

Abstracts



Inflammation Accelerates Declines in Cerebral Vasoregulation and Cognitions in Type 2 Diabetes

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Authors

Daniela A Pimentel MD

Body

1579-P - Inflammation Accelerates Declines in Cerebral Vasoregulation and Cognitions in Type 2 DiabetesView session detail Author Block: CHEN-CHIH CHUNG, DANIELA A. PIMENTEL, AZIZAH J. JOR'DAN, YING HAO, WILLIAM MILBERG, VERA NOVAK, Boston, MA, Beijing, China Older adults with type 2 diabetes mellitus (T2DM) have been showed to have more impaired cerebral perfusion and greater cognitive decline than non-diabetic adults. We aimed to investigate the relationships between cerebral vasoregulation and the progression of cognitive dysfunction in T2DM. In this two-year prospective study, 40 participants (age 66.8 ± 8.8 years, 19 with T2DM, 22 women) were enrolled. Participants completed medical, neuro-physiological and neuropsychological examinations and continuous arterial spin labeling MRI to measure global and regional cerebral perfusion and vasoreactivity. After the two years of follow-up, T2DM participants showed diminished global and regional cerebral vasoreactivity and a decline in multiple cognitive tasks as compared to baseline ($p < 0.0001-0.012$). T2DM participants with lower cerebral vasoreactivity at baseline had a greater decrease in the daily living activities score ($r_{2adj} = 0.35$, $p = 0.04$). T2DM participants with lower global vasodilation had a greater decline in the executive function ($r_{2adj} = 0.6$, $p = 0.047$). In the T2DM group, higher baseline serum inflammatory markers, including cortisol, C-reactive protein, soluble intercellular and vascular adhesion molecules, were associated with greater decreases in cerebral vasoreactivity and vasodilation ($r_{2adj} = 0.16-0.53$, $p = 0.007-0.048$), independent of diabetes control. These relationships were not observed in non-diabetic controls. Inflammation may exaggerate the long-term adverse effects of T2DM on cerebral vasoreactivity that may accelerate to cognitive decline older diabetic adults.

Sessions