TRANSCRANIAL SONOGRAPHY AND 123I FP-CIT SPECT IN MOVEMENT DISORDERS

P. Bartova[1], D Skoloudik[1], M. Bar[1], B. Kraft[2], J. Bernatek[3], M. Havel[2], P. Ressner[1]
[1]Department off Neurology, University Hospital Ostrava, Ostrava-Poruba; [2]Department of Nuclear Medicine, University Hospital Ostrava, Ostrava-Poruba; [3]Deptartment of Nuclear Medicine, KNTB Zlin, Zlin, Czech Republic
petrabartova@seznam.cz

Purpose: Diagnosis of Parkinson's disease (PD) and other parkinsonian syndromes (PS) could be difficult in early stages of the disease. Transcranial sonography (TCS) is able to detect structural changes in substantia nigra and basal ganglia in PD and PS patients. FP-CIT SPECT imaging could detect presynaptic dysfunction in several neurodegenerative diseases including PD and PS. The aim of our study was to assess correlation between TCS and SPECT findings and diagnosis of PD, other PS, essential tremor (ET) and psychogenic movement disorder (PMD).

Methods: We examined 50 patients (32 male, mean age 56.1 ± 9.1 years) - 30 PD patients, 7 PS patients, 11 patients with ET, and 2 PMD patients. SN echogenity and SN area were measured using TCS. SPECT evaluation of basal ganglia was performed using DAT-ligand (123I-ioflupan). Both examinations were performed within 2 months after clinical examination. The sensitivity, specificity, positive predictive (PPV) and negative predictive (NPV) values for TCS and SPECT were evaluated.

Results: TCS and SPECT findings correlated in 84% patients, kappa=0.62 (95% CI=0.38–0.86), ACE1=0.61 (p=0.00002). TCS / SPECT sensitivity, specificity, PPV and NPV for diagnosis of PD were 89.7% / 96.6%, 60.0% / 70.0%, 76.5% / 82.4% and 80.0% / 93.3%, resp. Both positive TCS and SPECT findings correlated significantly with diagnosis of PD - kappa=0.52 (95% CI=0.27–0.76), ACE1=0.59 (p=0.0002) and kappa=0.69 (95% CI=0.49–0.90), ACE1=0.74 (p=0.000001), resp.

Conclusion: Correlation of TCS and SPECT findings in movement disorders patients was high. The sensitivity, specificity, PPV and NPV were similar for both methods.