BLOOD FLOW VELOCITY CHANGES IN ANTERIOR CEREBRAL ARTERIES DURING COGNITIVE TASKS PERFORMANCE IN LEFT-HANDED SUBJECTS

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Objective: Studies of Transcranial Doppler ultrasonography (TCD) monitoring of blood flow velocities (BFVs) in anterior cerebral arteries (ACAs) during different cognitive tasks performance are rare (Boban M, Crnac P, Junaković A, Garami Z, Malojčić B. Blood flow velocity changes in anterior cerebral arteries during cognitive tasks performance. Brain Cogn 2014;84:26-33.), with no study performed in left-handed subjects, so far.

Aim: To obtain temporal pattern and hemispheric dominance of BFV changes during different cognitive tasks performance and to assess potential of different cognitive tasks for monitoring of BFV changes in ACAs in left-handed subjects.

Methods: Fourteen left-handed, healthy subjects aged 20 to 25 were included in the study. BFVs were recorded simultaneously in ACAs during performance of cognitive tasks designed to activate medial parts of frontal lobes: phonemic Verbal Fluency test (pVFT), Stroop tests and Trail Making test B (TMTB).

Results: A statistically significant BFV increase was recorded in both ACAs during performance of pVFT, TMTB and Stroop test with incongruent stimulus. Statistically significant laterality was found during performance of VFT (right dominance). The most significant BFV increase was found during performance of TMTB.

Conclusion: Similarly to our results in right-handed subjects, TMTB has shown the best potential in monitoring of ACAs in left-handed subjects.