



Causes of death among people living with HIV/AIDS attending tertiary care hospital, Mandya, Karnataka, India

Authors

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Abstract

In the era of highly active antiretroviral therapy (HAART) mortality has decreased substantially among human immunodeficiency virus (HIV) infected with access to HAART. To understand the recent temporal trends in acquired immunodeficiency syndrome (AIDS) mortality in the era of HAART, trends in causes of death among persons with AIDS, this study was taken up at MIMS hospital, Mandya, Karnataka, India. Among 200 patients from the ART center, we found that pulmonary tuberculosis was the commonest cause of death, 86 patients (43%), EPTB was present in 43 patients (21.5%), hepatitis in 16 patients (8%), suicide in 12 patients (6%), Bacterial pneumonia in 11 patients (5.5%), Bacterial infection in 8 patients (4%), Liver disease in 7 patients (3.5%), Accident in 5 patients (2.5%), Alcohol related in 5 patients (2.5%), Diarrhea in 4 patients (2%), Cardiovascular disease in 3 patients (1.5%). With increasing AIDS survival, still opportunistic infections top the list, non HIV related causes of death like suicide, accidents, alcohol related and cardiovascular disease constitute a smaller number of deaths.

Keywords: HIV, Cause of death, CD4 count, Opportunistic infections.

Introduction

The morbidity, mortality and social disruption due to acquired immunodeficiency syndrome (AIDS) pandemic weigh disproportionately upon resource-poor areas of the tropics. Consequently the potential for interactions between human immunodeficiency virus (HIV) infection and other tropical infectious diseases is great.

Tuberculosis is said to be the most common Opportunistic infection among people living with HIV/AIDS. The interaction between HIV and TB in persons co infected is bidirectional and synergistic; each accentuates progression of the other (Sharma et al., 2005). In persons dually infected with HIV and tuberculosis, the lifetime risk of developing tuberculosis is 50-70% as

compared to a 10% risk in HIV negative individuals (world health organization).

Death due to AIDS have declined in the United states and western Europe with the introduction of highly active antiretroviral therapy (HAART), increasing number of deaths due to non-human immunodeficiency virus (HIV) related or non AIDS related causes among patients with AIDS. This study is taken up at MIMS, hospital, Mandya, Karnataka, India, to know the possible causes of death among people living with HIV/AIDS to provide a clearer understanding of recent temporal trends in AIDS mortality at a population level.

Methods

The ART centre maintains the medical records of HIV patients / AIDS patients. The causes of death were documented using a standard questionnaire through regular follow up of HIV / AIDS patients. 200 cases were taken up for the study. The data is as mentioned below.

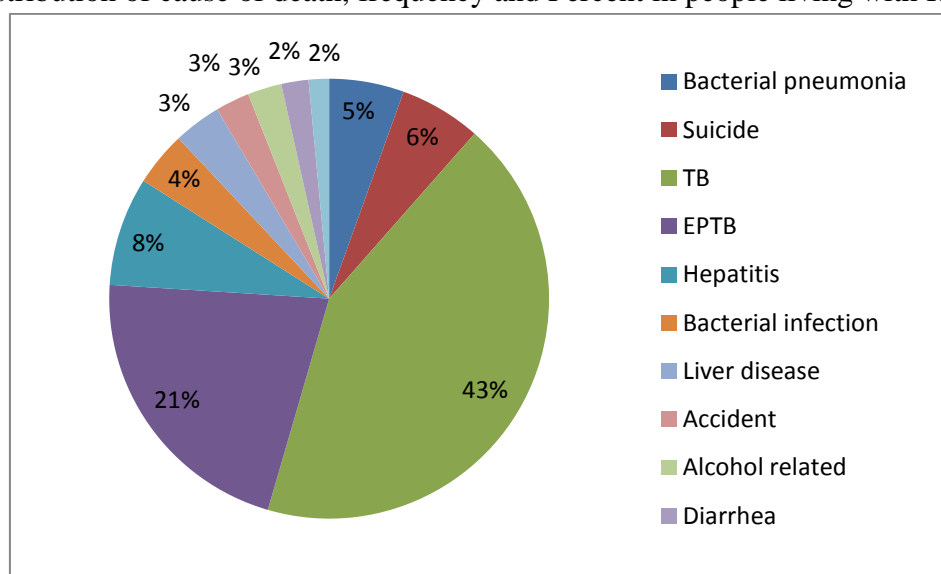
Results and Discussion:

Table No: 1 Distribution of cause of death, Frequency and Percent in people living with HIV/AIDS.

