacked simple and fundamental information that is crucial to their safety. He stressed the need to communicate with children and young people in a language that works for them (2).

THEIR STRUGGLE ()

By the time D was four years old, both his father and mother

had died from complications of AIDS. D developed symptomatic AIDS shortly after his mother's death. He came under the care of his grandparents who were themselves trying to cope with the shock and grief of their daughter's death. They got great support from their neighbors and people of the town. In a way they did not feel the sense of isolation that many such families face. D's illness progressed but he showed great strength. He had to be administered morphine to relieve the pain and only then he would become quiet. His remaining family witnessed with anguish as he quietly let go of his young life. D died at the age of five years.

L was born infected with HIV. Her first two years of life were spent in a hospital bed. She was adopted. When her adoptive parents brought her home, she could not walk or talk. She was given a poor prognosis and predicted to live for about six months more. Four years on, the girl thrives under the loving care of her parents.

K is 6 years old. She was born premature. Both her parents were IV drug users and are now dead. She has severe anxiety and sleeplessness and has characteristic chronic vomiting and diarrhea. She cannot take solid foods.

Baby B is growing but she is developmentally slow. She was born HIV positive. Her mother is a drug addict. She has congenital anomalies of her heart and bones and has many cardiac and orthopedic operations ahead of her. She continues to fight despite the fact that the odds of her survival are against her. She likes to play peek-a-boo and goes to sleep listening to Spanish lullabies.

TERMINOLOGY ()

HUMAN IMMUNODEFICIENCY VIRUS (HIV): The virus that weakens the immune system, ultimately leading to AIDS.

ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS): The most severe manifestation of infection with the human immunodeficiency virus (HIV). The Centers for Disease Control and Prevention (CDC) lists numerous opportunistic infections and neoplasms (cancers) that, in the presence of HIV infection, constitute an AIDS diagnosis.

HIV-POSITIVE: Showing indications of infection with HIV (e.g. presence of antibodies against HIV) on a test of blood or tissue. It is synonymous with seropositive. Test may occasionally show false positive results.

HIV-INFECTED: As distinct from HIV-positive (which can sometimes be a false positive test result, especially in infants of up to 18 months of age), the term HIV-infected is usually used to indicate that evidence of HIV has been found via a blood or tissue test.

HIGHLY ACTIVE ANTIRETROVIRAL THERAPY (HAART): The name given to treatment regimens recommended by leading HIV experts to aggressively suppress viral replication and progress of HIV disease. More recently, a new drug has been developed to prevent the virus from entering the cell. The usual HAART regimen combines three or more different drugs such as two nucleoside reverse transcriptase inhibitors and a protease inhibitor, two NRTIs and a non-nucleoside reverse transcriptase inhibitor or other combinations. These treatment regimens have been shown to reduce the amount of virus so that it becomes undetectable in a patient's blood.

UNAIDS(UNHCR, UNICEF, WFP, UNDP, UNFPA, UNODC, ILO, UNESCO, WHO, World Bank): The Joint United Nations Program on HIV/AIDS, UNAIDS, is the main advocate for accelerated, comprehensive and coordinated global action on the epidemic.(<http://www.unaids.org>)

THE THREE ONES: On 25 April 2004, UNAIDS, the United Kingdom and the United States co-hosted a high-level meeting at which key donors reaffirmed their commitment to strengthening national AIDS responses led by the affected countries themselves. They endorsed the “Three Ones” principles, to achieve the most effective and efficient use of resources, and to ensure rapid action and

results-based management: One agreed HIV/AIDS Action Framework that provides the basis for coordinating the work of all partners. One National AIDS Coordinating Authority, with a broad-based multisectoral mandate. One agreed country-level Monitoring and Evaluation System.

3 BY 5 INITIATIVE: “Treat 3 million by 2005” is the global initiative of the World Health Organization and UNAIDS to provide antiretroviral therapy to 3 million people with HIV/AIDS in developing countries by the end of 2005.

