

QUANTITATIVE 1H MAGNETIC RESONANCE SPECTROSCOPIC IMAGING FOR DETERMINATION OF THERAPEUTIC EFFICACY IN STALEVO-TREATED PATIENTS WITH PARKINSON'S DISEASE (PD)

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Background and aims: We propose the quantitative indicators for the characteristics of the peculiarities of the brain metabolism in patients with PD after single dose of STALEVO (Levodopa/Carbidopa/Entacapone (150/50/200)) treatment. **Methods:** Three groups of patients are studied by 1H MRS with 1.5T Magnetom Vision (SIEMENS). The 1st group (TPG) includes 10 STALEVO-treated subjects with PD. The 2nd group (PG) includes 10 untreated subjects with PD. The 3rd group (VG) consists of 20 healthy volunteers. For all subjects, spectra are recorded in the putamen with STEAM method: TR/TE=1500/135, 155, 175, 200, 270 ms. For subjects of TPG and PG the spectra are obtain in the putamen both ipsilateral and contralateral to the worst affected side. **Results:** We found a significant reduction in NAA/Cho ratios from the putamen contralateral to the most affected side in the PG, but not the STALEVO-treated TPG groups compared with VG. There were no significant differences in NAA/Cr or Cho/Cr ratios. In untreated patients, PG reduced putaminal NAA/Cho ratios may reflect loss of nigrostriatal dopamine terminals or alternatively indicate a functional abnormality of striatal putaminal neurons, such as membrane dysfunction due to striatal deafferentation. **Conclusions:** This study suggests that NAA/Cho ratios may be affected by STALEVO-therapy and NAA/Cho values may provide an indicator (a reversible marker) of neuronal dysfunction in the striatum. This study gives a new insight into brain biochemistry in patients with PD.