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CLINICAL MANIFESTATIONS

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Neuropsychology/Early detection of cognitive decline with neuropsychological tests

Detecting amnestic MCI among persons with HIV with high rates of HIV-associated neurocognitive disorder

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Abstract

Background: HIV-associated neurocognitive disorders (HAND) occur in ~45% of people with HIV (PWH). Older PWH are at-risk for both HAND and age-associated disorders including Alzheimer's disease (AD) and its precursor, amnestic mild cognitive impairment (aMCI). Distinguishing aMCI from HAND among PWH is a diagnostic challenge given that both aMCI and HAND criteria include memory deficits. Differences between aMCI and HAND may include a more amnestic (recall and recognition deficits) and degenerative profile in aMCI versus milder (recall but not recognition deficits) and typically stable memory deficits in HAND. We exploited these differences to classify PWH based on aMCI+/- and HAND+/- status and compared trajectories of learning, recall and recognition performance among these classification groups.

Method: Analyses included 685 PWH (ages 18-79, 88% men) from the UCSD HIV Neurobehavioral Research Program. At baseline, aMCI status was determined based on a neuropsychological classification approach (Jak/Bondi) requiring impairment (<1.0 SD below normative mean) on two tests of recall and/or recognition (at-least one recognition impairment required) from the Hopkins Verbal Learning Test-Revised (HVLT-R) and the Brief Visuospatial Memory Test-R (BVMT-R). HAND was diagnosed based on standard Frascati criteria. Using additive mixed model, trajectories of learning (averaged HVLT-R and BVMT-R learning scores), recall (averaged HVLT-R and BVMT-R recall scores) and HVLT-R and BVMT-R recognition z-scores adjusted for age, sex, race and education were compared among classification groups.

Result: Participants were classified into four groups: aMCI-/HAND- (n=243), aMCI-/HAND+ (n=199), aMCI+/HAND- (n=62) and aMCI+/HAND+ (n=181). There were significant diagnostic group X time interactions on learning and HVLT-R and BVMT-R recognition, but not recall (Figure 1). Learning showed significant change over time in the aMCI+/HAND+ and aMCI-/HAND+ groups only. All groups showed significant, yet variable, patterns of change in HVLT-R recognition. BVMT-R recognition showed significant change over time in aMCI+/HAND- and aMCI+/HAND+ groups. Recall was poorest in the aMCI+/HAND+ versus other groups across time.

Conclusion: Findings suggest that PWH with memory impairment combined with other cognitive deficits at baseline show the worst memory profiles over time. Research is needed into methods of differentiating other MCI subtypes from HAND and into potential compounding effects of AD- and HAND-related pathologies.

Figure 1. Trajectories of learning (A), recall (B), HVLT-R recognition (C) and BVMT-R recognition (D) z-scores over time as a function of aMCI and HAND status.

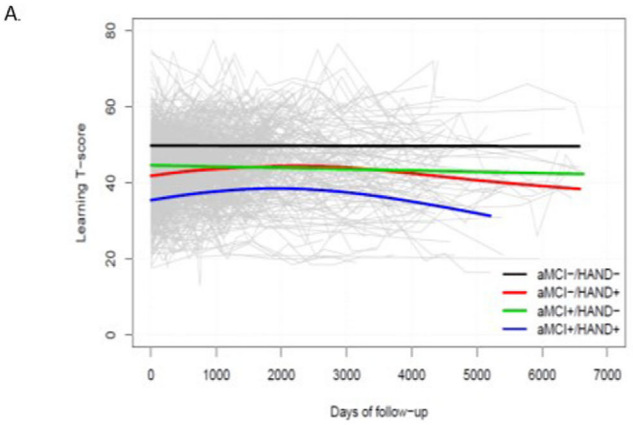

FIGURE 1

Figure 1 B.

