

**Research Article**

## **THE DEATH PROFILE OF HIV PATIENTS IN AN ART CENTER, KARNATAKA**

**\*Ullas Ulahannan, Navya Vyas, Shwetanshu Saxena, Monica Rana, Vishnu Kumar, Sovana  
Mohanty and Padma Mohanan**

*Department of Public Health, Manipal University*

*\*Author for Correspondence*

### **ABSTRACT**

AIDS is a major global health problem. Although important progress has been achieved in preventing new HIV infections and in lowering the annual number of AIDS related deaths, the number of people living with HIV continues to increase. ART centers throughout the country have been an effective intervention in reducing the number of cases and complications of this deadly disease. The aim was to study the death profile of AIDS patients in an ART center. A retrospective cross sectional study was conducted in an ART center, using the records to collect the death profile of patients dated from July 2009 to July 2011. The death profile of HIV patients, dated from July 2009 to July 2011 were collected from ART Centre. The study involved death profiles of 181 individuals of which 70.17 % were males and 29.83% were females. The mean age was  $41.46 \pm 9.69$  years. Majority of the People living with HIV/AIDS were unemployed (43.6%). 77.4% of the People living with HIV/AIDS did not have any side effects of ART medications. The main cause of death was found to be tuberculosis and other respiratory disorders (35.4%). 78.5% of patients who had HIV/TB co-infection had CD4 count below 200. The study revealed the most common opportunistic infection with HIV/AIDS as Tuberculosis. Demographic factors showed the HIV/AIDS was more likely to happen in the younger age group which in turn affects socio economic status of the family and society. Infection through sexual route is the highest even though other modes of transmission exist. The death profile of HIV patients revealed that co-infection with tuberculosis is major reason for the mortality.

**Key Words:** *ART Center, Death Profile, HIV-TB Co-Infection, Opportunistic Infection*

### **INTRODUCTION**

Acquired Immunodeficiency Syndrome (AIDS) is a major global health problem. The number of people living with AIDS continues to increase although important progress has been achieved in preventing new HIV infections and in lowering the annual number of AIDS related deaths (Chaimay *et al.*, 2011). The number of people living with HIV/ AIDS in India is estimated to be 5.2 million (0.88%) the second largest in the world (UNAIDS, 2010). In India to monitor the trend of HIV among community a large annual sentinel surveillance is carried out in the third quarter of each year, which includes data predominantly from public-sector antenatal clinics and sexually transmitted infection (STI) clinics, and also from some high-risk groups (National AIDS Control Organization, 2006; National AIDS Control Organization, 2005; National AIDS Control Organization, 2003). The six states Andhra Pradesh, Karnataka, Maharashtra, Manipur, Nagaland and Tamil Nadu were classified as high prevalence states in 1998 (Technical reports on HIV estimates, 2010). Among its six high-prevalence states, Karnataka is ranked the fourth in India, with an estimated HIV prevalence among antenatal clinic attendees of 1% and among STI patients of 7.57% (UNAIDS, 2010). Karnataka probably contains more than 250,000 persons living with HIV (Manjunatha *et al.*, 2011). In which the registered people living with HIV in the IPPCC/ DIC, two thirds of the people living with HIV are from the rural areas. The proportion rural among the registered is 80% or higher in Bagalkot, Belgaum, Bidar, Hassan, Mandya and Udupi (Karnataka State AIDS Prevention Society, 2011).

During 2010-11 (April-Dec), 41 ART centers and 96 Link ART Centres have been functioning in Karnataka state. Udupi ART centre is one of them where total 1400 HIV infected people are currently on

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ART treatment (Karnataka State AIDS Prevention Society, 2011).The purpose of our study is to do the death profiling of People living with HIV/AIDS at the ART centre.

## MATERIALS AND METHODS

A retrospective cross sectional study was carried out to study the death profile of People living with HIV/AIDS in an ART centre. The study population involved people living with HIV/AIDS who had died during the ART treatment from a period of July 2009 to July 2011 at the ART centre. A pilot study was conducted to find out main cause of mortality among people living with HIV/AIDS undergoing ART treatment. The pilot study concluded that HIV-TB co-infection contributed to 33% of all deaths among people living with HIV/AIDS. Hence, 33% of the mortality in People living with HIV/AIDS with 7% relative precision was used to calculate a minimum sample size of 173 with 95% Confidence Interval. The inclusion criteria for the subjects were People living with HIV/AIDS who had undergone ART treatment in ART centre and were above 17 years of age. A validated data collection format was designed according to the needs of the study in consultation with the experts in the field. It was used to collect the socio-demographic details, causes of death of People living with HIV/AIDS, WHO stages of HIV and the laboratory parameters. The main items of interest were demographic details of the study subjects, physical and clinical examination details, laboratory parameters and opportunistic infections.

