INCREASED PULSATILITY INDEX MEASURED BY TRANSCRANIAL DOPPLER ULTRASOUND IN ACUTE STROKE CAN PREDICT THE COGNITIVE DECLINE

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Background: The effect of compromised cerebral hemodynamic on progressive cognitive performance is not well known. In this pilot study we evaluated the risk of cognitive decline determined by Mini Mental Status examination (MMSE) and the Montreal Cognitive Assessment (MoCA) with increased pulsatility index measured by the transcranial doppler (TCD). Methods: Pulsatility Index, MMSE and MoCA scores in acute stroke phase were collected in 100 patients admitted at the National University Hospital Singapore with a diagnosis of ischemic stroke/ transient ischemic attack (TIA). MMSE and MoCA were collected again at 6 months after index cerebrovascular event. Cognitive decline was defined by the decrement of 2 points and more in the total scores of MMSE and MoCA from acute stroke to 6 months follow up. Results: Patients with high pulsatility indices 1.118 had approximately five times (OR=4.54; CI=1.138-18.095) the risk of cognitive decline measured by MMSE than those with indices ≤1.118. similarly these patients whose pulsatility indices were 1.15 had nearly twice (OR=1.67; CI=0.288-9.655) the risk of cognitive decline measured by a decrement of MoCA scores ≥2 points than those with pulsatility indices ≤1.15. Conclusion: Increased pulsatility index in acute stroke can predict cognitive decline of patients with ischemic stroke /TIA at 6 to 12 months later.