CD4 count is non-inferior to viral load for treatment switching in adults with HIV

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For adults infected with HIV in Thailand a monitoring strategy based on CD4 count (a type of white blood cell) is non-inferior to the recommended monitoring strategy measuring the amount of HIV virus in a patient's blood, to determine when to switch from first-line to more costly second-line antiretroviral treatment according to a clinical trial published this week in *PLOS Medicine*.

The study was conducted by an international team of researchers led by Marc Lallemant from Chiang Mai University, Thailand and the Harvard School of Public Health, United States and provides reassurance for health centres in resource-limited setting using CD4 counts alone to monitor treatment of patients with HIV.

The clinical trial included 716 adult patients with HIV in Thailand who were starting antiretroviral therapy for the first time. The amount of HIV virus in the patients' blood (known as viral load) as well as CD4 count was measured for each patient every 3 months but for patients randomized to one of the clinical trial's arms physicians only had access to CD4 counts to measure response to therapy and determine whether to switch to second-line anti-HIV drugs, whereas the other arm used both viral load and CD4-count to monitor treatment and viral load measurements were used to determine whether to switch antiretroviral drugs or not. The researchers followed-up the patients for three years after they initiated treatment and compared the number of patients with clinical failure (a very low CD4 count, the onset of AIDS, or death) between the two arms. Overall, 58 patients (30 in the viral load arm and 28 in the CD4 count arm) reached the primary endpoint of clinical failure, which meant that the cumulative risk of clinical failure at 3 years was not statistically different between arms using the different monitoring strategies.

The researchers also found that the probability of a treatment switch was similar in the two arms, but the average time from treatment initiation to treatment switch and the average duration of a high viral load after treatment switch were both longer in the CD4 arm than in the viral load arm. Finally, the future-drug option score, a measure of viral drug resistance profiles, was similar in the two arms at the time of treatment switch.

The authors say, "These findings confirm that access to life-saving [antiretroviral] treatment should continue to be expanded even in settings without virological monitoring, and provide reassurance to treatment programs currently based on CD4 monitoring alone, as [viral load] measurement becomes more affordable and feasible in resource limited settings."

More information: Jourdain G, Le Coeur S, Ngo-Giang-Huong N, Traisathit P, Cressey TR, et al. (2013) Switching HIV Treatment in Adults Based on CD4 Count Versus Viral Load Monitoring: A Randomized, Non-Inferiority Trial in Thailand. *PLoS Med* 10(8): e1001494. doi:10.1371/journal.pmed.1001494

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