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Changing Trends of HIV infection in Children Attending a Tertiary Care Hospital of Karnataka in Last Five Years

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BRIEF RESUME OF THE INTENDED WORK:
Children of today are the youth of tomorrow.HIV affects this very precious generation and bear grave consequences to our future, our nation, the continent and the world at large. Inspite of being largely preventable, paediatric HIV still continues to be a growing challenge in India with an estimated 100,000 infected women giving births to about 30,000 infected infants every year. A five year retrospective study was done, which included 1492 children aged between 1-15 years who attended our tertiary care hospital from January 2010 to December 2014.HIV was confirmed in all the patients according to the NACO guidelines and the same were followed up for CD4 count testing and looked for clinically evident opportunistic infections. A significant decline in the HIV positivity rate was noted among children attending ICTC after year 2010,this trend reflects the steady expansion of services to prevent transmission of HIV to children and an increase in access to treatment for children. Opportunistic infections are the most common cause of death among HIV patients, therefore early recognition of the same will go a long way in reducing mortality associated with HIV in children.

Keywords: *HIV (Human Immunodeficiency Virus),AIDS (acquired Immunodeficiency Syndrome), children, trends, prevention.*

Introduction

The HIV (Human Immunodeficiency Virus) epidemic has been evolving in India since the first case was detected in Tamil Nadu in 1986.[1]HIV-1 is the more aggressive virus and is responsible for the acquired immunodeficiency syndrome (AIDS) pandemic.HIV-2 is less pathogenic[2].Several states in southern India and the north-eastern part of the country have shown higher HIV prevalence and diversity in predominant patterns of HIV transmission. Even low HIV-prevalence states are characterized by the presence of high-risk pockets with potential for increased spread of the epidemic in these states. The epidemic in India is very heterogeneous with diverse modes of infection, particularly in the southern and western states of TamilNadu, Karnataka, Andhra Pradesh, and Maharashtra, and the two north-eastern states of

Nagaland and Manipur. Even within states, there is a wide variance in HIV prevalence between and within districts as evidenced by data from HIV sentinel surveillance sites and Voluntary Counseling and Testing Centers (VCTC).[1]

Although human immunodeficiency virus (HIV) and acquired immune deficiency syndrome (AIDS) originally emerged as adult health problems, they have become a major killer of under-5-year-old children, especially in developing countries. Children of HIV-seropositive mothers can acquire the virus directly through vertical transmission; about 25–30% of children born to infected mothers become infected with HIV and almost all of them die before 5 years of age in most developing countries with high HIV prevalence.[3] Thus, under-5 mortality rates among children of HIV-infected mothers are two to five times higher than those among children of HIV-negative mothers.[4]

Children of today are the youth of tomorrow.HIV affects this very precious generation and bear grave consequences to our future, our nation, the continent and the world at large[5]. Inspite of being largely preventable, paediatric HIV still continues to be a growing challenge in India with an estimated 100,000 infected women giving births to about 30,000 infected infants every year[6.]

Apart from heterosexual route, mother-to-child transmission is the next most important route of HIV transmission accounting for over 90% of infections in children [7] and about 10% of HIV in children is from horizontal transmission like blood transfusion, needle-stick injuries, iv drug abuse and unsafe sexual practices.

Primary HIV infection, which is often asymptomatic or unrecognized, is followed by a long period of quiescence during which infectious virus is present in blood and body fluids. AIDS and other HIV-related illnesses are therefore a late manifestation of infection.[8]

Objective

1. To study the changing trend of HIV infection in children (<16 years) in last 5 years in ICTC, VIMS Ballari, Karnataka.
2. To study the clinical opportunistic infections in the positive cases.

Material and Methods

Source of Data

A five year retrospective study was done, from January 2010 to December 2014, which included 1492 children aged between 1-15years who attended the tertiary care hospital.

HIV was confirmed according to the NACO guidelines and the same were followed up for CD4 count testing and looked for clinically evident opportunistic infections.

