Cognitive Frailty Threatens People With HIV at a Younger Age

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Cognitive frailty—simultaneous occurrence of neurocognitive impairment and frailty—affected 6.5% of 1391 people living with HIV (PLWH) who were 50 or older [1]. That prevalence mirrored the rate seen in the general population of people 65 or older [2].

Giovanni Guaraldi and colleagues as the Modena (Italy) HIV Metabolic Clinic argued that HIV research and care should move beyond HIV-associated neurocognitive disorder (HAND), because most people with HAND have asymptomatic neurocognitive impairment, the clinical significance of which remains unclear [3].

Guaraldi and coworkers proposed "a new framework to characterize cognitive impairment in people living with HIV that requires a clinical history and acknowledges the multifactorial nature of low cognitive test performance." They advanced the concept of cognitive frailty—simultaneous neurocognitive impairment and frailty that strongly predicts falls, injuries, and disability among community-dwelling older adults [4].

Guaraldi's group aimed to describe cognitive frailty and determine its risk factors in PLWH 50 or older. Their observational cross-sectional study involved antiretroviral-treated people attending the Metabolic Clinic since 2016. To be included in this analysis people needed at least one neurocognitive assessment by CogState and one frailty evaluation by a 37-item frailty index developed by Guaraldi [5].

Of the 1391 participants evaluated from January 2016 to April 2023, 91 (6.5%) had cognitive frailty, 254 (18.3%) had frailty but no cognitive impairment (F+/CI-), 214 (15.4%) had cognitive impairment but no frailty (F-/CI+), and 832 (59.8%) had neither frailty nor cognitive impairment (F-/CI-).

The four groups did not differ by gender or current dolutegravir therapy, but those with cognitive frailty had higher cumulative exposure to dolutegravir ($P = 0.04$). People with cognitive frailty and F+/CI- were older than the other two groups ($P < 0.001$), had higher body mass index ($P < 0.001$), lower CD4/CD8 ratio ($P = 0.008$), lower nadir CD4 count ($P < 0.001$) and current CD4 count ($P = 0.03$), had been diagnosed with HIV longer ($P < 0.001$), and had a higher proportion exposed to polypharmacy ($P < 0.001$).

Levels of the inflammation marker CRP were higher in people with cognitive frailty than in those with F+/CI-, F-/CI+, or F-/CI- (0.4, 0.3, 0.2, 0.1 mg/dL). The same hierarchy applied to the coagulation marker D-dimer (380, 350, 274, 260 ng/dL).

Cognitive frailty boosted odds of polypharmacy 6-fold (odds ratio 6.014, 95% confidence interval 1.288 to 28.080, $P = 0.022$), as did older age (odds ratio 1.161, 95% confidence interval 1.053 to 1.280, $P = 0.003$). Neither nadir CD4 count nor time since HIV diagnoses predicted polypharmacy in this analysis.

The Modena team observed that the prevalence of cognitive frailty in these PLWH older than 50 was equivalent to that of people 65 or older in the general population [2]. Longer time since HIV diagnosis in people with cognitive frailty suggested to Guaraldi and coworkers that the condition has an HIV-specific phenotype reflecting high levels of ongoing inflammation in PLWH.

References

1. Milic J, Calza S, Lazzarini L, et al. Cognitive frailty in people living with HIV and its association with geriatric syndromes. International Workshop on HIV & Aging 2023, October 26-27, Washington, DC. Abstract 6.
2. Arai H, Satake S, Kozaki K. Cognitive frailty in geriatrics. Clin Geriatr Med. 2018;34:667-675. doi 10.1016/j.cger.2018.06.011
3. Nightingale S, Dreyer AJ, Saylor D, Gisslén M, Winston A, Joska JA. Moving on from HAND: why we need new criteria for cognitive impairment in persons living with human immunodeficiency virus and a proposed way forward. Clin Infect Dis. 2021;73:1113-1118. doi: 10.1093/cid/ciab366. https://academic.oup.com/cid/article/73/6/1113/6255426
4. Rivan NFM, Singh DKA, Shahar S, et al. Cognitive frailty is a robust predictor of falls, injuries, and disability among community-dwelling older adults. BMC Geriatr. 2021;21:593. doi: 10.1186/s12877-021-02525-y. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8543922/
5. Guaraldi G, Brothers TD, Zona S, et al. A frailty index predicts survival and incident multimorbidity independent of markers of HIV disease severity. AIDS. 2015;29:1633-1641. doi: 10.1097/QAD.0000000000000753.
https://journals.lww.com/aidsonline/fulltext/2015/08240/a_frailty_index_predicts_survival_and_incident.7.aspx