

RESEARCH ARTICLE



Tuberculosis Due to Mycobacterium Bovis among HIV Co-infected Patients

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Abstract

HIV-human immunodeficiency virus and Tuberculosis (TB) co-infections affect the health around the world and continue to be a major global public health worldwide. Tuberculosis (TB) now ranks alongside HIV as a leading cause of death worldwide. HIV and TB form a lethal combination, each speeding the other's progress. The aim of this study is to evaluate the presence of M.bovis infection among HIV co-infected patients. During the period of time 2004-2015, of the 751 patients infected with HIV, 40 were co-infected with HIV and TB during the period of time 2004-2015. By gender, TB in patients with HIV infection was 12.5 % among women and 87.5 % among men. The level of TB among patients with HIV infection was 5.3 % (40 cases out of 751 HIV positive cases in total). Specific weight of mortality in patients with HIV/TB co-infection during the period of time 2004-2015 was 45 % (18 cases out of 40 cases in total). The level of TB due to M.Bovis among HIV positive patients was 2.6 % (one case out of 39 HIV positive MTBC-Mycobacterium Tuberculosis Complex cases in total). M.Bovis infection again continues remains a public health risk and impacts on the epidemiology of HIV and TB co-infection disease.

Keywords: HIV- infection, M.bovis infection ,HIV and TB co-infection.

1. Introduction

The co-infection with the human immunodeficiency virus (HIV) and tuberculosis (TB) is a major public health problem throughout the world. The human immunodeficiency virus (HIV) is an infection associated with serious disease, persistently high costs of treatment and care, significant number of deaths and shortened life expectancy [10] TB is the most common presenting illness among people living with HIV, including those taking antiretroviral treatment and it is the major cause of HIV-related death [9]. According to the WHO, TB is a leading killer of HIV-positive people: in 2015, 1 in 3 HIV deaths was due to TB [21]. HIV is the strongest risk factor for developing tuberculosis (TB) disease [5]. Tuberculosis (TB) is a disease caused by a bacterium called Mycobacterium tuberculosis. M.bovis is another mycobacterium that cause TB disease in people. It is most commonly found in cattle and other animals. In people, M.bovis causes TB disease that can affect the lungs, lymph

nodes and other parts of the body. People are most commonly infected with M.bovis by eating or drinking contaminated, unpasteurized dairy products [20]. For people with HIV infection, the risk of developing TB disease is much higher than for people with normal immune systems [20]. Without treatment, as with other opportunistic infections, HIV and TB can work together to shorten lifespan [22]

In 2014, 36.9 million people were living with HIV [1]. India accounted for 27% of global TB notifications in 2014, followed by China (14%). Globally, 12% (1.2 million) of the 9.6 million new TB cases in 2014 were HIV-positive. [1;4]. the proportion of TB cases co-infected with HIV was highest in countries in the African Region. In parts of Southern Africa, more than 50% of TB cases were co-infected with HIV [4]. According to the WHO, there were an estimated 190 000 TB deaths among HIV-positive men and 140 000 among HIV-positive women in 2014 [4]. There were an additional 55 000 (range, 50 000–

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60 000) TB deaths among HIV-positive children, equivalent to 14% of the total number of HIV-positive TB deaths. Of the 5.2 million incident pulmonary TB patients notified globally in 2014, only 3.0 million (58%) were bacteriological confirmed [4]. In the last 15 years the number of new TB cases has more than doubled in countries where the number of HIV infections is also high [19]. The number of people living with HIV continues to increase, in large part because more people globally are accessing antiretroviral therapy and as a result are living longer healthier lives. HIV infection rates are increasing in several countries in Eastern Europe and Central Asia, which have expanding, concentrated epidemics, notably among people who inject drugs and their sexual networks [8]. TB now ranks alongside HIV as a leading cause of death worldwide [1;4]. TB is still the leading cause of HIV mortality. In most of the world, more men than women are diagnosed with TB and die from it [3]. TB is among the top killers of women of reproductive age [17]. Much more needs to be done in terms of prevention, earlier identification of HIV-associated TB, coverage and delivery of life-saving interventions [14;15;2]. In the case of TB, the links between poverty and disease burden have been documented for many years [9]. The poverty as a major barrier to health and health care [9]. According to the WHO, all people living with HIV, wherever they receive care, should be regularly screened for TB [14]. The current challenge is to find ways of preventing both TB and HIV, and to improve

diagnosis and management of co-infection [11]. The co-epidemic of tuberculosis (TB) and human immunodeficiency virus (HIV) is one of the major global challenges in the present time [6-7].

