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Authors

Dugger, Brittany
Jin, Lee-Way
Vargo, Veronica
et al.

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Neuropathology Update on the LifeAfter90 Study, an Ethnically Diverse Cohort Study of Oldest-Old

Brittany Dugger[1], Lee-Way Jin[1], Veronica Vargo[1], Charles DeCarli[1], Sharanpreet Johal[1], Paola Gilsanz[2], Dan Mungas[1], Claudia Kawas[3], Maria Glymour[4], Maria Corrada[3], Rachel Whitmer[1]

[1]University of California, Davis; [2]Kaiser Permanente Northern California Division of Research; [3]University of California, Irvine; [4]University of California, San Francisco

Neuropathology studies of the oldest-old have significantly advanced our understanding of the multiple etiologies late in very late life; however, this has been limited to studies of non-Hispanic white (NHW) decedents. The LifeAfter90 study is an ongoing cohort study of integrated healthcare delivery system members in Northern California, aged 90+ with targeted recruitment of persons across different racial/ethnic backgrounds with no prior diagnosis of dementia in their medical record. Brain donation is available to all interested consenting participants. As of January 2022, 216 participants (26% of sample) were enrolled in autopsy (autopsy enrollees: 20% Asian, 15% African American, 17% Latino, 9% Multiracial/Other, and 39% NHW) with 25 deceased and neuropathological evaluations completed. Average age of death was 95 years (range 91-106), 13 (62.5%) were female, 14 NHW, 6 Latino, 3 Multiracial, 1 Asian, and 1 African American. At final clinical exam, 14 participants were cognitively normal (56%), 8 had questionable/mild cognitive impairment (32%), and 3 were dementia (12%). With respect to Alzheimer's disease (AD) neuropathologic diagnosis, no cases had high AD likelihood, 8 met criteria for intermediate (32%), 11 low (44%), and 6 did not have AD (24%). All participants had some level of neurofibrillary tangles (NFTs); median Braak NFT stage was II (range I-V). Six participants lacked plaques, and highest Thal phase was 4. Eleven participants (44%) had Lewy bodies. TDP-43 inclusions were detected in 5 participants (20%). The most common assessed pathologies were ARTAG in 19 participants (76%) and some degree of arteriolosclerosis in 24 participants (96%) although only 4 were considered to have severe arteriolosclerosis. This diverse cohort of oldest-old individuals indicate numerous brain pathologies are present with advanced age, albeit most participants having mild severity and distributions of pathologies providing further evidence of the complex and multifactorial nature of clinic-pathological correlations.