Cause of death	Frequency	Percent
Bacterial pneumonia	11	5.5
Suicide	12	6.0
TB	86	43.0
EPTB	43	21.5
Hepatitis	16	8.0
Bacterial infection	8	4.0
Liver disease	7	3.5
Accident	5	2.5
Alcohol related	5	2.5
Diarrhea	4	2.0
Cardiovascular disease	3	1.5
Total	200	100.0

In our study we found that pulmonary tuberculosis was the commonest cause of death, 86 patients (43%), EPTB was present in 43 patients (21.5%), hepatitis in 16 patients (8%), suicide in 12 patients (6%), Bacterial pneumonia in 11 patients (5.5%), Bacterial infection in 8 patients (4%), Liver disease in 7 patients (3.5%), Accident in 5 patients (2.5%), Alcohol related in 5 patients (2.5%), Diarrhea in 4 patients (2%), Cardiovascular disease in 3 patients (1.5%) ,in the decreasing order.

Figure No.1 Distribution of cause of death, frequency and Percent in people living with HIV/AIDS.



In our study, majority of the patients were in the age group 26-45 yrs (71%).

Patients in the age 46 yrs and above were 36 in number (18%).

Patients in the age group 0-25 yrs were 22 in number (11%).

We correlated the occurrence of infections with CD4 count.

The CD4 count was <350/cmm in 182 patients (91%) and >350/cmm in 18 patients (9%).

Table no: 2. Distribution of cause of death and CD4 count, frequency and Percent in people living with HIV/ AIDS

Cause of death	CD4 counts		Total
	0-350	350-above	
Bacterial pneumonia	10	1	11
Suicide	9	3	12
TB	83	3	86
EPTB	40	3	43
Hepatitis	13	3	16
Bacterial infection	7	1	8
Liver disease	5	2	7
Accident	5	0	5
Alcohol related	4	1	5
Diarrhea	4	0	4
Cardiovascular disease	2	1	3
Total	182	18	200

Pulmonary TB was the commonest opportunistic infection among patients with CD4 count < 350/cmm.

Pulmonary TB, Extra pulmonary TB, hepatitis and suicide were common among patients with CD4 count >350/cmm.

Figure No.2 Distribution of CD4 count, frequency and Percent in people living with HIV/AIDS.

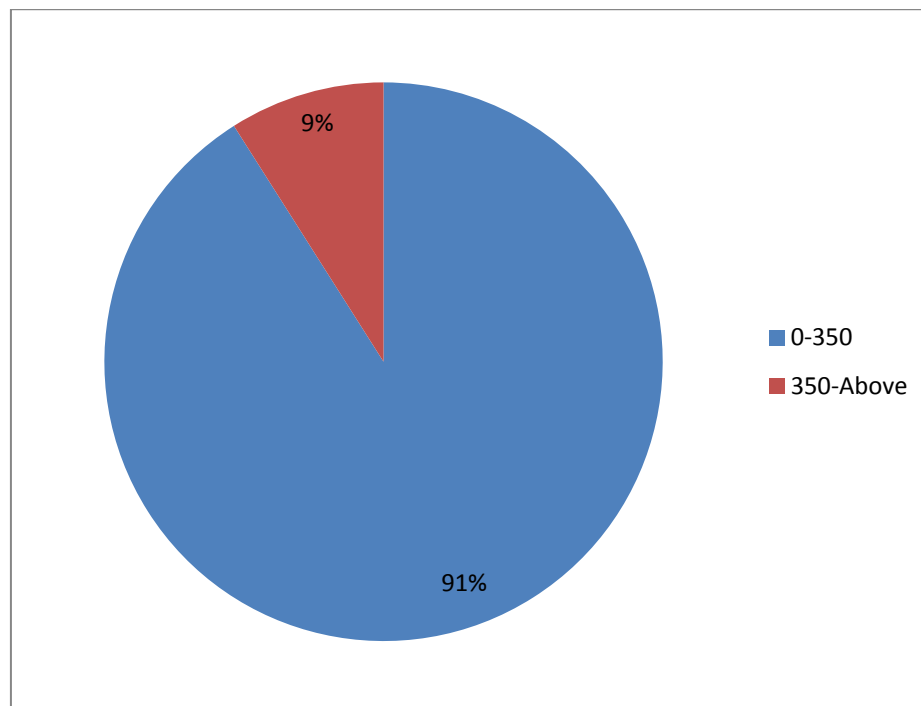
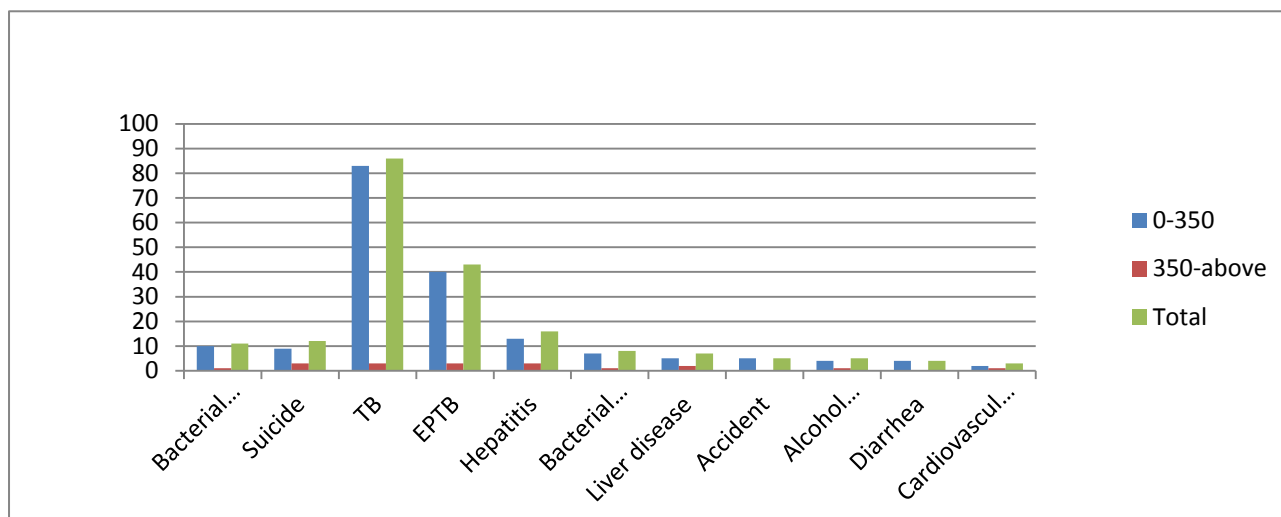


