

# HIV subtype linked to increased likelihood for dementia

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Patients infected with a particular subtype of HIV, the virus that causes AIDS, are more likely to develop dementia than patients with other subtypes, a study led by Johns Hopkins researchers shows. The finding, reported in the September *Clinical Infectious Diseases*, is the first to demonstrate that the specific type of HIV has any effect on cognitive impairment, one of the most common complications of uncontrolled HIV infection.

HIV occurs in multiple forms, distinguished by small differences in the virus' [genetic sequence](#) and designated by letters A through K. Certain subtypes appear to cluster in particular areas of the world, and others have been associated with different rates of progression to full blown AIDS. Of the 35 million people living worldwide with HIV, the majority live in sub-Saharan Africa, where subtypes A, C and D dominate.

Nearly half of patients with advanced HIV infections have at least mild cognitive impairments, and about 5 percent have the severe form of cognitive impairment known as [dementia](#).

In earlier research, Ned Sacktor, M.D., and his colleagues found that about 31 percent of patients visiting an infectious disease clinic in the Ugandan capital, Kampala, where subtypes A and D dominate, had dementia. The finding led him and his team to wonder whether patients with different subtypes had different rates of dementia.

Sacktor, professor of neurology at the Johns Hopkins University School

of Medicine and a clinician at the Johns Hopkins Bayview Medical Center, and his colleagues studied 60 HIV-infected patients from a Kampala clinic. All of the subjects had been part of a different study testing the effect of anti-retroviral drugs on [cognitive impairment](#), but had not begun taking the drugs. After determining each patient's HIV subtype, they performed a battery of neurological and cognitive tests to assess each patient's brain function.

As expected, the majority of the patients had [HIV](#) subtypes A or D. Out of the 33 subtype A patients, the researchers determined that seven had dementia, or about 24 percent. However, out of the nine patients with subtype D, 8 had dementia, about 89 percent.

"We were amazed to see such a dramatic difference in dementia frequencies between these two subtypes," Sacktor says. "If this is the case in all of sub-Saharan Africa, HIV-associated dementia may be one of the most common, but thus far unrecognized, dementias worldwide."

The research suggests that some biological property of each subtype seems to influence the likelihood that infected patients will develop dementia, says Sacktor. He and his team hypothesize that subtype D may cause more inflammation and injury in the brain, a possibility they are currently investigating.

Source: Johns Hopkins Medical Institutions

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