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Aortic stiffness and older age predict sharper cognitive performance decline in the Elsa-Brasil Cohort

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Background and Purpose: Aortic stiffness has been associated with cognitive decline and dementia, but the results are inconsistent. This study investigated the longitudinal association of aortic stiffness and age with decreased cognitive performance in three cognitive tests.

Methods: We included 6,927 participants (mean age 58.8 years) without cerebrovascular disease or cognitive impairment at baseline (2008-2010) who participated at the 2nd wave (2012-2014) of the ELSA-Brasil (interval between visits ranging from 2-6 years). Cognitive performance was evaluated by memory, phonemic and semantic verbal fluency, and trail-B tests, applied at both cohort visits. Associations with the carotid femoral pulse wave velocity (cf-PWV) and age at baseline were investigated using linear models with mixed effects after adjusting for confounders.

Results: After all the adjustments, including for systolic blood pressure, the interaction term cf-PWV*time was statistically significant for memory and verbal fluency tests, indicating

that the higher the cf-PWV at baseline the faster the decline in cognitive performance in these tests in the 2nd wave. The interaction term age*time was statistically significant for all cognitive tests, suggesting that increasing age at baseline was also associated with a faster decline in cognitive performance between waves.

Conclusion: In this relatively young cohort, and after a relatively short interval, an increased aortic stiffness at baseline was associated with a sharper decline in cognitive performances in memory and verbal fluency, independently of systolic blood pressure levels. We also showed that the decline in cognitive performance was faster among older individuals than younger ones at baseline.

Biography

Sandhi Maria Barreto is currently working in Universidade Federal de Minas Gerais, Brazil. She has studied her masters in Brazil. She did many researches in neuroscience field.

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