DO OLDER PEOPLE LIVING WITH HIV HAVE A HIGHER RISK FOR COGNITIVE DECLINE? A PILOT STUDY OF DATA INTEGRATION BETWEEN US AND AUSTRALIAN COHORT STUDIES

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Background:
Previous research has suggested that cognitive ageing can be accentuated and accelerated in people living with chronic HIV infection (PLHIV). However, international results are inconsistent due to low sample size, cross-sectional design, and non-standard neuropsychological methods. To address these issues, we integrated data from two longitudinal studies: the Australian HIV and Brain Ageing Research Program and the CNS HIV Antiretroviral Therapy Effects Research (CHARTER) which have the same neuropsychological methods.

Methods:
The data included the participants on ART (virological control=76%; Historical AIDS=44%). The Australian study collected data at two time points (baseline and mean follow-up=22 months±3.8) while the CHARTER collected data six-monthly up to 11.5 years (only data up to 36 months was included in this study). Both studies used an identical battery of 10 standard neuropsychological tests covering seven cognitive domains. Raw scores were transformed into demographically-corrected T-scores, and averaged as a global mean T-score. Both studies used the same comorbidity rating system which determines whether comorbidities are incidental, contributing, or confounding to neuropsychological performance. To determine if abnormal cognitive ageing was present in the combined sample, we conducted linear mixed-effect models with main and interaction effects of age and time on the mean T-score; while adjusting for comorbidity and country.

Results:
A total of 1,102 participants (102 from the Australian study and 1,000 from the CHARTER study, mean age=47.12 years±9.25) were included in the study. Older age (β=0.18 (0.12, 0.25), P<0.001) and time (β=0.05 (0.03, 0.07), P<0.001) were associated with better neurocognitive performance. However, the interaction between age and follow-up time was negatively associated with the mean T-score (β=-0.05 (-0.07, -0.03), P<0.001). Having incidental or contributing comorbidity rating was associated with poorer cognitive performance compared to no comorbidity across the study period (P<0.001).

Conclusion:
There is evidence of accelerated cognitive ageing among Australian and American PLHIV.

Disclosure of Interest Statement:
Bruce J. Brew contributes to the Natalizumab advisory board (Australia) 2006-; Biogen Idec PML advisory board (Natalizumab) International 2008-; GlaxoSmithKline national advisory board 2009-; Merck Serono PML international advisory board 2009- and contributed to the Biogen Alzheimer's advisory board in 2018. He has received speaker honorarium from Johnson and Johnson in 2018. He is on the IDS editorial board since 2018; and is the Journal for Neurovirology.

All the other authors declare no conflict of interests.