## RESULTS

The study involved death profiles of 181 individuals of which 70.17 % were males and 29.83% were females. The mean age of the patients was  $41.46 \pm 9.69$  years. The maximum numbers of patients were in the age group of 30-39 years (Table No.1). The prevalence of AIDS was more common in married men (68.5%) than in married women (25.9%). In case of females, prevalence was more common in widows (64.8 %) (Table No.2).The employment status showed majority of the People living with HIV/AIDS were unemployed (43.6%). The educational level of the patients showed 51.9 % of the People living with HIV/AIDS had undergone primary school education. Out of these 37.01% were males and 14.9 % were females (Table No.2). Body weight of the subjects showed, 50.27% were underweight. Out of these, 25.41 % had co-infection with tuberculosis. Clinical profile of the patients showed 77.35% of the People living with HIV/AIDS were not having any side effects. Anemia was more likely to develop in females (14.81%), who were under ART. The main cause of death was found to be tuberculosis and other respiratory disorders like pneumonia (35.4%) (Table No.3).78.5% of patients who had HIV/TB co-infection had CD4 count below 200 (Table 3).

## DISCUSSION

The demographic details shows most of the HIV/AIDS patients were young, hence the productivity and earning was disturbed. The maximum numbers of patient were in the age group of 30-39 years. The same type of result was also observed in the study done by Zaheer *et al.*, (2003) in Aligarh. This section of the

**Table 1: Age wise distribution of HIV patient**

Age Group			Male	Female	Total (%)
Below 19	1	1	2(1.1)		
20-29			6	5	11(6.1)
30-39			54	23	77(42.5)
40-49			33	19	52(28.7)
Above 50			33	6	39(21.5)

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population was more affected because they were economically productive, sexually more active and the social structure was patriarchal. With regard to the level of education, 77 % patients were literate and 23 % were illiterate. These findings were more or less similar to study conducted by Joshi *et al.*, (2004). It may be inferred that higher educational levels offered some protection against HIV. Anybody who was illiterate and educated below the secondary education level may not have adequate knowledge for protecting himself or herself from STDs including HIV/AIDS.

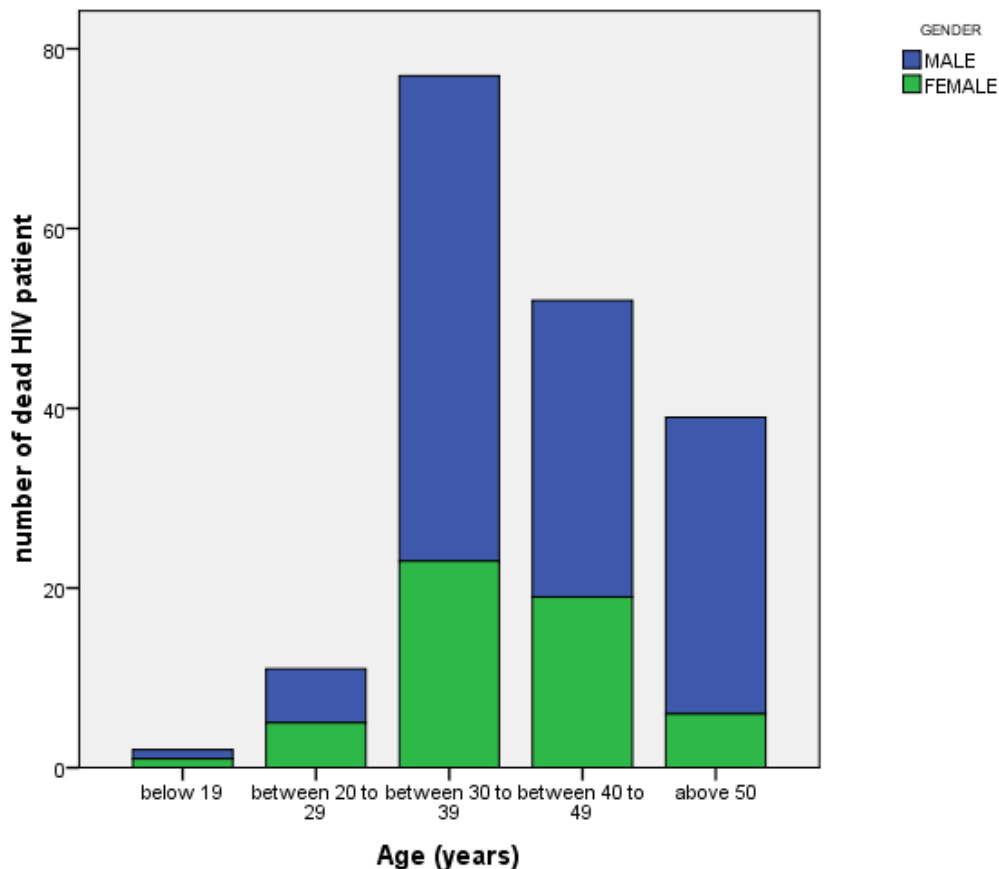
**Table 2: Demographic profile of AIDS cases**

