Bayamon, PR, USA. [4]Louisiana State University Health Sciences Center, New Orleans, LA, USA. [5]Louisiana Cancer Research Center,, New Orleans, LA, USA. [6]Louisiana Cancer Research Center, New Orleans, LA, USA

Objective: Individuals living with HIV may experience cognitive difficulties or marked declines known as HIV-Associated Neurocognitive Disorder (HAND). Cognitive difficulties have been associated with worse outcomes for people living with HIV, therefore, accurate cognitive screening and identification is critical. One potentially sensitive marker of cognitive impairment which has been underutilized, is intra-individual variability (IIV). Cognitive IIV is the dispersion of scores across tasks in neuropsychological assessment. In individuals living with HIV, greater cognitive IIV has been associated with cortical atrophy, poorer cognitive functioning, with more rapid declines, and greater difficulties in daily functioning. Studies examining the use of IIV in clinical neuropsychological testing are limited, and few have examined IIV in the context of a single neuropsychological battery designed for culturally diverse or at-risk populations. To address these gaps, this study aimed to examine IIV profiles of individuals living with HIV and who inject drugs, utilizing the Neuropsi, a standardized neuropsychological instrument for Spanish speaking populations.
Participants and Methods: Spanish speaking adults residing in Puerto Rico (n=90) who are HIV positive and who inject drugs (HIV+I), HIV negative and who inject drugs (HIV-I), HIV positive who do not inject drugs (HIV+), or healthy controls (HC) completed the Neuropsi battery as part of a larger research protocol. The Neuropsi produces 3 index scores representing cognitive domains of memory, attention/memory, and attention/executive functioning. Total battery and within index IIV were calculated by dividing the standard deviation of T-scores by mean performance, resulting in a coefficient of variance (CoV). Group differences on overall test battery mean CoV (OTBMCoV) were investigated. To examine unique profiles of index specific IIV, a cluster analysis was performed for each group.
Results: Results of a one-way ANOVA indicated significant between group differences on OTBMCoV ($F[3,86]=6.54$, $p<.001$). Post-hoc analyses revealed that HIV+I ($M=.55$, $SE=.07$, $p=.003$), HIV-I ($M=.50$, $SE=.03$, $p=.001$), and HIV+ ($M=.48$, $SE=.02$, $p=.002$) had greater OTBMCoV than the HC group ($M=.30$, $SE=.02$). To better understand sources of IIV within each group, cluster analysis of index specific IIV was conducted. For the HIV+ group, 3 distinct clusters were extracted: 1. High IIV in attention/memory and attention/executive functioning (n=3, 8%); 2. Elevated memory IIV (n=21, 52%); 3. Low IIV across all indices (n=16, 40%). For the HIV-I group, 2 distinct clusters were extracted: 1. High IIV across all 3 indices (n=7, 24%) and 2. Low IIV across all 3 indices (n=22, 76%). For the HC group, 3 distinct clusters were extracted: 1. Very low IIV across all 3 indices (n=5, 36%); 2. Elevated memory IIV (n=6, 43%); 3. Elevated attention/executive functioning IIV with very low attention/memory and memory IIV (n=3, 21%). Sample size of the HIV+I group was insufficient to extract clusters.
Conclusions: Current findings support IIV in the Neuropsi test battery as clinically sensitive marker for cognitive impairment in Spanish speaking individuals living with HIV or who inject drugs. Furthermore, the distinct IIV cluster types identified between groups can help to better understand specific sources of variability. Implications for clinical assessment in prognosis and etiological considerations are discussed.

Categories: Infectious Disease (HIV/COVID/Hepatitis/Viruses)
Keyword 1: HIV/AIDS
Keyword 2: injection drug use
Keyword 3: assessment
Correspondence: Jeremy A. Feiger, University of Nebraska - Lincoln, jfeiger@huskers.unl.edu

57 CSF Markers of AD-Related Pathology Relate to aMCI among People with HIV

Judith D. Lobo[1], Erin E. Sundermann[1], Laura M. Campbell[2], Ben Gouaux[1], Scott Letendre[1], Mark W. Bondi[1], David J. Moore[1]
[1]Department of Psychiatry, University of California, San Diego, San Diego, CA, USA. [2]SDSD/UC San Diego Joint Doctoral Program in Clinical Psychology, San Diego, CA, USA

Objective: Older people with HIV (PWH) are at-risk for Alzheimer's disease (AD) and its precursor, amnestic mild cognitive impairment (aMCI). Identifying aMCI among PWH is challenging because memory impairment is also

