

Severe HIV-associated pulmonary Tuberculosis: 2006-2016



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Purpose

Globally, people living with HIV (PLHIV) are 19 times more likely to get tuberculosis (TB) and have severe forms of TB than people who do not have HIV. In 2015, an estimated 0.4 million PLHIV died of tuberculosis. Our objectives are to evaluate the clinical characteristics of severe pulmonary tuberculosis associated with HIV and to determine factors related to mortality.

Methods and Materials

This is a retrospective observational study conducted in a clinical cohort of patients with HIV-1/Aids. Among 1122 PLHIV admitted to the intensive care unit (ICU) of an Infectious Diseases Hospital in Buenos Aires city between 2006 and 2016, 135 of them, had diagnosis of Pulmonary Tuberculosis (PTB) verified by detection of acid fast bacilli in a respiratory specimen: sputum smear, bronchoalveolar lavage and others (Figure 1), mycobacterial culture, by clinical, radiological (Figure 2 and 3) or epidemiological suspicion. Comorbid diagnoses, clinical features, radiological and laboratory investigations, treatments and outcomes were reviewed from medical records. Univariate analysis was performed to identify factors related to death. We performed descriptive statistics on percentage (%), median, mean and range. A p value of <0.05 was considered significant

Results

The PTB incidence rate in the group studied was estimated at 0,12, increasing 85% from 2006 to 2016. The median/mean age were 40/38 years (range: 14-74 years), with a predominance of males (62%). The median duration of length of ICU stay was 7 (range: 1-35) days. 76% had evolved to Aids for more than a year. 95% presented hypoalbuminemia (< a 3,5 g/l), weight loss >10% in 6 last months and/or Karnofsky score ≤50. Only 10% were receiving highly active antiretroviral therapy (HAART). 7% had LT CD4 ≥200 cells/mm³, none of them died. 93% had LT CD4 <200 cells and 50% died. 19% present liver failure (LF) and 88% of them died. 8% were coinfectad with hepatitis C. Respiratory insufficiency (RI) was observed in 59% and 66% of them died. (Table 1) 42% (57/135) required mechanical ventilation (MV), 84% of them died versus 27% of those who not need MV. 84% had at admission an APACHE II score (Acute Physiology And Chronic Health Evaluation II) ≥13 points, 58% of them died. Overall mortality was 51% (69/135 patients). Evolution to Aids greater than a year, weight loss/ hypoalbuminemia/Karnofsky score (p= 0,05; OR= 5,574 [1,6335-49,04]), LT CD4 count (p= 0,01; OR= 8 [1,972-65,84]), mechanical ventilation (p= 0,000001; OR= 14,48 [6,064-34,56]), RI (p= 0,00001; OR= 4,785 [2,274-10,07]), LF (p=0,000007; OR= 10,5 [2,973-37,08]) and APACHE II score ≥13 (p= 0,00005; OR= 8,894 [2,488-31,79]) were significantly associated with mortality (p <0,05)

Table 1. Clinical features of PTB in PLHIV/Aids

Clinical features	Percentage (%)
Weight loss	95
Cough	98.1
Expectoration	75.3
Fever	80.7
Sweating	72.6
Headache	30
Hemoptysis	25
Liver failure	19
Respiratory insufficiency	59
Renal failure	15
Extrapulmonary tuberculosis	19.9
Hepatotoxicity	12

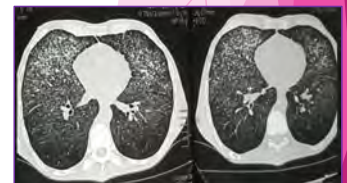
Fig. 1 Sputum smear microscopy



Fig. 2 Chest Xray shows a pattern that indicates hematogenic spread of the bacillus



Fig. 3 Chest axial computed tomography of a patient with PTB



Conclusion

A higher incidence of PTB in PLHIV/Aids in 2015-2016 was observed. Poor adherence to HAART, deficient immunological and nutritional status and severe PTB were associated with mortality. We encouraged to achieve a proper and early diagnosis and treatment of both pathologies, to improve prognosis of these patients

References

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