ABSTRACT

The neurovascular coupling is the process by which the neurovascular unit modulates the complex relationship between neuronal activity, hemodynamic factors and intracellular signaling.

Recent studies identify the possible association between alterations in cerebral hemodynamic and the impairment of cognitive performance, partly due to an impairment of physiological signaling between the elements of the neurovascular unit.

Objective of the study is to investigate the possible relationship between cognitive disturbances and alterations in cerebrovascular reactivity in patients with Parkinson's disease (PD).

We evaluated a population of 34 patients (22 males and 12 females) with PD according to UK Brain Bank Criteria and subjected to clinical evaluation, neuropsychological and motor, autonomic function evaluation by SCOPA-AUT, assessment of lesion load of the white matter with Magnetic Resonance Cerebral applying visual semiquantitative scale CHS and assessment Ultrasound TSA and TCD, including evaluation of cerebrovascular reactivity by Breath Holding Index (BHI). The population was divided into two groups one with and one without Mild Cognitive Impairment (MCI) according to Diagnostic Criteria for PD-MC from Litvan I 2012.

From the results obtained hemodynamic parameters assessed by TCD showed no significant differences at baseline of VMF MCA and PCA. After hypercapnic stimulus there was a statistically significant difference in cerebrovascular reactivity resulting in reduced group PD-MCI.