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## MRI studies in parkinsonism

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For idiopathic Parkinson's disease, MRI has been known to have a limited role regarding diagnosis of patients with suspected parkinsonism. However, after the advent of ultra-high field MRI, such as 7 Tesla, this situation is changing. In this talk, a comprehensive review of recent advances in the field of MR imaging in parkinsonism will be provided. First, anatomical and pathological aspects of neurodegeneration in parkinsonism will be summarized. Second, novel data obtained from 7 Tesla MR imaging of idiopathic Parkinson's disease, multiple system atrophy, and progressive supranuclear palsy will be presented. Third, a clinical application of 3 Tesla MRI for parkinsonism imaging, such as susceptibility-weighted imaging, will be discussed. Finally, a potential utility of MR imaging in the premotor stage of parkinsonism will be shown regarding idiopathic rapid-eye-movement sleep behavior disorder. Through this talk, the main points are as follows:

(1) To understand anatomical and pathological substrates shown on MR images.

(2) To interpret qualitatively the shape of substantia nigra on MR images.

(3) To extend the application of MRI to find at-risk subjects.

(4) To suggest future MRI studies providing us with more accurate and easier imaging diagnosis.

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