Antiretroviral Therapy and Cognitive Function: Is There an Impact?

July 02, 2013  
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Antiretroviral therapy may not halt neurocognitive decline even in patients who have normal CD4 counts and undetectable viral loads.

Neurocognitive dysfunction, including HIV-associated dementia, was described in HIV-infected patients before the advent of antiretroviral therapy (ART). Neurocognitive decline still occurs, however, even in patients receiving ART who have normal CD4 counts and undetectable plasma and cerebrospinal fluid (CSF) viral loads.¹

Many antiretroviral agents have a significant ability to penetrate the CNS and can be ranked according to CNS penetration effectiveness, or CPE, a score that evaluates the relationship between CSF HIV-RNA, antiretroviral penetration in CSF, and neurocognitive impairment.² To date, the effects of long-term exposure to ART on cognitive function have not been clear, with different studies demonstrating conflicting results: some have shown that ART regimens with high CPE scores improve cognitive performance while others show the opposite. The present study, published in the journal HIV Medicine, attempts to profile the effects of long-term ART with a stable CPE score (low, medium, high) on cognitive function.³

The investigators conducted a retrospective study of patients who began ART between June 2003 and December 2006 from the department of internal medicine at Lariboisire Hospital in Paris. Patients with HIV-2 infections, inability to participate in neurocognitive tests, a history of opportunistic infections of the CNS, incomplete adherence, or coinfection with hepatitis or syphilis were excluded. Eligible patients underwent a series of neuropsychological tests and each patient was assigned a CPE score based on the combined CPE ranks (high, intermediate, or low) of each agent in the individual's ART regimen during the study period. Patients remained eligible for the study when an initial treatment regimen was switched only if the CPE score remained stable.

The study demonstrated an inverse relationship between cognitive function and CPE scores that was independent of other variables, such as age, sex, CD4 counts, and duration of HIV-1 infection. The investigators conclude that in contrast to results that have shown initial cognitive improvement in HIV-1–infected patients who are treated with ART with high CPE scores,⁴ patients treated for prolonged periods with ART and stable CPE scores displayed cognitive decline over time. This important study sheds additional light on results of previous inquiries but requires validation in prospective randomized trials.

Take-Home Message
Primary care physicians should be alert to the possibility of cognitive dysfunction in patients with prolonged exposure to ART.

References: