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Meet the New Experts

SY18-5

Dynamic Susceptibility Contrast Imaging with Gadolinium-Based Contrast Agents in Neurodegenerative Diseases

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In this “Meet the New Experts” session, I will present my recent work applying dynamic susceptibility contrast (DSC) MRI to the study of neurodegenerative diseases.

First, we explored the choroid plexus, which has gained increasing attention for its role in neuroinflammation and glymphatic function. Traditionally regarded as the main producer of cerebrospinal fluid (CSF), impaired choroid plexus function may disrupt CSF dynamics and contribute to ventricular enlargement. Using DSC, we evaluated time–intensity curves of choroid plexus enhancement to detect subtle functional alterations.

Second, we investigated DSC-based quantitative post-processing to estimate cerebral oxygenation metrics, including the cerebral metabolic rate of oxygen ($CMRO_2$) and oxygen extraction fraction (OEF). Our findings suggest that patients with greater cerebrovascular risk factors exhibit more impaired cerebral oxygenation states.

Together, these studies highlight the potential of DSC MRI not only for probing choroid plexus and glymphatic function but also for assessing cerebral oxygenation in neurodegenerative diseases. Future work will extend these applications across diverse disease entities.

Keywords: *Dynamic susceptibility contrast MRI; Cerebral perfusion; Oxygen metabolism; Choroid plexus*