Previous Syphilis Infection Might Cause Poorer Brain Function for People With HIV

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HIV-positive people who have been infected with syphilis (Treponema pallidum) in the past might have poorer brain function than HIV-positive people who have never had it. These data were presented Monday, February 28, at the 18th Conference on Retroviruses and Opportunistic Infections (CROI) in Boston.

In the past several years the dramatic early successes of combination antiretroviral (ARV) treatment for HIV—with dramatic drops in death rates and AIDS-related infection—have given way to a growing recognition that significant health complications remain even in the face of near-perfect viral control. One type of health problem that has captured researchers' interests is damage to the network of cells that make up the brain and nervous system.

Data from a stack of research studies have confirmed that the pool of HIV in the brain is different from the HIV circulating in blood. While this is not entirely surprising—the brain is well protected from the rest of the body, and immune cells there differ somewhat from immune cells elsewhere—the implications of differing patterns of HIV reproduction are now being documented. These have included high rates of neurological damage in people with HIV. The damage in most people is so mild that it goes unrecognized, but researchers are worried that it could ultimately lead to higher rates of dementia as people get older.

Another infectious organism that can attack the brain is syphilis. In its later stages, syphilis in the brain (called neurosyphilis) can lead to a number of disconcerting symptoms, including problems with concentration, coordination and emotional disturbances. In people not infected with HIV, the course of untreated syphilis is typically quite slow; in fact, people must usually be infected for several years before neurosyphilis develops. In people with HIV, however, the disease course is more rapid, and untreated syphilis can begin affecting the brain within a matter of months.

Given the high rates of syphilis infection among people with HIV, Christina Marra, MD, from the University of Washington in Seattle grew concerned that the long-term impact of syphilis infection—even years after it was successfully treated—hadn't been well documented in people with HIV.

To explore this further, she and her colleagues examined people enrolled in a larger study of HIV, ARVs and neurocognitive function called the CNS HIV Antiretroviral Therapy Effects Research (CHARTER) study. Out of a total of 1,574 people enrolled in CHARTER, Marra's team found 82 people who had positive rapid plasma reagin (RPR) test of their rectums, indicating that they had a history of syphilis. These people were matched to 52 similar HIV-positive people who had no history of syphilis infection.

Roughly three quarters of the participants were male, just over half were black, and 65 percent were taking ARV therapy. The average age of the participants was 41, and most had completed high school. Thirty-one of the 84 participants with a history of syphilis were found to have recent, untreated infection.

Marra and her colleagues found that a history of syphilis, both recent and past, resulted in lower neuropsychological performance based on two types of test. This was true even when they ruled out differences in reading skill and education. There was no difference in neuropsychological function between people recently infected (and untreated) and those who had syphilis in the past and who had been successfully treated.

The authors caution that further studies following people over time are needed to confirm these results and to determine the long-term impact, but they state that the results indicate that good syphilis screening programs are a necessity in HIV care and that people with a history of syphilis may need to have their cognitive function monitored more closely over time.

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