# Maintaining Higher CD4s Protects Against Brain Damage

February 23, 2010 By David Evans

People who are able to maintain CD4 counts above 350 have a lower risk of developing brain damage. This conclusion, based on an analysis of data from a large cohort study, was presented as a poster February 16 at the 17th Conference on Retroviruses and Opportunistic Infections (CROI) in San Francisco.

The CNS HIV Antiretroviral Therapy Effects Research (CHARTER) study is a large cohort following 1,562 people living with HIV who are at various stages of disease and who have different histories of antiretroviral (ARV) therapy use. CHARTER is exploring relationships between HIV and the central nervous system (CNS), and the study is being conducted at six research sites across the United States.

The poster presented at CROI examined how a person's lowest ever (nadir) CD4 cell count influenced the risk of developing HIV-associated neurocognitive disorder (HAND), which can include impairment in thinking and memory. Ronald Ellis, MD, PhD, from the University of California in San Diego (UCSD), presented the data on behalf of the CHARTER team.

Ellis and his colleagues included 1,525 of the CHARTER study's participants in their analysis. Of the participants, the average age was 43, most were male, and most had been living with HIV for about 10 years. The participants were segmented by their lowest ever CD4 count, with a secondary analysis looking only at people on ARV therapy with a viral load less than 50 copies.

Ellis's team found that while HAND was fairly common in their cohort, people whose CD4 counts stayed high were a lot less likely to develop HAND. The team looked at the prevalence of the condition in people whose CD4 nadir was less than 50 and then calculated the decreased likelihood of developing HAND as the CD4 nadir increases.

When looking at all the participants, researchers found that people with a CD4 nadir between 50 and 199 cells were 14 percent less likely to develop HAND than people with a CD4 nadir less than 50 cells. People whose CD4 nadir was between 200 and 349 cells were 22 percent less likely, and those with a nadir of 350 cells and over were 38 percent less likely to develop HAND.

The results were even more striking when the analysis was restricted to people taking ARV therapy and had viral loads less than 50 copies per milliliter (mL). Having a CD4 nadir between 50

and 199 cells decreased the likelihood of developing HAND by 20 percent, compared with people whose CD4 nadir was less than 50 cells. When the CD4 nadir was between 200 and 349 cells, the likelihood of HAND was reduced by 40 percent, and when the nadir was 350 or higher, the risk dropped by 45 percent.

Ellis and his colleagues conclude that their data support the recent change in HIV treatment guidelines urging earlier ARV therapy. They suggest that clinicians try to identify people earlier in the course of HIV infection to help protect against HAND and other complications. The researchers also acknowledge that further studies will be needed to confirm whether ARV therapy—especially if started early—actually prevents HAND.

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http://beta.docker.poz.com/article/hand-neurological-brain-18051-6941