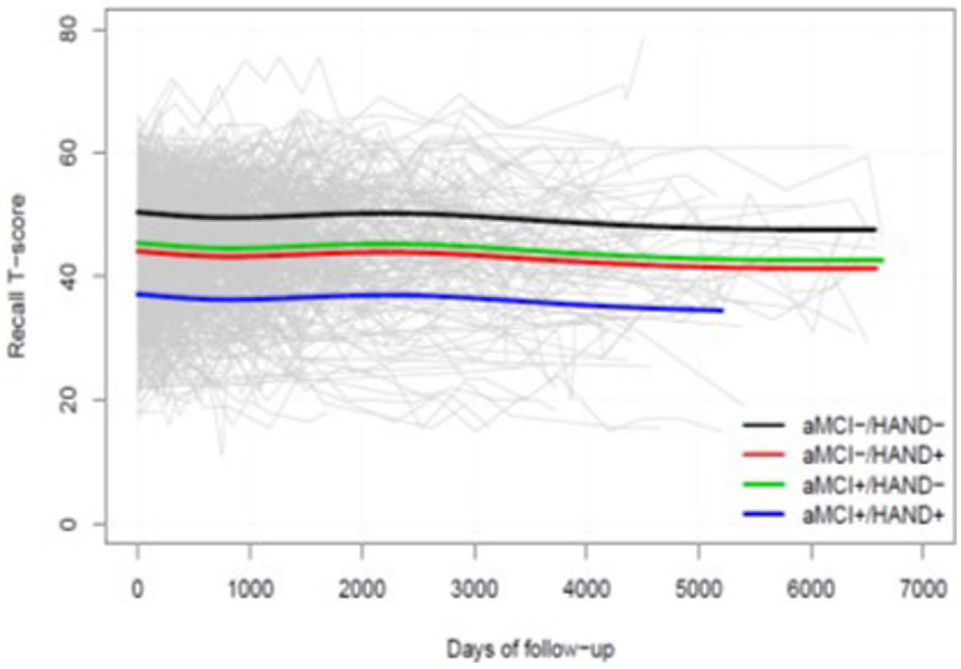

FIGURE 2

Figure 1 C.

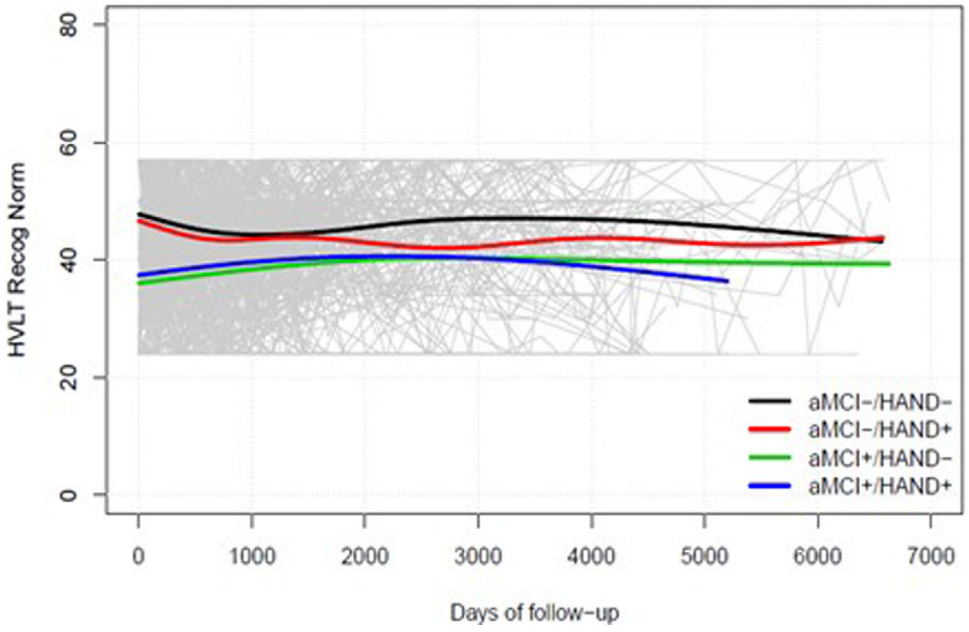

FIGURE 3

Figure 1 D.

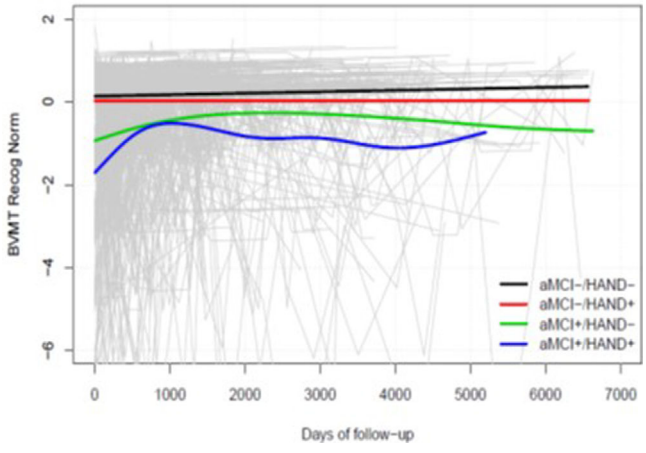

FIGURE 4