**HIV sero-prevalence in general population of Warangal, A.P., South India**

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**Abstract:** HIV / AIDS pandemic has devastated many countries reversing national development; HIV was not seen in Asia and India till 1980. Now India has become epicenter of AIDS pandemic. During April 2002 to March 2003 the HIV +ve pregnant women and their husbands were encouraged to enroll in the prospective study with informed consent. The study results consist of most of the females who are in the age group between 16-25 years who were affected by HIV. High infection is observed in people with lower socio-economic and education background. High infection rate is observed in house wives (26.7%), laborers (23%) and agricultural workers (12.1%) followed by toddy tapers (5%), drivers (5.96%) and others (6.47%). HIV +ve subjects at Mother To Child Transmission (MTCT) centers are surprisingly clinically very healthy. No disease manifestation was noticed.

**Key words:** HIV/AIDS pandemic, Warangal, Age group, Sero-positivity test, Clinical manifestation

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**Introduction**

Globally an estimated 65 million people have been found infected with HIV, 25 million died and 40 million living with HIV / AIDS (Joint United Nations Programme on HIV/AIDS and World Health Organisation - AIDS Epidemic Update-December-2005). Every day 14000 people are infected world wide (AIDS Epidemic update-Dec. 2005) out of which 3-4 million people are infected with HIV / AIDS in India. In Maharashtra, Tamilnadu, Karnataka, Andhra Pradesh, Nagaland and Manipur infection rate is over 1% in Ante-natal clinics (AIDS Epidemic India, 2004). In Andhra Pradesh 0.4 million people are infected with HIV. The most prevalent district in A.P. is Warangal. According to 2002 Ante-natal clinics (ANC) cases with highest positive infection rate is 6.75%. In sexually transmitted diseases (STD) clinic 40.40% is found (Andhra Pradesh AIDS Control Society Bulletin-2003). Now it is spreading from high risk population to general population and urban population to rural population. First AIDS case was detected in Chennai in 1986, but today we trace HIV+ve subjects even in a tribal hamlet. HIV / AIDS mortality is increasing day by day. New opportunistic infections are rapidly spreading. Ante-natal clinic sero-positivity has increased above 1% and prevalence in STD clinic is above 10-20%. People who are in the age group 15-49 years are infected without any discrimination of gender, occupation, financial status-rural and urban. The discrimination towards the victims is often seen in clinics. They are not treating AIDS patients. A rational approach to the study of HIV / AIDS is an urgent need to contain its rapid spreading. Everyone needs awareness regarding HIV / AIDS.

**Materials and Methods**

Pregnant women from rural and urban areas visit maternity hospital for regular checkup from 3rd month till delivery. They would be screened for HIV antibody in the hospital settings during their visits following informed consent. The present study was undertaken during April 2002 to March 2003. The HIV +ve pregnant women were encouraged to enroll in the prospective study. The research monitoring committee of Department of Zoology, Kakatiya University approved this study. The study protocol consisted of informed consent, questionnaire elaborating age, marital status, educational qualification, gender, occupation, high-risk behavior, geographical location, and clinical manifestation. The study centers included: CKM Maternity Hospital, Hanamkonda Maternity Hospital, selected private maternity nursing homes and Mother To Child Transmission (MTCT) centers.

These centers are provided with a gynecologist, a pediatrician, a general medicine doctor and a counselor. HIV / AIDS testing lab and counseling units are also well established. Pre test counseling and post test counseling were performed. The authors stayed at the above said hospitals and with the help of the counselor, interacted with HIV+ve patients with established questionnaires. Peripheral blood (4-5 ml) was collected from each patient and screened for Human Immuno deficiency virus antibody 1 and 2 (HIV-1/2). In the given sample the sero-positivity was confirmed by three individual tests. 1) HIV Tridot test, 2) NEVA test, and 3) COMB AIDS test.

**HIV Tridot test:** HIV tridot is a rapid test developed and designed using gp41, Constant terminal region (C-terminal) of gp120 and gp36 representing the immunodominant region of HIV-1 and HIV-2 envelope gene structures respectively. The HIV tridot test is a visual, rapid, sensitive and accurate immuno-assay for the differential detection of HIV-1 and HIV-2 antibodies in human serum (or) plasma using HIV-1 and HIV-2 antigens, immobilized on an immuno-filtration membrane. The test is a screening test for anti HIV -1 and HIV-2 and in vitro lab use (Roland, 2003).

**NEVA (Naked eye visible agglutination) test:** In NEVA test kit comprises of a set of several recombinant molecules. All these molecules have RBC binding sites. Such universal RBC – protein – binding sites have been selected. RBC binding molecules
with different immuno-dominant HIV antigenic regions fused and at
the other end these fusion proteins capture one arm of the anti HIV
antibodies (Constantine et al., 1994).

**COMB AIDS-test:** It is an in vitro visually read DOT immunoassay,
intended for the qualitative detection of Ig-G/Ig-M antibodies to the
HIV type 1 and 2 in human serum (or) plasma. A COMB AIDS
employs the principle of enzyme immuno-assay (EIA). In the test a
positive result is indicated by the presence of magenta red colored
DOT on the surface of the COMB where peptides have been
spotted (Meda, 1999). Finally sero-positivity was confirmed by
Western Blot.