		Male	Female	Total (%)
<b>Marital status</b>	Married	87	14	101(56)
	Unmarried	30	3	33(18.2)
	Widowed	9	35	44(24.3)
	Divorced	1	2	3(1.7)
<b>Education level</b>	Primary school	67	27	94(52)
	Secondary school	34	3	37(20)
	College and above	7	2	9(5)
	Illiterate	19	22	41(23)
<b>Occupation</b>	Coolie	14	11	27(14.9)
	Hotel worker	28	0	28(15.5)
	Fisherman	5	0	5(2.8)
	High income group	8	1	9(5)
	Others (tailors, drivers, shopkeeper etc.)	28	5	33(18.2)
	Unemployed	42	37	79(43.6)

**Table 3: Opportunistic infections**

Opportunistic infections	Male	Female	Total (%)
Tuberculosis and other pulmonary infection	54	11	65(35.9)
Tuberculosis and Diarrhoea	9	5	14(7.7)
Diarrhoea	5	6	11(6.1)
Mouth ulcer	4	1	5(2.8)
Cancer	2	2	4(2.2)
Others	4	1	5(2.8)

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**Figure 1: Age-wise distribution of the study population**

In the present study maximum number of patients (43.6 %) was unemployed. Most of them were illiterate so probably they were more involved in promiscuous behaviour. This implies that the unemployed people were working as a link population and spreading the disease to the general population. In females the second most affected group was housewives (68.5 %) who were at mercy of their counterpart and were silent sufferers. They did not have the right to ask for contraception and suffer from deadly disease just because of their partners (Joge *et al.*, 2012). With regard to marital status majority of patients were married (56 %) in which 68.5 % were married men and 25.9 % were female, but widows (64.9 %) outnumbered married (26 %) in females. High number of married persons having HIV/AIDS was also reported by Jayrama *et al.*, (2008), Joge *et al.*, (2012) (70.3%). It indicates the high risk behaviour of person in the community.

TB was one of the most common type of OIs associated with HIV as reported in a study conducted in north-India (Castro *et al.*, 1992) and this may be associated with endemic factors such as malnutrition, poor hygiene, poverty, migrant population and unemployment which were widely prevalent in this area. In our study, 43.6 % of the patients were diagnosed with tuberculosis which was not surprising as TB is one of the diseases which are increasing in India and our data was in accordance with the other published data from other part of India (Tamura *et al.*, 2007; Gupta *et al.*, 2006). Major studies from India (Kaur *et al.*, 1992; Vajpayee *et al.*, 2003; Raviglione *et al.*, 1995) reports chronic diarrhoea, gastrointestinal infection as the most common OIs associated with People living with HIV/AIDS but our study revealed it to be the second major complication (13.8 %). The same type of result is also observed by Kallolsaha *et al.*, (2011), Saha *et al.*, (2011).

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There were no significant association between patient who had tuberculosis and whose CD4 count was either <200 or between 200 and 500. This probably appears at relatively early stage (at higher CD4 counts) in the progression of the disease in the Indian population than that reported in western countries (Giri *et al.*, 1995; Markowitz *et al.*, 1997). This may be attributed to the fact that tuberculosis infection is endemic in India, unlike in western countries. 77.35 % of study participants had no side effects during ART treatment but in another study that was conducted by Mallory O Johnson in California it was observed that aversive side effects accompanied drug benefits which included neurologic, psychiatric changes, diarrhea and fatigue (Johnson *et al.*, 2011). The main cause of death in HIV/AIDS patients was found to be TB co – infection in our study. Tuberculosis co-infection continues to be an important cause of mortality in Anti Retroviral Therapy programs this finding was observed in a study that was conducted by William Worodria (Kyeyune *et al.*, 2010). Our finding that tuberculosis was the commonest opportunistic infection seen in patients who died was similar to that reported from other parts of India (Sharma *et al.*, 2004; Sobhani *et al.*, 2007; Kumarasamy *et al.*, 2003).

### **Conclusion**

The study revealed that the opportunistic infection that was common with HIV/AIDS was Tuberculosis. Moreover ART treatment for HIV/AIDS with TB co –infection was given when the CD4 count is less than 200 cells /mm<sup>3</sup>. Demographic factors show the HIV/AIDS was more likely to happen in the younger age group which in turn affects socio economic status of the family and society. Even though other modes of transmission persist sexual transmission contributes a high share of infection.

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