2. Methodology

This was a descriptive study. Evaluating patients' files with HIV infection followed at the Outpatient Clinic for HIV/AIDS, part of Infectious Service, University Hospital Center "Mother Teresa", Tirana, Albania, during the period of time 2004-2015. From 751 patients infected with HIV, we included 40 patients with co-infection HIV and TB and were expelled one case HIV positive Mycobacterium Avium Complex (MAC) co-infection. We have evaluated the epidemiological data of TB patients encountered in HIV/AIDS. Data were subjected to descriptive and correlation analysis.

3. Results and Discussion

By the statistics, Albania continues to be a country with low prevalence of HIV infection but with the growing trend. During the period of time 2004-2015, 751 cases were diagnosed as HIV positive. Of the 751 patients infected with the human immunodeficiency virus (HIV), 40 cases were co-infected with HIV and TB. The level of TB among patients with HIV infection was about 5.3 % (40 cases out of 751 HIV positive cases in total).

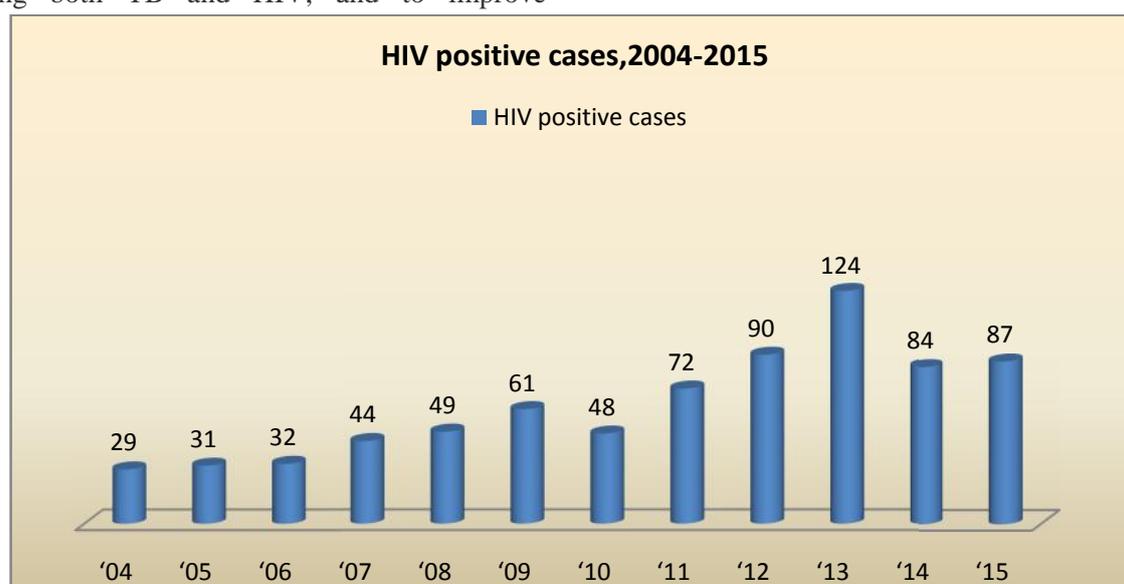


Figure 1. Distribution of HIV positive cases by years, 2004-2015

The number of HIV positive cases has increased in recent years. HIV infection is a serious public health problem.

