

7th Global Neurologists Annual Meeting on

Neuro Surgery and Interventional Radiology

August 22-24, 2016 Vienna, Austria

Spatial and temporal correlations between amyloid-PET (Florbetapir and PiB) retention and white matter intensity

Sepi Shokouhi

Vanderbilt University Institute of Imaging Science, USA

T₂-weighted magnetic resonance images (MRI) can display cerebral white matter intensity changes, which are common in elderly subjects and linked to vascular diseases. Few studies have investigated the spatial and temporal associations between the white matter intensity distribution and the retention of amyloid-PET radiotracers Florbetapir and PiB. In this study, we explore these correlations using data from Alzheimer's disease neuroimaging initiative (ADNI). One of the main objectives is to determine whether the selection of the radiotracer can alter these associations. Methods: For both PET data, we used images with minimum amount of smoothing in order to preserve spatial clusters in images and to determine whether white matter T₂ voxel intensity values in the vicinity of high activity clusters in amyloid PET images are different than other areas. These localized spatial correlations were explored by utilizing a new image analysis approach that is based on a randomized sampling of voxel pairs between the two modalities. Results: While in several subjects we observed a slight T₂ increase in areas close to the high activity PET clusters, there were some regional and inter-subject variabilities, which could be due to regional differences in amyloid clearance mechanism or the presence of cerebral amyloid angiopathy. However, further studies are required to verify these hypotheses. Conclusion: This study provides new imaging-based methodologies to investigate the presence of subtle within-subject spatial associations between amyloid PET radiotracer retention and its surrounding white matter in Alzheimer's disease.

Biography

Shokouhi has completed her PhD at the age of 32 years from Stony Brook University and postdoctoral studies from Vanderbilt University Medical Center. She is an Assistant Professor of Radiology and Radiological Sciences at Vanderbilt University Institute of Imaging Science. She has published more than 19 papers in Nuclear Medicine (PET/SPECT) instrumentation, data acquisition and image reconstruction and analysis. Her recent research has been focused on PET imaging methods for applications in Alzheimer's disease

sepideh.shokouhi@Vanderbilt.Edu

Notes: