volume 9 • number 2 • 2010 pages: 41–44 hiv & aids review

title

Tuberculosis in HIV-infected patients in the HAART era

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summary

Tuberculosis in one of the most common opportunistic infections in HIV infected patients. HIV promotes progression of Mycobacterium tuberculosis latent infection to active disease and in turn M tuberculosis enhances HIV replication. During eight year period 51 cases of tuberculosis was recognized in Department of Infectious Diseases and Hepatology in Bydgoszcz. Only 4 patients were on antiretroviral therapy and of those who never received antiretroviral treatment; 70% had a CD4 count >100 cells/ml at the time of tuberculosis, and the high proportion (25.4%) of patients were diagnosed with HIV infection concurrently with tuberculosis. Diagnosis was confirmed by isolation of Mycobacterium tuberculosis and by the detection of nucleic acids of pathogen in 96.1% patients. The sputum smear was positive only in 5 cases of pulmonary tuberculosis and in three cases of disseminated tuberculosis was the most common clinical manifestation of disease in study population. A total of 8 patients with pulmonary involvement the chest radiograph examination was normal. Tuberculosis in HIV infected patients is in spite of availability of antiretroviral therapy a serious medical and epidemiological problem.

key words

HIV infection, tuberculosis, antiretroviral therapy, immune reconstruction inflammatory syndrome

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INTRODUCTION

Tuberculosis is an important health problem. It is estimated that one-third of the world's population is infected with Mycobacterium tuberculosis. At present time infection with HIV is the leading risk factor for progression from latent or newly acquired infection to active disease. Although the risk of developing tuberculosis is reduced by 70–90% among patients receiving antiretroviral therapy, TB is still the most frequent AIDS defining illness and it is the leading cause of death among people with HIV infection (1, 2, 3, 4, 5, 6). Between 2002–2006 tuberculosis was the most often cause of AIDS diagnosis in Poland (7). Unlike to other opportunistic pathogens associated with AIDS, M. tuberculosis cause the disease in the absence of immune compromise and may occur in individuals with high level of CD4 cells count, but the frequency of active TB increases in patients with advanced immunosuppression. Since the beginning of the HAART era TB accounts 30% of cases HIV/AIDS-related immune reconstruction inflammatory syndrome (IRIS) especially in regions with high prevalence infections with HIV and M. tuberculosis. (8) This syndrome presents in two principal manners. The most common form occurs in 8–43% patients treated for tuberculosis who subsequently begin antiretroviral treatment and results in deterioration of clinical symptoms of TB (9, 10, 11). The second form occurs in patients as "unmasking" of previously subclinical or latent tuberculosis shortly after start antiretroviral treatment (12, 13, 14, 15).

The aim of the study was to evaluate the prevalence and outcome of tuberculosis in population of HIV-infected patients in Bydgoszcz.

MATERIAL AND METHODS

The study was conducted at Department of Infectious Diseases and Hepatology in Bydgoszcz. We performed a retrospective study based on a chart review of all HIV-infected patients with tuberculosis for whom treatment was started between 01.01.2001 – 31.05.2010. The following data were collected: age, sex, and clinical evaluation and microbiological examinations for M. tuberculosis. Data on HIV transmission category, CD4 cell count, viral load and history of antiretroviral treatment were also recorded.

RESULTS

From January 2001 to May 2010 tuberculosis was recognised in 51 HIV infected patients (fig. 1). Only two patients (3.92%) had been on antiretroviral therapy for 66 and 22 month before the tuberculosis onset. Two patients developed active tuberculosis as immune reconstruction inflammatory syndrome (IRIS) in four weeks after initiation of HAART.

Demographic and clinical data were summarized in the table No 1.

Table 1. Demographic and clinical data patients with active tuberculosis

Variable	
Male	47 (94%)
Female	3 (6%)
Age	32,7 (24–59)
CD4 count cells/ml (mean, range)	263.6 (4–560)
CD4 <50 cells/mL (%)	55%
HIV RNA mean (range)	1.3 X 105
ART (%)	5%
Known HIV status before TB	84%
Prior TB	3
HIV transmission category	
IDUs	39
MSM	4
Heterosexual contacts	9

The clinical picture of HIV related tuberculosis was quite variable among the evaluated patients. Clinical presentation was as follows: pulmonary tuberculosis in 35 patients, pulmonary Tb associated with lymphadenitis 7 of 51 patients, disseminated tuberculosis in 2, disseminated tuberculosis with central nervous system involvement in one patient, pulmonary and pleurisy in 5 cases. Tuberculin test was negative only in 9 cases (17%) mostly in individuals with CD4 <100 cells/ml.

In 44 patients diagnosis of tuberculosis was confirmed by isolation of M. tuberculosis in culture and by the detection of nucleic acids of M. tuberculosis in sputum, in two cases by culture in sputum and blood, in one case in cerebrospinal fluid blood and sputum. In two patients tuberculosis was confirmed by biopsy of lung in one and

Figure 1. Patients with HIV-related tuberculosis 2001 – 31. May, 2010 in Bydgoszcz