Inclusion Criteria:

1. All the HIV positive children aged between 1-16 years.

Exclusion Criteria:

2. Children <1 years and >16years of age.
3. Transferred to another centre
4. Lost to follow up
5. Not eligible for ART.
6. Deaths

Statistical analysis

The statistical analysis was done using appropriate formula and p value was calculated Routine investigations and CD4 count testing was done in each patient participating in our study. Written or informed consent was obtained from each patient before subjecting them for investigations. All the investigations were done under the direct guidance and supervision of guide.

Result

Out of 1492 children, a total of 146(9.7%) were confirmed to have HIV infection. Out of these, 81(55.4%) and 65(44.5%) were male and female children Respectively (**figure I**).

Among the 146 positive cases,64 were found to be on ART and their six monthly CD4 counts when followed up showed an increasing trend. It was observed that in year 2010,18% was the HIV positivity rate whereas 2014 witnessed a decline to 5.15%(**figure II**).

Out of 64 patients,20 were found to have pulmonary Tuberculosis and 22 had clinically evident other opportunistic infections(**figure III**)

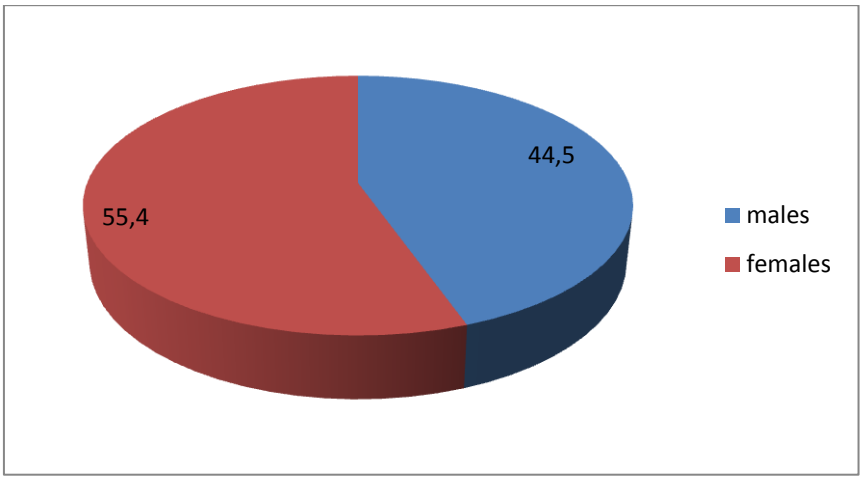

Figure I Percentage Positivity In Male & Female Children

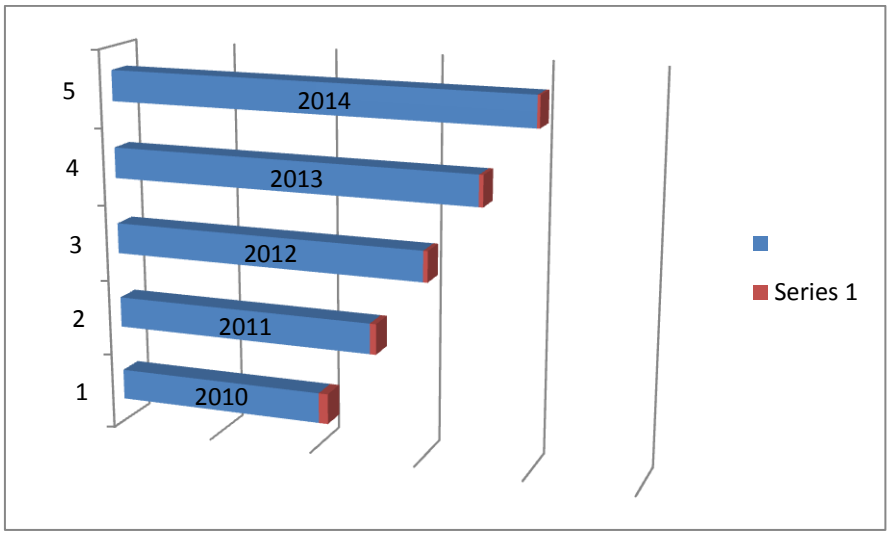

Figure II Decreasing HIV prevalence

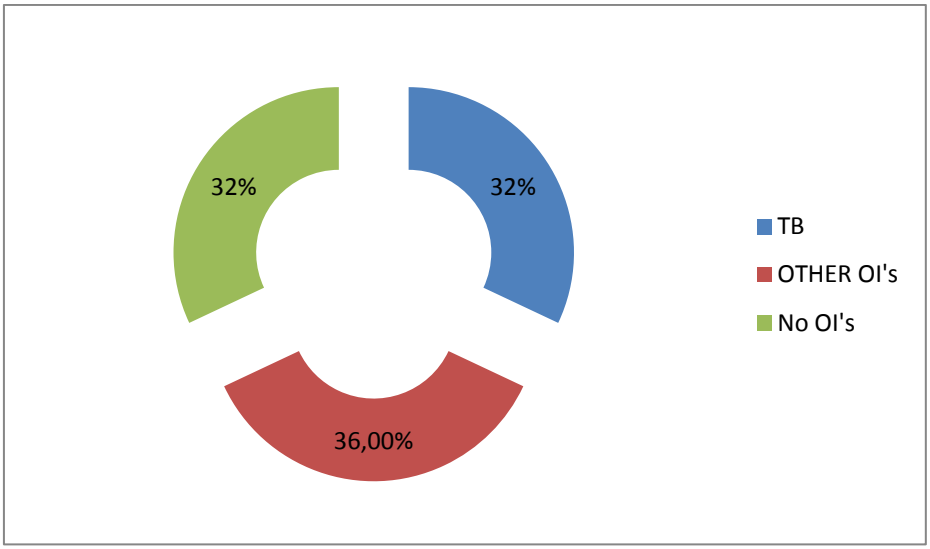

Figure III Opportunistic Infections

Discussion

More than 90% of HIV infections in children result from mother to child transmission.[9] The remarkable progress made in decreasing new infections from mother-to-child transmission indicates that a concerted global effort, strong political commitment and leadership at the country level, and resource allocation can lead to significant results. The launch of the "global plan toward the elimination of new HIV infections among children by 2015 and keeping their mothers alive" in 2009 has led to rapid reductions in new HIV infections among children in low- and middle-income countries overall and in the 22 priority countries.[10]

However the HIV sentinel surveillance and population based survey viz. NFHS-3 also contain biases, including the under representation of high risk groups, non response from cases, ascertainment bias etc. Thus there is need to either reduce overcome these biases or at very least recognise it and discuss the same while interpreting the findings of the study.[11]

There is no definite treatment for HIV/AIDS; however, the pandemic can be controlled by education and behavioural modification. Thus, it is very important to understand the modes of infection, the vulnerable population and the changing trends in the epidemiology of HIV infection to be able to make new policies and amend the existing ones as an endeavour to limit this pandemic.[12]

No specific vaccine is available. The high mutability, diverse antigenic types and subtypes, long latency and persistence in infected cells as provirus pose serious problems in

Conclusion

A significant decline in the HIV positivity rate was noted among children attending ICTC after year 2010,this trend reflects the steady expansion of services to prevent transmission of HIV to children and an increase in access to treatment for children.[15]Opportunistic infections continue to be the presenting symptom of HIV infection among children whose HIV-exposure status is unknown because of lack of maternal antenatal HIV testing [16],therefore early recognition of the same will go a long way in reducing mortality associated with HIV in children. Also, efficient follow up of mother - infant pair, early infant diagnosis leading to early initiation of ART in children[17] and National support to facilitate the consistent awareness among adolescents is a pressing need in India to achieve a HIV-free generation the development of vaccines.[13] Without a vaccine or treatment, the prevention of cases of AIDS relies on the success of education projects involving behavioural changes.[14]

Immune restoration and long-term biologic control or complete eradication of the viral burden with minimal toxicity remain elusive goals, but intensive efforts continue to focus on new anti-HIV therapies.[18]

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