EPIDEMIOLOGY

The number of people living with HIV globally has reached its highest level ever at an estimated 40.3 million people, nearly half of them women. Close to five million people were newly infected with HIV in 2005, over half of them young people aged 15-24. More than three million people died of AIDS-related illnesses in 2005, including more than half a million children under the age of 15 (1). There are wide differences in the epidemic between USA, Europe and less industrialized nations. In Africa and other developing countries pediatric AIDS is about 15 – 25% (3).

SOURCES OF INFECTION IN CHILDREN (,)

Children become infected by the following routes:

1. Vertical transmission (30-50% will not be infected)
2. Infection by blood products (10% of exposed do not develop infection)
3. Sexually transmitted disease
4. Intravenous drug use

COMMON CLINICAL MANIFESTATIONS OF HIV INFECTION IN CHILDREN ():

These are the most commonly seen clinical conditions in children infected with the virus:

Recurrent infections
Failure to thrive
Oral Candidiasis
Pneumonitis (acute or chronic lymphoid interstitial)
Developmental delay
Encephalopathy
Hepatosplenomegaly
Lymphadenopathy
Opportunistic viral infections

Parotitis

Skin infections/eczematoid lesions

Malignancies of the central nervous system are not as commonly reported in children as in adults, as also hematological diseases, nephrotic syndrome, cardiomyopathies and hepatitis.

COMMON CLINICAL MANIFESTATIONS OF HIV-RELATED CNS DISEASES IN CHILDREN (, ,)

HIV encephalopathy is a neuropsychiatric syndrome that can occur in the course of AIDS. The virus attaches to, invades and destroys macrophages in the central nervous system (CNS), which become pathological multinucleated giant cells before disintegrating. This causes neuronal damage by an 'innocent bystander' effect. More recently, research suggests a direct involvement of the nerve cells. The following are the most commonly seen effects on the CNS in children:

Acquired microcephaly

Corticospinal tract signs

Developmental delays

Cerebellar signs:

1. Movement disorders
2. Spasticity
3. Tremor

Extrapyramidal tract signs:

1. Rigidity
2. Opisthotonos
3. Dystonia
4. Tremor

Seizures

COURSE OF CNS HIV/AIDS (,)

The course of CNS infection is characterized by delays in development, loss of acquired skills including motor, speech, adaptive and social/personal skills, and decreased interactions with the environment. Broadly the following types have been identified though there can be an overlap at any given time.

1. A subacute progressive course

2. A plateau course

3. A plateau course followed by deterioration

4. A plateau followed by improvement (less common)

CONFOUNDING ETIOLOGICAL FACTORS ()

The course of the CNS disease is affected by the following factors by virtue of their impact on the developing brain.

- Poor prenatal care ex.: drug-abusing mother
- Prematurity and associated risk of intraventricular hemorrhage
- Effects of CNS infection such as meningitis
- Secondary effects of chronic systemic diseases
- Psychosocial problems: low socioeconomic status, stressors associated with HIV infection in mother, foster-care placement, multiple care givers

NEUROPATHOLOGICAL CHANGES IN HIV INFECTION IN CHILDREN ()

At autopsy, the following anatomical changes have been observed:

Macroscopic findings: Cerebral atrophy (enlarged ventricles, widened sulci, small-for-age brain size)

Microscopic findings:

- Diffuse reactive astrocytosis
- White matter degeneration (deep frontal structures, centrum ovale, corpus collosum, descending corticospinal tracts)
- Diffuse myelin loss
- Perivascular calcifications (basal ganglia, frontal white matter)
- Inflammatory changes (microglia & macrophages in subcortical white matter, grey matter)
- Multinucleated giant cells
- Spinal cord axonopathy

NEURORADIOLOGY ()

CT imaging and MRI scan of the brain show the following features:

- Cerebral atrophy
- Calcification of basal ganglia & deep white matter pathways
- Strokes
- Periventricular white matter lesions (in children with intracranial hemorrhages or hypoxic-ischemic events related to prematurity)
- Infectious lesions associated with meningitis or encephalitis

CSF ANALYSIS ()

This is often within normal limits, except when CNS infection is present.

