Starting HIV Treatment Early Might Reduce Arterial Stiffness

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Initiating antiretroviral (ARV) therapy when the CD4 cell count is above 350 is associated with a reduced risk of arterial stiffness, according to a University of California at San Francisco study published ahead of print online by the journal AIDS. Though the study's design prevents drawing firm conclusions, the data may provide initial evidence that starting ARV treatment before CD4 cell counts drop may be a way to reduce cardiovascular disease (CVD) risk among people living with HIV.

Several studies have demonstrated potential benefits associated with starting ARV therapy before the CD4 cell count becomes compromised, including prolonged survival, reduced cancer incidence rates and improved immune system functioning. It remains unknown, however, whether starting ARV treatment earlier—before the CD4 count falls below 350—reduces CVD risk.

Following up on a handful of studies suggesting that, under certain conditions, ARV therapy may reduce the risk of CVD, investigators at UCSF under the direction of Jennifer Ho, MD, conducted measures of arterial stiffness in 80 HIV-positive men who started ARV treatment at different CD4 cell counts. Evidence of arterial stiffness, the researchers wrote, is linked to early stage hardening of the arteries (osteoporosis)—a known risk factor for CVD.

All of the men in the study had undetectable viral loads for at least one year at the time of the study, 65 of whom began ARV treatment when their CD4 cell counts were below 350. Of note, traditional risk factors for CVD were common in the study. Among those who started treatment with fewer than 350 CD4 cells, for example, 39 percent had elevated blood pressures, 43 percent had diabetes, 60 percent were either cigarette smokers or had a history of smoking, and 19 percent had a family history of heart disease.

After adjusting the data to account for traditional CVD risk factors, along with other potential HIV risk factors—such as longer duration of HIV infection and longer duration of protease inhibitor use—patients' pre-treatment CD4 counts were found to predict arterial stiffness.

"Our data show that advanced immunodeficiency as represented by a [lowest-ever CD4 cell count] below 250 is independently associated with increased arterial stiffness," Ho's group wrote. "Although it is not possible to conclude from our cross-sectional study that earlier initiation of [ARV treatment] may help reduce cardiovascular disease, our study results provide important initial evidence that might support the further pursuit of prospective studies addressing this question."