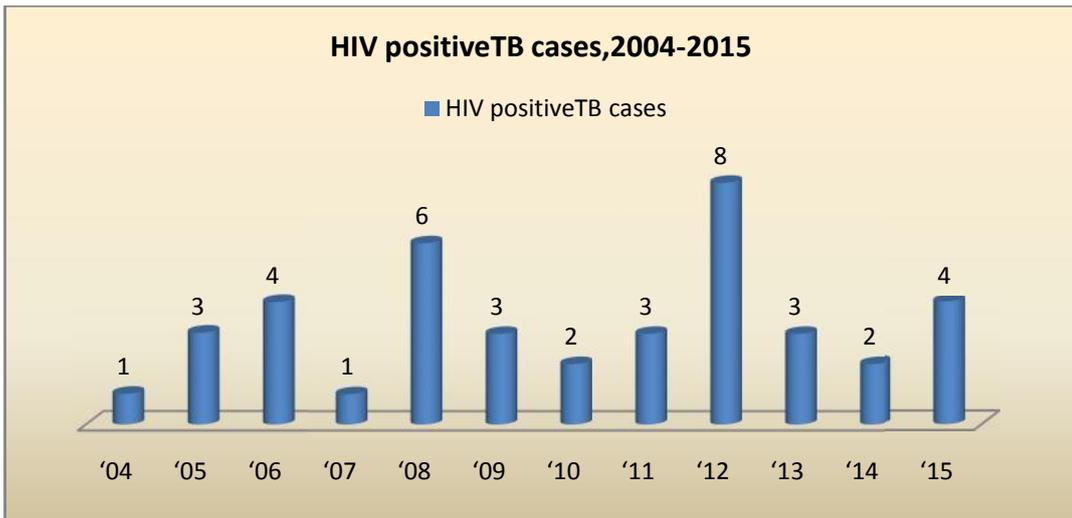


Figure 2. Distribution of HIV positive TB cases by years, 2004-2015

The number of HIV positive TB cases should be taken into consideration because it affects the epidemiology of HIV and TB and increases the burden of the co-infection. HIV infection and TB is a

serious public health problem. The co-infection HIV/TB is associated with numerous healths, social and economic problems.

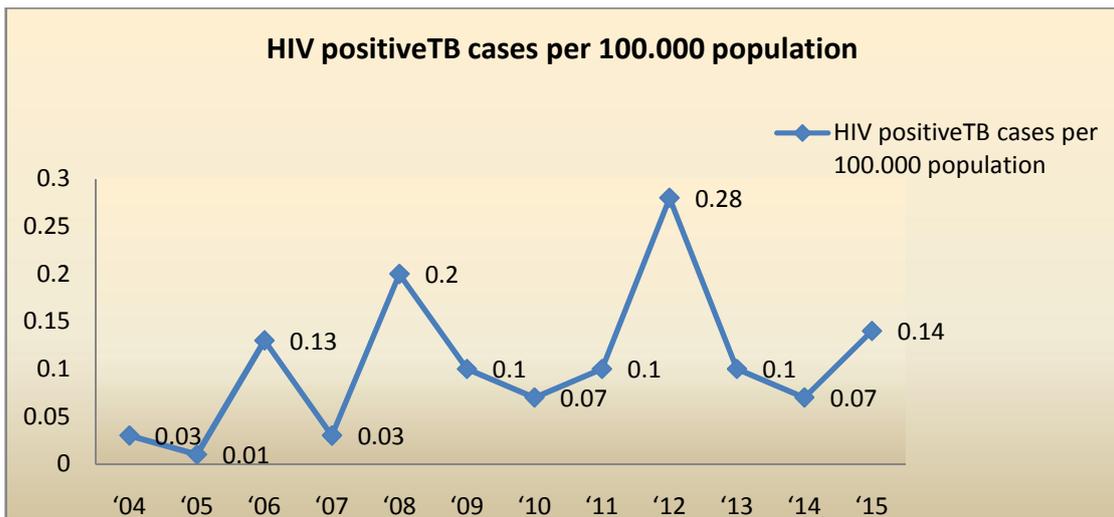


Figure 3. Incidence of HIV positive TB, 2004-2015

The year 2012, has the highest number of incident HIV positive TB cases followed by the year

2008 and 2015. HIV infection is a risk factor for Tuberculosis disease.