Evidence of HIV antigens and cytokines may be present (in both asymptomatic and symptomatic patients).

COMMON NEUROPSYCHOLOGICAL PROBLEMS IN CHILDREN AND ADOLESCENTS WITH VERTICALLY ACQUIRED HIV INFECTION (,)

- Developmental delays in infancy
- Declines in intellectual/cognitive functioning
- Language delays
- Gross and fine motor deficits
- Attention deficit disorder
- Hyperactivity
- Emotional disorder (withdrawal, depression, apathy)

With respect to HIV/AIDS and psychiatric morbidity, children and young people broadly fall under the following categories:

Affected: The child's mental health is indirectly affected when a person or persons close to the child is infected.

Infected and affected: A child with HIV/AIDS develops psychiatric problems.

BEHAVIORAL AND NEUROPSYCHIATRIC DISORDERS REPORTED IN CHILDREN WITH HIV INFECTION AND AIDS (, ,)

Common:

- Attention-deficit disorder (with & without associated hyperactivity)
- Hyperactivity
- Depression
- Anxiety
- Learning disabilities

Rare:

- Metabolic dysregulation symptoms
- Psychotic symptoms in progressive encephalopathy
- End-stage wasting with apathy & withdrawal

Note:

- There are relatively few studies in this population
- There are very few reports of neuropsychiatric disorders as compared with adults
- Though many conditions are due to the direct effect of CNS involvement, the effects of chronic, debilitating illness is also a factor

Role of Psychosocial Factors (5, 6, 8, 9):

When assessing a child or young person in the context of HIV/AIDS, the following factors have to be considered:

Maternal illness, parental psychiatric illness, parental guilt, denial by parent, parental anger, maternal drug use, family disruption, unstable family, prostitution, unemployment, foster care, poverty, hygiene, nutrition, inadequate treatment, stigma, secrecy, poor social support, uncertainty of prognosis, isolation, low self-esteem, substance abuse

Triple diagnosis (10, 11):

HIV infection + Psychiatric disorder + Substance abuse:
This is seen in as high as 77% but not specific to children and adolescents. This concept highlights the complex

interaction and inextricable links of biological, psychological and social factors in this condition.

The associated risk factors include high-risk behaviors (needle sharing, high number of drug partners and exchanging sex for drugs), poor judgment, high levels of drug use, impulsive behavior, antisocial personality and delinquency and poor compliance to treatment.

MANAGEMENT (,)

General Principles: The following principles should guide all aspects of management in HIV/AIDS.

- Treatment of diseases due to immune deficiency
- Antiretroviral therapy
- Information provision and education of the child, family, school (bearing in mind the issues of confidentiality)
- Family support
- Prevention of spread (especially among vulnerable groups)

SOME IMPORTANT CONSIDERATIONS FOR CHILD AND ADOLESCENT PSYCHIATRY

Neurological and psychiatric complications associated with antiretroviral agents (15):

These are the commonly seen neurological and psychiatric complications of the commonly used drugs used to treat HIV/AIDS that psychiatrists should be aware of.

Figure 1

AGENT	COMPLICATION(S)
Zidovudine	Confusion Agitation Insomnia Mania Depression Myalgia Headaches
Stavudine	Peripheral neuropathy
Didanosine	Peripheral neuropathy
Zalcitabine	Peripheral neuropathy
Efavirenz	Dizziness Headache Confusion Stupor Impaired concentration Agitation Amnesia Depersonalization Hallucinations Insomnia Abnormal or vivid dreams

Drug-drug interactions between psychotropic agents and antiretroviral agents (15):

While prescribing psychotropic medications the clinician should be aware of the interactions that these drugs have with antiretroviral agents so as to judiciously select the drugs and to optimize the pharmacological treatment. The following tables are a useful guide:

Figure 2

Psychotropic	Action on antiretroviral
St John's wort	Decreases
Phenytoin	Decreases
Carbamazepine	Decreases
Nefazodone	Increases
Fluoxetine, norfluoxetine	Increases
Methadone	Increases zidovudine Decreases stavudine, didanosine
Antiretroviral	Action on psychotropic
Ritonavir	Increases TCAs, nefazodone, benzodiazepines, trazadone
Ritonavir, Nelfinavir, Efavirenz	Increases bupropion
Efavirenz, Nevirapine, Ritonavir	Decreases methadone

PSYCHIATRIC MANAGEMENT OF HIV INFECTED INDIVIDUALS

The following general principles are recommended by the American Psychiatric Association and are very comprehensive (16):

- Establish and maintain a therapeutic alliance
- Collaborate and coordinate care with other mental health and medical providers
- Diagnose and treat all associated psychiatric disorders
- Diagnose and treat all substance abuse disorders
- Facilitate adherence to overall treatment plan
- Provide risk reduction strategies to further minimize the spread of HIV
- Maximize psychological and social/adaptive functioning
- Provide harm-reduction counseling to substance abusers to minimize unsafe sexual behavior during drug intoxication and to promote adherence to HAART therapy in active substance abusers
- Assess/support role of religion/spirituality
- Ensure access to housing and financial assistance
- Prepare for issues of disability, death and dying
- Advise/educate significant others/family regarding sources of care and support

Further the American Academy of Child and Adolescent Psychiatrists make the following recommendations (17):

Child and Adolescent Psychiatrists should:

1. Acquire basic knowledge about HIV/AIDS and its impact on children and adolescents including epidemiology, neurodevelopmental effects and clinical course of infection, psychiatric and consultative interventions, risk behaviors and prevention.
2. Understand indications for HIV antibody testing and consent guidelines in children and adolescents.
3. Understand how to conduct a HIV risk assessment including a developmentally appropriate history of sexual activity, substance abuse and sexual abuse

history.

4. Participate in the development of programs which are effective in reducing sexual risk behaviors among the general adolescent population.
5. Participate in the development of HIV risk reduction programs targeted for adolescents who are chronically mentally ill, or developmentally disabled.
6. Support and participate in research efforts directed at learning how the impact of HIV on children, adolescents and families can be ameliorated and how transmission of HIV to and among young people can be reduced.

Child and Adolescent Psychiatry Training Programs should:

1. Include a training component on HIV/AIDS and children/adolescents covering the topics mentioned above.
2. Provide clinical experiences with HIV/AIDS infected or affected children, adolescents and families.

THESE ARE THE MOST IMPORTANT FACTS ABOUT AIDS ()

- AIDS is most often fatal
- anyone can get AIDS - many teens (both boys and girls) have been infected
- condoms can reduce the risk of getting AIDS
- you can get AIDS from use of even one contaminated needle or one sexual act with a partner who has HIV/AIDS

Risk of AIDS is increased by:

- an increased number of sexual partners
- IV drug use
- anal intercourse
- any sex (oral, anal or vaginal) without condoms
- alcohol and other drug use (sex is more impulsive and use of condoms less likely if under the

influence of alcohol or other drugs)

- tattoos and body piercing with contaminated (unsterile) needles or instruments

CONCLUSION

About 95% of people with HIV/AIDS live in developing countries. But the HIV threat is global, affecting men, women and children on all continents. The efforts to combat this malady involve increasing awareness, education and fighting prejudice. World AIDS Day is to remind us that HIV is still with us and a lot more still needs to be done. Children and young people are a vulnerable group. Mental health professionals working with children and adolescents have a very important role to play in the area of prevention at all three levels: Health education and awareness enhancing strategies at the primary level, early diagnosis of psychiatric morbidity and effective implementation of therapeutic measures at the secondary level and limitation of psychiatric disability and rehabilitation at the tertiary level.

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DECLARATION

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I declare that I am the sole author. I have not received any financial support from any source, and there is no conflict of interest.

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