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&6th International Conference on **Vascular Dementia** February 27-March 01, 2017**Auto-regulation of cerebral blood flow and elder diabetes-related Alzheimer's disease****Fan Fan**

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Alzheimer's disease (AD) and diabetes (DM) are two of the most common diseases of aging. More than five million Americans have AD, and 29 million Americans have DM. The cumulative incidence of AD is 12.5% and DM is 26.9% among people 65 and older in the US. Evidence suggests that DM is linked with the development of AD, and these diseases are associated with cerebral vascular dysfunction. However, the mechanisms involved have not been fully elucidated. The present studies examine whether the myogenic response of middle cerebral artery (MCA) and auto-regulation of cerebral blood flow (CBF) are impaired in the T2DN rat, a type 2 diabetic (T2DM) strain, and whether these impairments contribute to the development of dementia and AD. Our data indicate that the myogenic response of MCA and auto-regulation of CBF are impaired in T2DN rats with aging. This cerebral vascular dysfunction is in association with blood-brain barrier (BBB) leakage, neurodegeneration and learning and memory dysfunction. Our results also demonstrate that the neurodegeneration in elderly T2DN rats is associated with elevated expression of beta-amyloid (A β) and Tau in the brain, suggesting these diabetic rats express the characteristic biomarkers of AD. The expression of GFAP and IL-1 β is elevated in aged T2DN rats indicating that glial activation and inflammation may link aging, diabetes and cognitive deficits in this model. In summary, our studies suggest that the impaired auto-regulation of CBF plays an important role for the development of cognitive dysfunction and AD, and present information critical to the development of new treatments to prevent elder and DM-related dementia including AD.

Biography

Fan Fan is an Assistant Professor at University of Mississippi Medical Center, USA. Her research focuses on the genetic basis of the impaired myogenic response and auto-regulation of cerebral and renal blood flow and end organ damage in aging, hypertension and diabetes. She has published more than 30 papers. She currently serves as a Peer Reviewer for the American Heart and Alzheimer's Associations, and is an Editorial Board Member and reviewer for several journals. Her work is funded by the National Institutes of Health (NIH) and the American Heart Association (AHA) to study roles of Add3 (NIH/NIA, NIH/NIDDK), CYP4A1 and 20-HETE (NIH/NIGMS, AHA) on aging and hypertension-related renal and cerebral vascular and dementia.

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