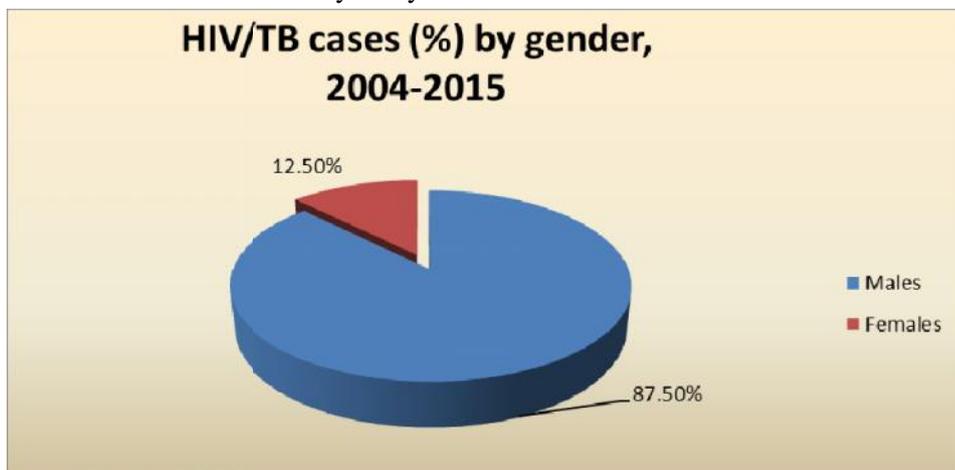


Figure 4. Distribution of HIV positive TB cases by gender, 2004-2015

By gender, TB in patients with HIV infection was 12.5 % (5/40) among women and 87.5 % (35/40) among men. More men than women are HIV and TB co-infected during 2004-2015. HIV and TB co-infection mainly affects men. The females – males ratio was 1 to 7.

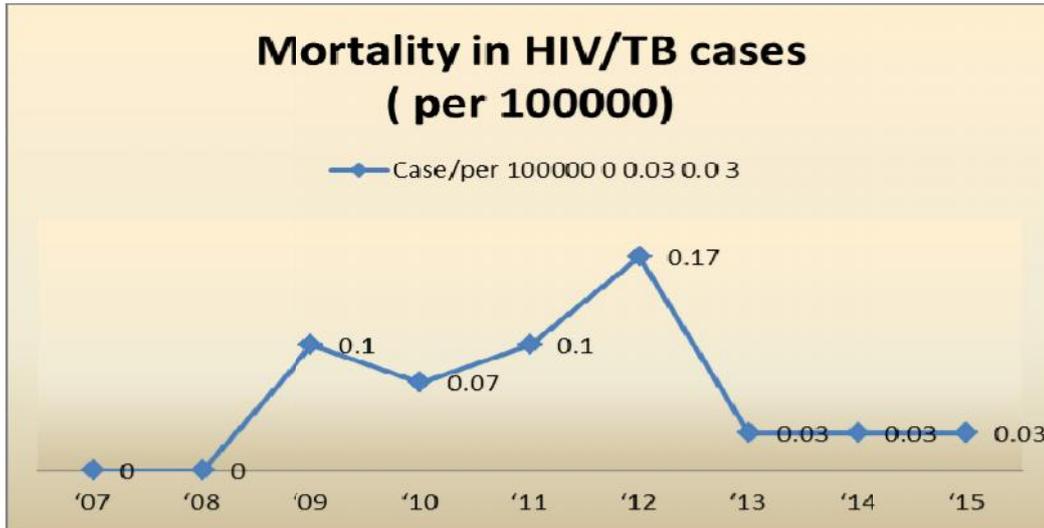


Figure 5. Mortality in HIV/TB co-infected patients

Specific weight of mortality in patients with HIV/TB co-infection during the period of time 2004-2015 was 45 % (18 cases out of 40 cases in total).

Death rates among co-infected patients are higher as HIV positive patients. More men than women died from HIV associated TB.

