CLINICAL AND DEMOGRAPHIC CORRELATES OF SUBSTANTIA NIGRA HYPERECHOGENICITY IN PARKINSON’S DISEASE PATIENTS

Mazurenka K.V., Phd, Ponomarev V.V., Phd, professor
Neurology and Neurosurgery, Belarusian Medical Academy of Postgraduate Education, Minsk, Belarus

BACKGROUND:

Previous studies have shown that substantia nigra hyperechogenicity (SNH) is a useful ultrasound biomarker for Parkinson’s disease (PD).

Objective: To establish a correlation between the clinical and demographic data from the TCS parameters.

METHODS

100 patients with PD and 31 healthy controls underwent transcranial sonography (TCS), clinical evaluation using the Unified Parkinson’s Disease Rating Scale (UPDRS) and neuropsychological examination with Mini-Mental State Examination, Frontal Assessment Battery and Parkinson's Disease-Cognitive Rating Scale.

We analyzed correlations of clinical, demographic factors, results of neuropsychological testing with parameters of TCS.

RESULTS

The absence of temporal ultrasound windows was noted in 8% of the PD group and 3.2% of the control group.

Mean SNH area was > 0.20cm² in 95.7% patients with PD compared with 10% controls (33.5 [28.5; 37.5] mm and 15.75 [13.5; 18.5] mm respectively, p<0.001).

We established correlation between the mean SNH area and age of PD patients (r_s=0.40 p<0.001), PD duration (r_s=0.29 p=0.004), age of the onset of PD (r_s=0.27 p=0.009), Hoehn &Yahr stage (r_s=0.36 p=0.001), the non-motor symptoms (r_s=0.33 p=0.005) and the motor symptoms on the UPDRS-III scale (r_s=0.41 p<0.001), and the severity of depressive symptoms (r_s=0.25 p=0.017).

The mean SN area was higher in PD patients with cognitive impairment: 29.25 [25.0; 33.5] in cognitively intact patients, 34.0 [30.0; 37.0] in patients with mild cognitive impairment, 37.5 [32.5; 40.0] in patients with dementia (p<0.001).

CONCLUSIONS

This finding indicates that SNH area correlates with some clinical and demographic features of PD.

REFERENCES


CONTACTS

evmazurek@mail.ru professor.ponomarev@gmail.com