

Neurologic symptoms common in early HIV infection much more extensive, though milder than previously thought

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A team led by researchers from UC San Francisco and Yale has found that half of people newly infected with HIV experience neurologic issues. These neurologic findings are generally not severe and usually resolve after participants started anti-retroviral therapy.

"We were surprised that neurologic findings were so pervasive in [participants](#) diagnosed with very recent HIV infection," said study lead author, Joanna Hellmuth, MD, MHS, clinical fellow in UCSF's Department of Neurology. "While the findings were mild, it is clear that HIV affects the [nervous system](#) within days of infection. Since the majority of these neurologic issues were resolved with treatment, our study reinforces recommendations that people at risk for HIV test often and start [antiretroviral treatment](#) immediately if they are infected."

The research will be published in the June 10, 2016, issue of *Neurology*, the medical journal of the American Academy of Neurology.

The team examined 139 participants in the RV254 Thai cohort who were recently infected with HIV. The time from infection to entry into the study ranged from 3 to 56 days with a median of 19 days. At this stage, participants would not test positive on the common antibody tests for HIV since they have not been infected long enough for a robust [specific immune response](#) to take place. Fifty-three percent had neurologic findings, with a third experiencing cognitive deficits, a

quarter having motor issues, and nearly 20 percent experiencing neuropathy. Many experienced more than one symptom. One participant was diagnosed with Guillain-Barré Syndrome, the only severe case found in the cohort.

"In the early days of the epidemic in San Francisco, approximately 10 percent of patients with recent HIV infection presented with dramatic neurological disease. But that was likely due to patients coming in early because of the severity of symptoms they were experiencing. The Thai cohort has given us an opportunity to look at a broad range of newly infected patients, analyze their neurological functioning systematically and follow them over time. We are gaining deeper insights into the degree to which early HIV affects the nervous system," said study senior author, Serena Spudich, MD, Yale associate professor of neurology.

All participants were offered and commenced antiretroviral treatment at diagnosis. Ninety percent of the issues present at diagnosis were resolved after one month of treatment, but 9 percent of the participants had neurologic symptoms that were still not resolved six months after starting therapy. In addition, neurological symptoms were associated with higher levels of HIV found in participants' blood.

The study participants underwent extensive neurologic assessments. Self-reported symptoms were correlated with objective neuropsychological testing. In addition, a quarter of participants opted to undergo a lumbar puncture and almost half of the patients agreed to undergo a MRI.

"This is one of the first comprehensive studies scrutinizing the involvement of the nervous system in early infection. Since we have been able to maintain the cohort for five years now, we will be able to study whether there are any persistent abnormalities that need to be addressed. Additionally, the ubiquity of symptoms in early infection found in this study reinforces the need for the brain to be considered as a

compartment containing latent HIV as we design cure studies," said study co-author, Victor Valcour, MD, PhD, UCSF professor of neurology.

More information: Joanna Hellmuth et al. Neurologic signs and symptoms frequently manifest in acute HIV infection, *Neurology* (2016). [DOI: 10.1212/WNL.0000000000002837](https://doi.org/10.1212/WNL.0000000000002837)

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