

## Neuronal Laterality of Proton MR Spectroscopy in the Brain of Parkinson's Disease with Unilateral Symptom

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**Purpose:** Our study was destined to evaluate whether the laterality of neuronal metabolism exist in the patients of Parkinson's disease with unilateral symptom.

**Material and Methods:** Nine patient of idiopathic Parkinson's disease that had restricted unilateral symptomatic manifestation were included (45 to 70 years of age). The symptomatic side was right in seven patients and left in two patients. The region of interest of the single voxel proton MR spectroscopy were putamen-globus pallidus (PG) and Substantia nigra (SN) with a size 2x2x2 cm. After measurement of the relative peak height ratio of NAA/Cr, Cho/Cr(NAA=N-acetylaspartate, Cho=Choline, Cr=Creatine), we compared the value of symptomatic side to the contralateral side. And after subdividing into two group according to their symptom duration, we evaluate whether there was specific correlation between their laterality and clinical stage.

**Result:** (1) The values of NAA/Cr in PG of symptomatic side showed higher level than that of contralateral side although it was not statistically significant. (2) The values of NAA/Cr in the SN of symptomatic side were not differ to contralateral side. (3) In the early group (N=5, mean duration; 7 month), the value of NAA/Cr in PG of symptomatic side PG were significantly higher compared to contralateral side ( $p < 0.05$ ).

**Conclusion:** From this study, we may propose that the symptomatic manifestation of the Parkinson's disease could be correlated with neuronal cell aggregation (increased NAA/Cr ratio) and its correlation is more conspicuous during the early stage of their clinical course.