#3029 Title: HIV-associated Neurocognitive Disorder: an Investigation using Structural Neuroimaging in a c-ART Treated Tanzanian Cohort

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Background

There is a newly emergent ageing population of people living with HIV (PLWH) in Africa. However, there is little research into HIV-associated neurocognitive disorder (HAND) in this population. Existing research suggests HAND is prevalent however the aetiology remains unclear. This study aims to determine whether HAND is truly prevalent and explore potential causes in PLWH on c-ART using objective structural measures.

Aims

1. Explore whether substantial atrophy and/or white matter hyperintensities (WMH) is present on the clinical magnetic resonance imaging (MRI) reports and quantitative analysis of people with optimally managed HIV in Northern Tanzania.
2. Explore the aetiology of HAND by assessing whether cerebral atrophy and/or WMH is associated with demographic risk factors, HIV-related factors and/or comorbidities.
3. Investigate whether structural damage is related to objectively measured cognitive impairment, and whether this is a subcortical or cortical impairment.
4. Explore which neurocognitive test is the best predictor of structural damage and therefore most valid diagnostic test for HAND.

Methods

A systematic sample of PLWH aged ≥ 50 were recruited from a HIV clinic in Kilimanjaro, Tanzania. Demographic data and comorbidities were self-reported. HIV-disease management data were obtained. Viral load and CD4 count were measured. A neurocognitive battery and informant history of functional impairment identified HAND. Cerebral atrophy (brain and ventricle volume) and WMH were measured using quantitative analysis of 1.5T MRI.

Preliminary results

This cohort (n=91) had well-managed HIV (75.9% suppressed viral load, median CD4 507 cells/ul). The significant independent predictor (IP) of decreased brain volume was older age at HIV diagnosis (p=.001), and of increased ventricle volume was increased age (p<.0001), male gender (p<.0001) and increased frailty (p<.0001). The significant IPs of increased WMH volume were increased age (p<.0001) and smoking (p=.021). Only memory impairment independently predicted all structural measures.

Conclusions

This is the first MRI study of older c-ART treated PLWH in Africa. Despite c-ART and good disease management, HAND was objectively prevalent and unrelated to measures of

HIV. Cerebral atrophy and WMH were associated with factors of neurodegeneration. Cerebral atrophy was associated with male gender and age at diagnosis (legacy effect).