Starting treatment soon after HIV infection improves immune health, study finds

24 November 2014

HIV-1-infected U.S. military members and beneficiaries treated with antiretroviral therapy (ART) soon after infection were half as likely to develop AIDS and were more likely to reconstitute their immune-fighting CD4+ T-cells to normal levels, researchers reported Nov. 24 in *JAMA Internal Medicine.*

Other immune benefits of starting treatment early and reaching a normal CD4+ T-cell count on therapy were also reported, including reductions in the activation state of T-cells, which influences HIV disease course, and improvements in the ability to mount robust immune responses such as a better response to hepatitis B vaccine. In a previous report published in 2013 in *The New England Journal of Medicine,* the authors defined a normal CD4+ T-cell count as values above 800 cells per cubic millimeter. In the current study, they report that the two conditions that favored reaching a normal CD4+ count were initiation of treatment within 12 months of seroconversion and having CD4+ T-cell counts greater than 500 cells per cubic millimeter at the time of commencing ART.

The study, which included authors from the School of Medicine at The University of Texas Health Science Center at San Antonio; the Veterans Affairs (VA) Research Center for AIDS and HIV-1 Infection and the VA Center for Personalized Medicine at the South Texas Veterans Health Care System; and the Uniformed Services University of Health Sciences, utilized U.S. Army, Air Force, Marines and Navy treatment and outcomes data of more than 1,100 soldiers and beneficiaries diagnosed with HIV-1.

"The immune system can be reconstituted most effectively and durably if ART is initiated quickly after infection," said senior author Sunil K. Ahuja, M.D., professor of medicine, microbiology/immunology and biochemistry in the School of Medicine at the UT Health Science Center San Antonio. Dr. Ahuja is director of the VA centers listed above. The research affirms the importance of a public health strategy that includes frequent testing for HIV infection in persons at risk of acquiring HIV, and prompt initiation of ART soon after infection, regardless of the CD4+ count at time of diagnosis, the authors wrote. "While the practice has been to generally defer ART till CD4+ counts decline to less than 500 cells per cubic millimeter, our results suggest that any delay in ART even in people maintaining higher levels of CD4+ counts impairs their ability to subsequently normalize CD4+ T-cell counts," Dr. Ahuja said.

Current recommendations focus on suppressing the virus. "Drug regimens have become much more potent, so it is possible to suppress HIV quite easily," Jason F. Okulicz, M.D., a first author of the study, said. "We are suggesting that achieving normalization of immunologic health comparable to that of an uninfected person, and making it stick for the long term, is also a critical goal. Conceivably this level of normalization of CD4+ counts will associate with a dampening of the risk for non-AIDS-related diseases we see frequently in our patients." Dr. Okulicz is the director of the HIV Medical Evaluation Unit at the San Antonio Military Medical Center and provides HIV care for all active-duty Air Force members. He also oversees HIV care for Army and Navy members, retirees and military beneficiaries.

"These studies also reflect a wonderful long-standing collaboration between investigators at the Veterans Administration and the UT Health Science Center and those at the San Antonio Military Medical Center," Dr. Ahuja said. "I have cherished this scientific partnership."

More information: JF Okulicz et al. Influence of the timing of antiretroviral therapy on the potential for normalization of immune status in human immunodeficiency virus 1-infected individuals. *JAMA Internal Medicine* DOI: 10.1001/jamainternmed.2014.4010 (2014).

Provided by NIH/National Institute of Allergy and Infectious Diseases