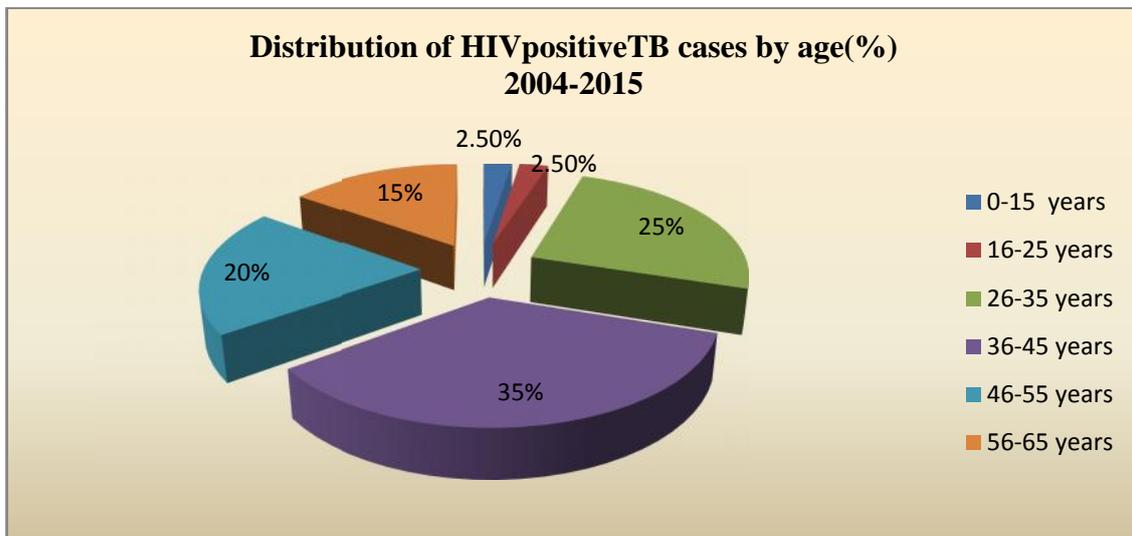


Figure 6. Distribution of HIV positive TB cases by age-groups, 2004-2015

For the period of time 2004-2015, the most affected age was 36-45 years old, followed by the age group 26-35 years old and 46-55 years old, respectively 35%, 25% and 20%. HIV and TB co-infection affects people in most productive age, when they are economically and reproductively active but all age groups are at risk.

Tuberculosis (TB) due to M.Bovis among HIV positive patients, 2004-2015

The level of TB due to M.Bovis among HIV positive patients was about 2.6 % (one case out of 39

HIV positive MTBC- Mycobacterium Tuberculosis Complex cases in total). The burden of disease due to M.Bovis is not high but should be considered because M.Bovis infection again continues remains a public health risk and impacts on the epidemiology of HIV and TB co-infection disease. The presence of M.bovis infection in HIV positive patients increases morbidity and HIV infection is the strongest risk factor for developing M.bovis disease.

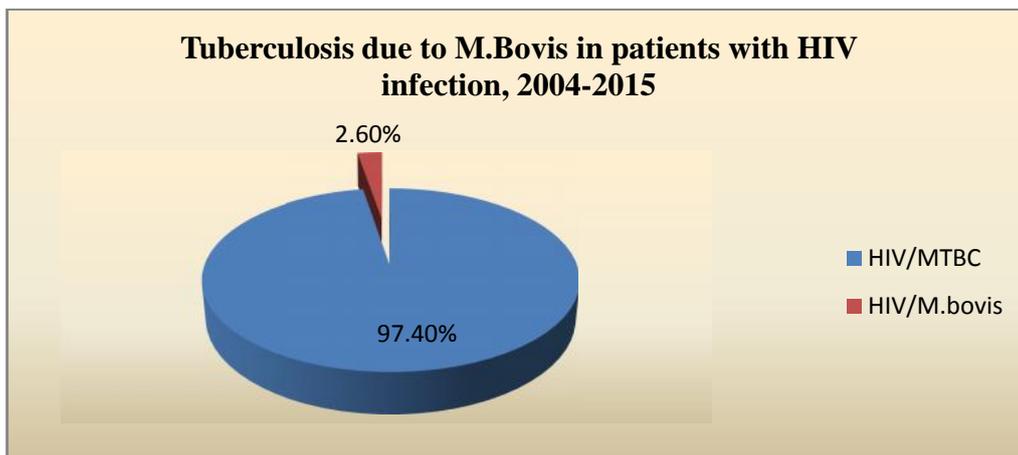


Figure 6. Tuberculosis (TB) due to M.Bovis among HIV positive patients, 2004-2015

4. Conclusion

The presence of M.bovis infection in HIV positive patients increases morbidity. M.Bovis infection again continues remains a public health risk and impacts people with HIV infection. HIV infection is the strongest risk factor for developing M.bovis disease.

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