Accelerated Aging of Blood Vessels Linked With Increasing CD4s

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Paradoxically, the higher a person's CD4 count, the more likely they were to have signs of accelerated aging of their blood vessels, according to a study published in the December 1 issue of *Clinical Infectious Diseases*.

Numerous studies have now shown that people with HIV are at an increased risk, at a younger age, for developing cardiovascular disease (CVD). Research has focused mostly on factors such as increased cholesterol levels, the development of plaques in arteries (arteriosclerosis) and elevated blood pressure in people living with HIV. What hasn't been explored in detail is whether HIV is associated with rapid aging of the blood vessels, characterized by a buildup of calcium in the arteries immediately outside the heart.

To explore the possibility of more rapid blood vessel aging in people living with HIV, Giovanni Guaraldi, MD, from the University of Modena and Reggio Emilia, in Modena, Italy, and his colleagues conducted computed tomography (CT) scans to measure calcium accumulation in the hearts of 400 HIV-positive people at an Italian HIV clinic. Most were men, and the average age was 48.

Guaraldi and his colleagues found signs of accelerated coronary aging in 40 percent of the study participants. According to the authors, this rate was far higher than would be expected in a group of similar HIV-negative patients.

In the first, most simple analysis, a number of factors were associated with accelerated blood vessel age, including sex, blood pressure, CD4 count and cholesterol. When all factors were taken into account, the most highly predictive factor for accelerated coronary aging was an increasing CD4 count at the time of testing. For every 100 CD4 cells, the authors estimated one less year of life. This was an unexpected finding and contradicts other studies. The authors explain that it could be due to an increase in inflammation from the additional CD4 cells—this has been shown in mice—but they acknowledge that this is speculative and the results will need to be repeated.

The authors acknowledge that the study was limited in that it only looked at coronary calcium levels once in each of the volunteers, making it impossible to determine how quickly calcium accumulation was occurring. They also did not have a reliable database of HIV-negative Italian patients to use as a comparison; as a result, they had to depend on German and North American

data.

If future studies duplicate their findings and can link coronary age with actual cardiovascular events such as heart attacks, the authors suggest that heart scans might be a useful diagnostic tool for people living with HIV. Presently, heart scans are not considered to be a routine medical test for CVD, in either HIV-negative or HIV-positive individuals.

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