HIV/AIDS AND TB

Studies Confirm What We Already Know: Improve Tuberculosis Control Programs

**Sub-Saharan Africa**


Sub-Saharan Africa has 70% of all humans infected with HIV; and TB is the main cause of death in these humans. In fact, 68% of the people co-infected with HIV and tuberculosis reside in sub-Saharan Africa. Because these epidemics are connected, WHO has pushed for merging and improving both tuberculosis and HIV/AIDS control programs.

**South Africa**


Highly active antiretroviral therapy (HAART) decreased the occurrence of HIV/AIDS associated-tuberculosis by more than 80% in South Africa. This study was the first to investigate the effects of HAART on tuberculosis in sub-Saharan Africa. The majority of patients in sub-Saharan Africa do not have access to HAART and the only way they can access such therapy is through participation in clinical trials. In the study, the risk of tuberculosis in patients lacking access to HAART was compared with the risk of tuberculosis in a population in Cape Town, South Africa who were receiving HAART by participating in phase III randomized trials. Altogether 770 patients were not receiving HAART and 264 patients were receiving HAART. During follow-up, 9 patients taking HAART were reported to have developed tuberculosis, compared with 82 patients not taking HAART. The study calculated an 81% decrease in the risk for tuberculosis in the HAART cohort. The results of this study support the WHO recommendation to increase antiretroviral therapy throughout sub-Saharan Africa and worldwide.

Another interesting aspect of the study involved the examination of how socioeconomic status also affected the risk of tuberculosis among HIV infected patients. According to study data 56% of patients in both the non-HAART and HAART cohorts were of low socioeconomic status: living in areas with high rates of tuberculosis infection and sub-par living conditions. This study not only recommended better medical treatment, but also an improvement in social and economic conditions.

**Zambia**


This study examined the impact of HIV/AIDS on mortality of patients treated for tuberculosis. The study was conducted in Lusaka, Zambia in 1989. At the time of the study, between 60% to 70% of young adults were infected with latent tuberculosis and nearly 70% of all newly diagnosed cases of tuberculosis were also infected with HIV. The study looked at what can be done to lower morality rates by examining the risk factors for death in patients with both TB and HIV/AIDS. Patients were followed for 2 years; during that time, 81 patients died. Of those 81 patients, 47 of them (42 had HIV/AIDS) had information about the cause of death. Three of the 5 non-HIV-infected patients died of active TB, and 14 of the HIV-infected died of active tuberculosis and 2 more patients died of complications of tuberculosis. The study concluded that humans with both TB and HIV/AIDS were 5 times more likely to die from TB. The authors of this study also described their struggle to complete this study because of issues with participant follow-up and compliance. However, all patients were equally affected by these difficulties. In conclusion, the authors suggested that the number of deaths among patients with both TB and HIV/AIDS could be reduced by 5 things: prevention of tuberculosis in HIV-infected patients by chemoprophylaxis, early diagnosis and treatment, the use of treatment regimens that will rapidly reduce the bacillary load, not using thiacetazone as it may cause severe cutaneous drug reactions,
and being aware of factors (such as severe diarrhea) that may reduce drug absorption. Each of these 5 suggestions encourages better healthcare management.


This meta-analysis examined the correlation between infection with HIV/AIDS and tuberculosis in sub-Saharan Africa. The study called for cooperation between tuberculosis control and HIV/AIDS control programs. Only a joint effort between programs can control and reduce the number of tuberculosis case fatality rates (CFR). The basis of the study was the increase in tuberculosis CFR in high HIV/AIDS prevalence populations in sub-Saharan Africa. In fact, it was shown that tuberculosis treatment is more effective in HIV-negative pulmonary tuberculosis patients. This study confirmed that in Malawi, tuberculosis CFR increased from 6% in 1987 to 21% in 1996; humans with HIV/AIDs also increased at that time, from 26% in 1986 to 77% in 1996. The study results also showed that tuberculosis CFR are higher in HIV-positive patients than in HIV-negative patients. One theory behind the increase tuberculosis CFR in populations with high HIV rates is that tuberculosis control and care had deteriorated due to inadequate supplies and healthcare workers; neither could keep up with the increase in tuberculosis-HIV co-infections. The decline in efficient healthcare results in delays in diagnosis and treatment, which ultimately increases CFR.

Post-mortem examinations are not routinely performed in sub-Saharan countries. This makes understanding disease progression and outcomes difficult. Similar to other studies, this study also called for improving healthcare services, tuberculosis control services, HIV/AIDS control, and combined tuberculosis and HIV/AIDS services. Improved health services will allow for early tuberculosis diagnosis and effective treatment which is vital to decreasing tuberculosis mortality rates. Finally, the study also called for improvements in HIV/AIDS education to decrease its transmission, which will also decrease tuberculosis cases and CFR. Specifically, the study recommended that highly active antiretroviral therapy (HAART) becomes standard treatment for all HIV-infected patients throughout the world.


The authors of this study reported calculations that in 2000, throughout Africa, 31% of adults with TB were attributable to HIV. In South Africa alone, more than 60% of patients with TB are also infected with HIV.


The incidence of TB in sub-Saharan Africa increased with the growing number of humans living with HIV/AIDS. A study from 1996 studied the trends in the prevalence of tuberculosis in sub-Saharan Africa since 1975. The study included 20 countries in sub-Saharan Africa. Even back then, study results showed the correlation between tuberculosis and HIV/AIDS. The study found that since 1985 the number of humans infected with tuberculosis increased throughout sub-Saharan Africa. The increase in tuberculosis prevalence correlated with the increase in HIV/AIDS prevalence. The study also showed that as the quality of national TB control programs improved, the number of humans infected with tuberculosis decreased.

Thus, even in 1996, this study called for increased spending to improve national TB control programs so that the number of humans infected with TB would decline, even in a region with high HIV infection prevalence.

Before 1985, the study noted a decrease (-1.6% per year) in the prevalence of tuberculosis in sub-Saharan Africa. After 1985, the number of tuberculosis cases in the 20 countries included in this study increased (+7.7% per year). Similarly, after 1985 the number of humans infected with TB increased in the 20 countries with high prevalence of HIV infection (+12.7%).

After 1985, the study showed that in countries with poor quality national TB control programs, the number of humans infected with tuberculosis was double that in countries with average quality national TB control programs, and triple that in countries with high quality national TB control programs. The quality of the programs was based on surveillance abilities, cure rates, and program methodology and data. A high quality national TB control program provides faster and better treatment. This study was the first of its kind to assess tuberculosis trends by taking into account HIV infection rates. The study results were clear that the increase in the number of humans infected with TB occurred simultaneously with the increase in HIV infections. Finally the study showed that any patient with HIV/AIDS improved program quality can prevent tuberculosis transmission, and death.

By E Pierce MS