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common in HIV-associated neurocognitive disorders (HAND). The neuropathological hallmarks of aMCI/AD are amyloid-β42 (Aβ42) plaque and phosphorylated tau (p-tau) accumulation. Neurofilament light chain protein (NfL) is a marker of neuronal injury in AD and other neurodegenerative diseases. In this study, we assessed the prognostic value of the CSF AD pathology markers of lower Aβ42, and higher p-tau, p-tau/Aβ42 ratio, and NfL levels to identify an aMCI-like profile among older PWH and differentiating it from HAND. We assessed the relationship between aMCI and HAND diagnosis and AD biomarker levels
Participants and Methods: Participants included 74 PWH (Mean age=48 [SD=8.5]; 87.4% male, 56.5% White) from the National NeuroAIDS Tissue Consortium (NNTC). CSF Aβ42, Aβ40, p-tau and NfL were measured by commercial immunoassay. Participants completed a neurocognitive evaluation assessing the domains of learning, recall, executive function, speed of information processing, working memory, verbal fluency, and motor. Memory domains were assessed with the Hopkins Verbal Learning Test-Revised and the Brief Visuospatial Memory Test-Revised, and aMCI was defined as impairment (<1.0 SD below normative mean) on two or more memory outcomes among HVLT-R and BVMT-R learning, delayed recall and recognition with at-least one recognition impairment required. HAND was defined as impairment (<1.0 SD below normative mean) in 2 or more cognitive domains. A series of separate linear regression models were used to examine how the levels of CSF p-tau, Aβ42, p-tau/Aβ42 ratio, and NfL relate to aMCI and HAND status while controlling for demographic variables (age, gender, race and education). Covariates were excluded from the model if they did not reach statistical significance.
Results: 58% percent of participants were diagnosed with HAND, 50.5% were diagnosed with aMCI. PWH with aMCI had higher levels of CSF p-tau/Aβ42 ratio compared to PWH without aMCI (β=.222, SE=.001, p=.043) while controlling for age (β=.363, p=.001). No other AD biomarker significantly differed by aMCI or HAND status.
Conclusions: Our results indicate that the CSF p-tau/Aβ42 ratio relates specifically to an aMCI-like profile among PWH with high rates of cognitive impairment across multiple domains in this advanced HIV disease cohort. Thus, the p-tau/Aβ42 ratio may have utility in disentangling aMCI from HAND and informing the need for further diagnostic procedures and intervention. Further research is needed to fully identify, among a broader group of PWH, who is at greatest risk for aMCI/AD and whether there is increased risk for aMCI/AD among PWH as compared to those without HIV.

Categories: Infectious Disease (HIV/COVID/Hepatitis/Viruses)
Keyword 1: HIV/AIDS
Keyword 2: dementia - Alzheimer's disease
Keyword 3: mild cognitive impairment
Correspondence: Judith Lobo Ph.D., Department of Psychiatry, University of California San Diego, jlobo@health.ucsd.edu

58 Emotional Functioning in Long COVID Neuropsychological Evaluations: Comparison to Post-Concussion Syndrome Using the Personality Assessment Inventory

Laura Fry[1], Eric Waldron[1], Erin Holker[1], Jim Porter[1], Courtney Eskridge[1], Sarah Taylor[1], Michael Basso[2], Tanya Melnik[1], Savana Naini[1,3,4], Douglas Whiteside[1]
[1]University of Minnesota, Minneapolis, MN, USA. [2]Mayo Clinic, Rochester, MN, USA. [3]University of St. Thomas, St. Paul, MN, USA. [4]Washington DC VA Medical Center, Washington D.C., DC, USA

Objective: COVID-19 has significantly impacted society for over 2.5 years, and Long COVID is concerning for its long-term impact on the healthcare system. Further, cognitive and emotional functioning in Long COVID has limited research, but 2 recent studies (Whiteside et al., 2022a, Whiteside et al., 2022b) examined cognitive and emotional functioning in Long COVID patients approximately 6 months post-diagnosis. The studies found limited cognitive deficits, but significant depression and anxiety, which in turn were the best predictors of low average cognitive scores. Further, the mean Personality Assessment Inventory (PAI) profile included highest mean elevations on somatic preoccupation (SOM) and depression (DEP) subscales. To further explore personality functioning in Long COVID, this study compared PAI profiles of Long COVID patients with a

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