Primary Predictor of Immune Recovery Is CD4 Count at Start of HIV Treatment

Starting treatment within four months of infection also predicted a better resurgence of CD4 cells.

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An individual's CD4 count upon starting antiretroviral (ARV) treatment for HIV is the strongest predictor of his or her immune system's subsequent recovery, aidsmap reports. A recent study also found that those who begin ARVs within four months of contracting the virus are more likely to see a strong recovery of their immune system.

Publishing their findings in HIV Medicine, researchers from the CASCADE study conducted an observational study of 7,600 people with HIV who received care for the virus between 2003 and 2014 and about whom there were sufficient data to estimate the date of seroconversion. The median date when the individuals contracted HIV was May 2006. The database on the participants included 39,255 CD4-count test results from before they started ARVs and 61,487 results from after they started treatment.

Three quarters of the participants were men who have sex with men (MSM), 5 percent were coinfected with hepatitis C virus (HCV) and about two out of three began ARVs a year or more after contracting HIV. The median viral load when the individuals began treatment was 70,000.

During the first two to three months after starting treatment, the participants saw rapid increases in their CD4 levels. Most saw additional increases during the subsequent five years.

The study authors concluded that the most important factor for predicting the ultimate strength of the CD4 rebound was the CD4 count when an individual began treatment. In other words, lower baseline CD4 counts spelled a lower likelihood of reaching a particularly high CD4 rebound.

After taking into account the baseline CD4 count, the researchers found that having a higher viral load at the time of starting ARVs was also associated with a greater rebound in CD4 cells. Other factors that apparently had modest effects on the immune system's rebound included having sex between men as an HIV risk factor rather than heterosexual contact (meaning MSM had stronger rebounds), being younger than 20 compared with being older than 60, not having hep C compared with having that virus, and taking an integrase inhibitor compared with taking a non-nucleoside reverse transcriptase inhibitor.

The study authors took into account uncertainties about the exact time that individuals contracted HIV and concluded that those who began ARVs within four months of contracting the virus were more likely to have a stronger CD4 rebound than those who initiated treatment at a later time.

To read the aidsmap article, click here.

To read the study abstract, click here.

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