

AIDS brief



Starting HIV treatment reduces risk of tuberculosis, even for patients with higher CD4 cell counts

MICHAEL CARTER

Starting antiretroviral therapy reduces the risk of tuberculosis for HIV-positive adults in developing countries by 65%, according to the results of a meta-analysis published in *PLoS Medicine*. The benefits of HIV therapy were significant at all CD4 cell counts, including above 350 cells/mm³, the current World Health Organization (WHO) threshold for initiation of antiretroviral treatment. The investigators therefore believe that their findings should be taken into account when therapy at higher CD4 cell counts is being considered.

HIV is the biggest risk factor for TB and has contributed to the resurgence of the disease, especially in resource-limited settings. In 2010, there were an estimated 1.1 million new cases of TB in people with HIV. An estimated 900 000 cases were in people living with HIV in Africa.

WHO guidelines issued in 2009 recommended antiretroviral therapy for people with a CD4 cell count below 350 cells/mm³ and for all HIV-positive individuals with TB.

Since then, studies have been published that suggest that the scaling-up of HIV

treatment could contribute to the control of the TB epidemic. Investigators wanted to get a clearer understanding of the impact of starting antiretroviral therapy on the risk of TB. They therefore conducted a systematic review and meta-analysis of published studies that addressed this question.

The investigators restricted their search to research conducted in developing countries. Studies were eligible for inclusion if they compared the incidence of TB in HIV-positive adults according to their use of antiretroviral therapy. All the studies had at least six months of follow-up.

A total of 11 studies met the investigators' inclusion criteria. Four were conducted in sub-Saharan Africa; four were from South America; one was conducted in the Caribbean; and one was from a combination of regions (sub-Saharan Africa, South America and Asia).

The methodological quality of four studies was rated as high; five were of medium quality; and three were of low quality. The meta-analysis of the findings of all 11 studies showed that antiretroviral therapy was strongly associated with a reduction in the incidence of TB, regardless of CD4 cell count (HR=0.35; 95% CI 0.28 - 0.44; $p < 0.001$).

Two studies involved people with a CD4 cell count below 200 cells/mm³. Their combined results showed that antiretrovirals reduced the risk of TB by 84% (HR=0.16; 95% CI 0.07 - 0.36; $p < 0.001$).

A total of four studies involved people with CD4 cell counts between 200 and 350 cells/mm³. When combined, their results showed that HIV therapy reduced the risk of TB by 66% (HR=0.34; 95% CI 0.19 - 0.60; $p < 0.001$).

Starting HIV therapy with a CD4 cell count above 350 cells/mm³ also had a significant impact on the incidence of TB. The combined results of the three studies which involved people with CD4 cell counts above this level showed that starting therapy

reduced the risk of TB by 57% (HR=0.43; 95% CI 0.30 - 0.63; $p < 0.001$).

'This systematic review indicates that antiretroviral therapy is strongly associated with a reduction in tuberculosis incidence in adults with HIV across all CD4 cell counts,' comment the authors. 'Our key finding that antiretroviral therapy has a significant impact on preventing tuberculosis in adults with CD4 counts above 350 cells/mm³ is consistent with studies from developed countries and will need to be considered by healthcare providers, researchers, policy makers, and people living with HIV when weighing the benefits and risks of initiating antiretroviral therapy above 350 cells/mm³.'

Suthar AB, et al. Antiretroviral therapy for prevention of tuberculosis in adults with HIV: a systematic review and meta-analysis. *PLoS Medicine* 9(7):e1001270, 2012.

Article courtesy of www.aidsmap.com