Longer Duration of HIV Infection Might Increase the Risk of Brain Disorders

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The longer a person lives with HIV, the more he or she might be at risk of neurocognitive impairment (NCI), according to a study presented Thursday, July 22, at the XVIII International AIDS Conference (IAC), taking place July 18 to 23 in Vienna. This is one explanation offered by Igor Grant, MD, from the University of California at San Diego, and his colleagues from the CHARTER study, for their finding that NCI is more prevalent now, in the modern era of combination antiretroviral therapy (CART) than in the pre-CART era.

A number of studies in recent years have shown that people with HIV appear to be at significantly higher risk of NCI than their age-matched HIV-negative counterparts. Though a majority of HIV-positive people with NCI have such minor impairment that it is not noticeable to them, a fair percentage do have more significant impairment. Moreover, researchers don't yet know what will happen to people with mild impairment over time, nor how much the duration of a person's HIV infection predicts the NCI risk.

To help answer some of these questions, Grant and his colleagues examined data from the CHARTER study, one of the world's largest and most intensive studies on the cognitive effects of HIV. Specifically, Grant's team examined the records of 857 people from the pre-CART era (1990 to 1995). Of these, 179 were HIV negative, 516 had HIV, but not AIDS, and 162 had AIDS. These participants were compared with a second group from the CART era (2000 to 2007), which included 94 HIV-negative people, 336 with HIV but not AIDS, and 506 with AIDS. Though the two groups were similar in most respects, people in the CART era were at least several years older, on average, than those in the pre-CART era.

Despite the high prevalence of AIDS-related dementia in the pre-CART era, the authors found that people in the CART era were actually more likely to have NCI than people in the pre-CART era (40 percent compared with 33 percent). Moreover, they found that the most profound difference in NCI rates fell in people without AIDS. In these individuals, 36 percent of those in the CART era had NCI, compared with 29 percent in the pre-CART era. There were no significant differences in NCI rates between the pre-CART and CART era participants who had more advanced disease.

The estimated duration of HIV infection was significantly longer in people in the CART era (9.9 years) than in the pre-CART era (2.8 years). Among people in the CART era, the longer the duration of HIV infection, the more likely a person was to develop NCI.

Though the authors stated that further research, particularly brain imaging and tissue studies, is needed to help explain their findings, they conclude that, “NCI remains prevalent despite CART. Of interest, more post-CART non-AIDS cases have NCI than pre-CART. This suggests the negative CNS effects of longer survival in a pre-AIDS state during which the brain remains exposed to repeated fluxes in HIV and/or chronic immune stimulation.”