Figure No. 3 Distribution of cause of death and Cd4 counts in people living with HIV/AIDS.

The study conducted by Charlotte Lewden et al in 2005 showed that the cause of death was an AIDS defining illness in 456 patients (47%), non AIDS related in 477 patients (50%) and unknown in 31 patients (3%).

The two reasons were identified for the high proportion of AIDS related causes; a late diagnosis of HIV infection, particularly in immigrant and those living in French overseas areas, and the persistence of non Hodgkin's lymphoma. The most frequent Non AIDS related deaths were Cancer (11%), HCV infection (9%), and Cardiovascular diseases (7%).

The study done by Janice K.Louie et al in 1998 showed temporal trends in proportions of selected causes of death (underlying and contributing) among persons with AIDS as AIDS related causes like wasting, CMV infection , Kaposi sarcoma, non tuberculous mycobacterial infection, NHL, pneumocystis carini pneumonia, HIV dementia, cryptococcosis, progressive multifocal leuoenc-ephalopathy, cryptosporidiosis, toxoplasmosis.

Deaths due to Non HIV or non AIDS related causes were Septicemia, Non-AIDS defining malignancy, chronic liver disease, viral hepatitis, overdose ,obstructive lung disease or reactive airway disease, coronary antery disease, cardiomyopathy, pancreatitis .

Study done by E.Martinez et al in 2007 showed the causes of death in the decreasing order as

follows. AIDS-defining events (n=95; 40%), late stage liver disease (n=53; 23%), non-AIDS defining, nonhepatitis infections (n=33; 14%),non-AIDS defining, nonhepatitis-related neoplasia (n=25; 11%), cardiovascular disease)n=14; 6%), drug overdose (n=6; 3%), unknown (n=4;2%), suicide (n=3; 1%), and accidental/traumatic events (n=2; 1%) (Table 1). Seventy five patients dying with ≥ 200 copies/ml (n=102), patients dying with < 200 copies/ml (n=75) dies more commonly of late-stage liver disease) n=33, 44% vs.n=17, 17%), non-AIDS-defining, nonhepatitis-related neoplasia (n=14, 19% vs. n=10, 10%),and cardiovascular disease (n=8, 11% vs.n=5, 5%) and less commonly of AIDS-defining events (n=14, 19% vs.n=35, 34%), non-AIDS-defining, nonhepatitis infections (n=4, 5% vs.n=26, 25%), and drug overdose (n=1, 1% vs. n=2, 2%) (P<0.001; Fisher's exact test)

Liver disease was the cause of death in 7 patients (3.5%) in our study.

The study done by Dominique salmon ceron et al in the year 2000 at French hospital departments showed that the most frequent causes of death were liver disease (31%) and AIDS (29%) among HIV-HCV co infected patients and AIDS (38%) and liver disease (22%) among HIV-HBV co-infected patients. Liver disease was a more frequent cause of death among patients co infected by both HCV and HBV (44%) Hepatocellular carcinoma was present in 15% of patients who

died from liver disease and was associated with HBV co-infection.

Study of Antonio G Pacheco, suely H Tuboi, Jose C.Faulhaber, Lee H Harrison, Mauro Schechter conducted a study in 2008 and revealed that in patients on HAART, Cardiovascular diseases and Diabetes mellitus were the likely causes of death over time among HIV infected individuals than in the general population.

Conclusion

Pulmonary tuberculosis was the commonest cause of death among HIV/AIDS patients, followed by EPTB, hepatitis, bacterial pneumonia, suicide, bacterial infection, liver disease, accident, alcohol related mortality, diarrhoea, cardiovascular disease in the decreasing order.

In developing Country like India, opportunistic infections are the major cause of death in HIV patients.

Among patients with opportunistic infections, majority of patients (91%), were having CD4 count of <350/cmm.

Only 9% of patients had CD4 count > 350/cmm.

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