

Session summary of symposium “Dementia 8”

The development of neuroimaging technology has been contributing to the investigation of age-related disorders. Radionuclide imaging has made it possible to visualize pathological changes in the brain. The availability of radiopharmaceuticals for positron emission tomography (PET) of senile plaques (amyloid) and neurofibrillary tangles (tau) has renewed our understanding of Alzheimer's disease (AD), leading to research frameworks including the hypothetical concept of the AD continuum and ATN (amyloid, tau, neurodegeneration) classification. In this trend, the significance of reactive astrocytosis has been highlighted. Reactive astrocytosis is a hallmark of neuroinflammation that arises in neurodegenerative diseases. Monoamine oxidase B (MAO-B) is a well-known marker of astrocytosis, and PET imaging tracers of MAO-B, such as THK-5351 and SMBT-1, may be powerful tools for the diagnosis of various non-AD neurodegenerative diseases. On the other hand, advances in magnetic resonance (MR) imaging and its analysis methods have also been made. Resting state functional MR imaging and diffusion tensor imaging have established a new research area, the brain connectome. The connectome analyses have been revealing the relationship between various symptoms and their causative neural substrates.

In this symposium, the latest topics in neuroimaging of aging and age-related disorders will be discussed from three perspectives: ATN, MAO-B, and the connectome.