**Results and Discussion**

The HIV sero-positivity as determined at maternity hospitals
is in general considered as a reliable indicator for HIV incidence. In
this study 10,001 individuals were counseled and 8900 were
screened for HIV status. Out of 287 subjects, 121 males and 166
females were recorded HIV +ve.

Sero-positivity was 3.22% in Warangal, of which 57.83%
consists of females and 42.16% of males. The reasons for higher
sero-positivity in females could be due to 1) better attendance at the
Mother To Child Transmission (MTCT) centers for sero-diagnosis,
and 2) host genetic factor related susceptibility. It can be noted that
most of the females (who are in the age group between 16-25
years were affected by HIV. But it can also be noted that most of
the males who were HIV+ve are between the age group 26-30 years.
So it is clear from the data that the HIV infection occurs in both males
and females in the age group of 16 to 30 years. HIV infection is very
high (27.6%) in those who have completed their secondary
education, HIV sero-positive is very less (0.84%), (0.56) in
professionals and graduates. Higher infection rate is observed in
house wives (26.7%), laborers (23%), and few agricultural workers
(12.1%) followed by toddy tapers (5%), drivers (5.96%) and
others 6.47.

Few HIV+ve subjects at MTCT centers are surprisingly
clinically very healthy. No disease manifestation was noticed. As
per World Health Organization classification system of clinical staging
of HIV positive subjects, most of these subjects were in clinical
stage 1 i.e. asymptomatic and normal activity (Lifson et al., 1995).
It is observed that the prevalence among women who attended
Ante-natal clinics is close to one percent or above. According to
2002 sentinel of Africa in Barundi Bahumbura, the infection rate is
7.72 to 7.59% (Sokal et al., 1993). In Lindi Tanzania HIV infection
rate is 8.7%, in Zimbabwe HIV infection rate is 14% and in Malawi
the infection rate is 38% (Taha et al., 1998). According to National
AIDS Control Organisation (NACO) the infection rate in India is
between 0.5% to 1% (AIDS epidemic India 2004). In Andhra
Pradesh the infection rate is 1.50%, where as in a few cities like
Mumbai it is 4% and in Pondicherry 3% (Gupta, 2002). In Andhra
Pradesh seven districts have recorded above 1%. They are
Hyderabad, Vishakapatnam, Guntur, Chittoor, Kurnool, Warangal
and East Godavari. In Warangal according to 2002 sentinel
servillance report the infection rate is recorded as 6.75% (Andhra
Pradesh state AIDS control Society Bulletin, 2003). This is very
alarming when compared with national and state wise values. In our
study, conducted during this period (2002-2003), we observed that
the sero-prevalence has been recorded to be 3.22% in general
population of Warangal. This is very high when compared with
state surveillance as well as national surveillance.

The overall HIV sero-prevalence rate in adults of age
15-40 years in sub-Saharan Africa is estimated to be 7.4% (Kamali
et al., 1996). In our setting AIDS related mortality is also related to
the age group 16-30 years, where the infected parents die early and
the children become orphans. Most of the women are prone to
HIV infection through multiple partners. Early exposure to sexual
activity and male to female transmission during vaginal intercourse
are responsible for higher incidence in females. The greater
vaginal mucosal surface area exposed to the semen was also
stated to be a contributory factor. As tradition goes, in Indian society
the women are as a rule younger than their life partners and
hence most of the women are prone to higher infection risk at an
early age i.e., between 16-25 years, whereas in men highest
rate of infection is found in the age range of 21-35 years. In some
areas of central Africa, over 10% of children have lost one or both
parents (Kamali et al., 1996). In our study we observed that 5%
of the children have lost one or both parents during the period of
investigation.

It is found in our studies that most of the illiterate women are
prone to HIV infection due to lack of awareness. As their education
improved the infection rate has gradually come down. So it is very
clear that there is an urgent need to strengthen awareness among
rural and urban illiterate women. In early years of 1990, HIV virus
was commonly found in sex workers. The virus entered into general
population. Interestingly of late, the sex workers have become well
aware of AIDS and are sufficiently protected with condoms provided
by NGO's and hence we find very few cases of HIV in sex workers.
These sex workers don't allow their clients with out condoms. It is,
however, not like this in general population. In a legalized courtship
a female partner does not demand the husband to use condom all
the time. Hence a large number of housewives are more prone to
HIV infection, infected by husbands. 5-10% of the pregnant woman
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strata, they are liable to sexual exploitation by their superiors at workplace. Most of the male laborers are infected by HIV because of their high risk behavior.

Agricultural workers and farmers, toddy tappers and drivers are also highly infected by HIV. In case of heavy vehicle drivers who go on inter-state trips on duty visit regularly the sex workers who are on national highways.

The virus spreads through the drivers to the areas adjacent to state and district highways. Now a day we even find HIV infection in remote villages and tribal hamlets. From this it can be inferred that the virus is spreading very rapidly among different people of different occupations. The awareness programmes and community based programmes should be targeted to housewives, labourers, agricultural workers, farmers, toddy tappers and drivers.

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References