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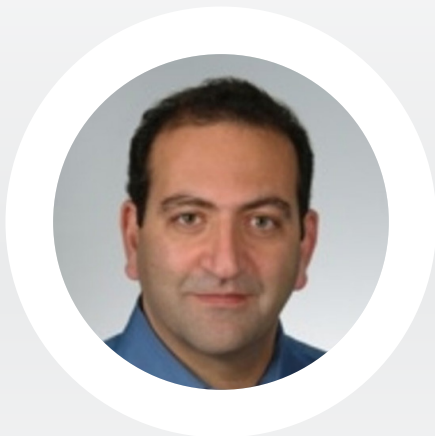
Blood-brain barrier in vascular cognitive impairment and dementia

Blood-brain barrier (BBB) is an interface between peripheral blood circulation and CNS that plays multiple roles in brain function and homeostasis. The breakdown of BBB integrity has long been considered as a pathological hallmark of several cerebral inflammatory diseases that confirmed by in vivo imaging. The leakage of BBB facilitates the invasion of blood-borne pathogens and substances into and interstitial substances out of the brain, which causes the impairment of brain fluid homeostasis. Over the past few years, increasing evidence emerged that the BBB disruption in chronic cerebral inflammatory diseases is not permanent, rather is phasic. The phasic nature of BBB integrity in inflammatory diseases causes a tonic in brain fluid homeostasis. This may alleviate further brain damage by providing fast access to circulatory elements that may contribute to the recovery after BBB breakdown insult. Increased albumin in the cerebrospinal fluid (CSF) and contrast enhancement on MRI suggest disruption of BBB occurs in vascular cognitive impairment and dementia (VCID). More importantly, increased BBB transfer rate was present in those with elevated CSF albumin index. Patients classified as small vessel disease or subcortical ischemic vascular disease (SIVD) based on preliminary diagnoses were significantly more likely to have increased BBB transfer rate than other forms of VCID. Understanding factors that contributing to the phasic behavior of BBB is important for classifying VCID patients and designing BBB-targeted drugs.

Biography

Saeid Taheri joined University of South Florida in 2015 as a faculty in Neurodegenerative diseases. His areas of interest include neuroinflammation, oxidative stress, and blood-brain barrier (BBB). Prior to joining USF, he worked as an Assistant Professor at the Department of Radiology and Radiological Sciences at MUSC where he was Principal Investigator to elucidate the role of BBB in vascular dementia. He has developed MR techniques in vivo to quantify the BBB transfer rates. He received his PhD from University of New Mexico (UNM) USA and completed his Post-doctoral fellowship in the BRAIN Center at UNM HSC with special focus on BBB in stroke and dementia.

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