Validity of the Montreal Cognitive Assessment and HIV Dementia Scale as screening tools for cognitive impairment in HIV-1 Infected Patients

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Background
Administration of an extensive neuropsychological assessment is the gold standard for adequately evaluating cognitive impairment in HIV-1 infected patients. While CART has successfully improved the course of HIV infection, research has shown that at least mild cognitive impairment continue to exist in 30-60% of patients. However, extensive examination is not feasible in all individuals with cognitive complains due to restrictions with respect to cost and time. Several brief cognitive screening tools have therefore been developed over the years.

Research aim:
Our aim was to investigate the validity of the Montreal Cognitive Assessment (MoCA) and the HIV Dementia Scale (HDS) as screening tools to detect cognitive impairment in HIV-1 infected patients compared to extensive neuropsychological testing classified with the Frascati criteria¹.

Methods
- **Participants**: 98 HIV-1-infected patients on cART for at least one year and HIVRNA < 50 copies/ml
- **Measures**: Montreal Cognitive Assessment (MoCA), HIV Dementia Scale (HDS) and an extensive neuropsychological assessment measuring nine cognitive domains.
- **Statistical analyses**: ROC analyses were applied to calculate sensitivity and specificity of the MoCA and the HDS in comparison to the performance on the extensive neuropsychological assessment (cognitively impaired versus cognitively unimpaired classified with the Frascati criteria).

Results
After controlling for symptom validity, neuropsychological assessment showed cognitive impairment in 39 patients (41.1%). ROC analyses showed a sensitivity of 56% and specificity of 63% for the MoCA with a cutoff score of 26.5. For the HDS a sensitivity of 26% and specificity of 96% were found using 11.25 as cutoff score. The Areas under the Curve for the MoCA (0.70) and the HDS (0.67) did not significantly differ (p=0.623).

Conclusion & implications
Both the MoCA and HDS show moderate sensitivity yet poor specificity in detecting cognitive deficits. As a result, these screening tools are not recommended for use in the diagnostic process. Nevertheless, given their short and easy administration, these tools may serve as a first screen to identify patients who require extensive neuropsychological assessment.


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