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Relationships among HIV status, PPD and CD4 in patients with AFB smear negative TB in Senegal

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Several studies from Africa have shown that HIV+TB patients are more likely to have negative smears for acid-fast bacilli (AFB-) than HIV- patients. We wondered if this difference was related to immune suppression as reflected in PPD size and CD4 counts. From Nov 1995 to Oct 1996, we studied 455 consecutive patients with respiratory disease admitted to two hospitals in Dakar, Senegal. Of these, 10 % were HIV+TB (all forms) was the most common diagnosis in both groups : 32/46 (70 % HIV+ vs 372/409 (91 %) HIV-. Of the patients with pulmonary TB, AFB- occurred among 13/30 (43 %) HIV+ vs 67/366 (20 %) HIV- (p= 0.006). The size of the PPD skin test reactions (mm) and CD4 counts (cells/mm^3) in AFB- patients were as follows :

The RR that a HIV+ patient with TB was AFB- compared with HIV- is 2.17 (1.37-3.45). The difference between HIV+ and HIV- was no longer significant after adjusting for the PPD reactions [RR= 1.28 (0.75-2.19)] but remained significant after adjusting for CD4 counts [RR= 4.63 (1.98-10.86)].

PPD	HIV+	HIV-	CD4	HIV+	HIV-
0-4	69%	12%	<200	61%	0%
5-9	8%	1%	200-500	31%	37%
>10	23 %	87%	>500	7%	63%
pts	13	67		13	64

These results indicate that, compared with HIV-, a higher % of HlV+TB patients are AFB-, and that AFB- is associated with the size of the PPD but not with CD4 counts.

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« Relationships among HIV1, HIV2 and pulmonary tuberculosis in a subsaharan community with high HIV seroprevalence

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Background : Several studies have shown that HIV-1 increases the incidence and lethality of pulmonary tuberculosis (TB). However, at a community level, there are no data on the relationship between HIV-2 and TB.

Objectives and Methods : In Bissau (Guinea-Bissau), where there is the highest HIV-2 seroprevalence in the world (7 % among adults) and an emerging epidemic of HIV-1, we carried out a community surveillance program in 3 sub-urban areas (Bandim, Belem and Mindara, total population = 45.000). All suspected cases of TB (cough over 3 weeks) were clinically, bacteriologically (3 AFB smears and culture) and radiographically investigated. HIV tests were obtained on consenting patients. Diagnosis of pulmonary TB was based on at least 2 sputum smears positive for AFB and/or culture positive for

Mycobacterium tuberculosis, or both clinical and radiographic improvment after treatment with anti-TB drugs in patients with negative srnears/culture and an initial failure to improve with antibiotics (Ampicillin or Cotrimoxazone).

Results : Between May 1996 and April 1997, 171 suspected cases over 15 years of age have been recruited. One-hundred-thirty-four cases have been classified as having pulmonary TB and 36 as having other pulmonary conditions, mainly suspected pneumonia. One case died before a diagnosis' wes established. HIV seroprevalence among TB cases was 14 % for HIV-1, 13 % for HIV-2 and 10 % for dual seropositivity. These prevalences were, respectively, 6 %, 17 % and 6 % among patients with other pulmonary conditions. Among the first 116 cases who were followed for at least 8 months or until death, mortality was 7 % (5/71) among HIV negative patients and 14 % (2/14), 20 % (4/20) and 27 % (3/11) among HIV-1, HIV-2 and HIV-1+2 positive individuals, respectively.

Conclusions : 1) The incidence of pulmonary TB (298 per 100 000) is high in this population.
2) Given the seroprevalence of the 3 different types of HIV present in the general community (6 % infected with HIV-2, 1 %, with HIV-1 and 1% with HIV-1+2, these data suggest that compared with the non-HIV-infected population, HIV-2 favors the development of pulmonary TB, but that HIV-2 is not as potent a risk factor as HIV-1.

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