

Study finds high CD4 cell counts associated with reduced risk of ischemic stroke for those with HIV

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A 15-year study found that HIV-positive individuals had a 40 percent increased risk of ischemic stroke, however stroke rates were nearly the same for HIV-positive individuals with high CD4 cell counts as for HIV-negative subjects.

The study, published recently in *AIDS*, the official journal of the International AIDS Society, covered the years 1996 through 2011 and included nearly 25,000 HIV-positive individuals.

Ischemic stroke is caused by plaque build-up in blood vessels, which can lead to constriction or actual obstruction of blood and oxygen flow to the brain. A CD4 [cell count](#) below 500 is considered a sign of a weakened immune system as it indicates lower numbers of white blood cells that fight infections and inflammation.

"Recent CD4 cell count was the strongest HIV-specific risk factor, suggesting an effect of current immunodeficiency on ischemic [stroke risk](#)," said senior author Michael J. Silverberg, PhD, MPH, an investigator with the Kaiser Permanente Division of Research in Oakland, California. "Notably, HIV-positive individuals with recent CD4 cell counts of 500 or more had no excess risk of ischemic stroke compared with HIV-negative individuals."

If the association between immunodeficiency on ischemic stroke risk is

causal, the researchers concluded, early and consistent treatment with antiretroviral therapy to maintain immune function, combined with mitigation of [stroke risk factors](#), may result in a similar risk of ischemic stroke among HIV-positive individuals compared with the general population.

"Our results suggest that maintenance of [immune function](#) may protect against ischemic stroke," said lead author Julia L. Marcus, PhD, MPH of the Division of Research. "Given recent calls to reduce or abandon CD4 monitoring among HIV-positive individuals with viral suppression, our data suggest that the CD4 cell count may be useful beyond its role in HIV disease monitoring."

The researchers found that, while [ischemic stroke](#) rates were higher over the entire study period, rates among HIV-positive individuals converged with rates for demographically-similar HIV-negative individuals by 2010-2011. A similar improved trend in risk of heart attack was observed previously in this same study cohort.

"As awareness of cardiovascular complications associated with antiretroviral therapy has increased, improved risk-factor management among HIV-positive individuals may have contributed to a decreasing risk over time," said co-author Daniel B. Klein, MD, chief of infectious diseases for Kaiser Permanente San Leandro. "It may also be that stroke risk has been mitigated by the earlier and wider use of [antiretroviral therapy](#) regimens with less cardiovascular risk."

Provided by Kaiser Permanente

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