Background

Neurocognitive symptoms are common among antiretroviral-treated adults and can affect quality of life.

We examined neurocognitive function in a prospective cohort of PLHIV undergoing assessment in an HIV outpatient neurology referral clinic.

Methods

Study participants

HIV positive adults (>19 years) with cognitive complaints not readily explained by another diagnosis (e.g. cerebral trauma, stroke)

Procedures

- Comprehensive evaluation by a neurologist, including
  - history of HIV, comorbid conditions, and substance use
  - physical examination including neurological examination
  - plasma HIV RNA (pVL) and CD4 cell count
  - serum apolipoprotein B and high-sensitivity C-reactive protein
- Neurocognitive function was categorized by a neuropsychologist as normal for age, mild neurocognitive impairment (NCI), or dementia.
- Study protocol and informed consent were approved by the UBC/Providence Health Care Research Ethics Board (H10-00762).

Cognitive screening tests

- Montreal Cognitive Assessment (MoCA) ([www.mocatest.org](http://www.mocatest.org)) — a score <25 is considered indicative of possible cognitive impairment [1]
- HIV Dementia Scale (HDS) — a score <10 or <14 is considered indicative of possible cognitive impairment [2,3]

CSF viral load (VL) and biomarkers

A subset of participants who had lumbar puncture performed for clinical assessment had the following measured in CSF:

- HIV RNA – lower limit of detection 40 copies/mL
- T tau and p tau – markers of neuronal degeneration; elevated levels seen in Alzheimer Disease (AD), stroke, brain trauma [4]
- Beta amyloid – lower levels seen in association with amyloid plaques in AD [4]

White Matter Densities (WMD)

A subset of participants who had brain MRI performed for clinical assessment had WMD (a marker of ischemic changes) scored using established visual scales. Higher scores are associated with more extensive WMD.

- Age-Related White Matter Changes (ARWMC) [5] — a single score from 0 (no lesions) to 3 (diffuse lesions)
- Fazekas Visual Scale [6] — a modified score was used which assesses all 4 brain quadrants, each on a scale from 0 (no lesions) to 4 (severe/diffuse lesions)

Statistical analysis

- Categorical variables were compared using Cochran-Mantel-Haenszel Mean Score test
- Continuous variables were compared using Kruskal-Wallis test

References