International Settings in Neuropsychological Assessment of HIV-Infected Populations

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Editorial

Resource-limited regions of the world represent the areas most affected by the global HIV epidemic. Currently, there are insufficient data on the neurocognitive effects of HIV in these areas and neuropsychological studies that have been carried out thus far are marked by inconsistent methods, test batteries, and rating systems for levels of cognitive impairment. These differences in methods, along with genetic variability of both virus and host, differences in co-infections and other co-morbidities, differences in language and culture, and infrastructural deficiencies in many international settings create challenges to the assessment of neurocognitive functioning and interpretation of neuropsychological data. Identifying neurocognitive impairment directly attributable to HIV, exploring relationships between HIV-associated neurocognitive impairment, disease variables, and everyday functioning, evaluating differences in HIV-1 subtype associated neuropathology, and determining implications for treatment remain complicated and challenging goals. Endeavors to establish a more standardized approach to neurocognitive assessments across international studies in addition to accumulating appropriate normative data that will allow more accurate rating of neuropsychological test performance will be crucial to future efforts attempting to achieve these goals. The establishment of highly active antiretroviral therapy as the mainstay of HIV treatment in developed nations has led to impressive reductions in the prevalence of severe HIV-associated neurocognitive disorders (HAND) and central nervous system (CNS) opportunistic infections. Accounts of HIV-associated dementia in these settings are now generally limited to patients who are either treatment naïve or are failing therapy due to viral drug resistance or problems with adherence. Milder forms of neurocognitive dysfunction, however, are still prevalent and continue to be under recognized in patients on antiretroviral therapy. Most of the studies to date investigating the action of highly active antiretroviral therapy at improving neurological and cognitive dysfunction have been carried out in the resource intense settings of the US, Europe, and Australia. Resource-limited communities in Sub-Saharan Africa, Asia, and the rest of the developing world, however, represent the areas most devastated by the HIV epidemic. These areas offer considerable potential for research and stand to gain the most from effective therapy. Neuropsychological assessments are arguably the most important tools for diagnosing and categorizing HIV effects on the CNS. Especially in resource-limited settings, where sophisticated neuroimaging technology often is unavailable, characterization of neurocognitive functioning through neuropsychological assessments is crucial to successful diagnosis and treatment. When assessments are reliable and valid, and appropriate normative standards exist, they are quite sensitive to even milder forms of CNS compromise and also may provide valuable estimates of functional impairment. This article presents a review of the current status, as well as the potential, and some challenges to conducting neuropsychological assessments in resource-limited settings, with a focus on HIV-infected populations. HIV is a truly global disease, affecting roughly 33 million people all over the world. The number of people infected with HIV in the United States, Western Europe and Oceania however represent only 4% of worldwide infections. Most of the people infected or affected by HIV live in developing countries where cultural values, social influences, educational opportunities and access to other resources are clearly distinct from those in the West. Africa and the Middle East account for over 66% of worldwide infections, Asia for over 20%, Eastern Europe and Central Asia for approximately 4%, and Latin America and the Caribbean for around 6%.

In addition to the wide dispersion of HIV around the world, the rapid evolution of the virus itself has led to considerable genetic variation in a relatively short period of time. In West Central Africa, where the original cross-species transmissions are believed to have occurred, almost all of the nine major subtypes of HIV-1 Group M (A-D, F-H, J, and K), as well as strains of HIV-1 Groups N and O, and HIV-2 can be found. In other parts of Africa and other regions of the world however, certain subtypes and recombinant forms such as CRF01_AE and CRF02_AG predominate over others. The extensive genetic diversity that characterizes HIV along with the geographic compartmentalization of viral species raises interesting and challenging questions in regards to associated differences in disease progression (systemic and neurological), effectiveness of antiretroviral therapy, and the outlook of the constantly evolving pandemic. With true HIV Associated Dementia, patient profiles were marked by severe behavioral changes, attention and executive dysfunction, psychomotor slowing, and memory impairment. Minor Cognitive Motor Disorder patient profiles were characterized by impaired cognitive and motor speed, working memory, and new learning, but most aspects of language (except fluency) and long-term memory (semantic) were relatively unimpaired.

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