

Research Article :



Effects of Temporary Clips on Somatosensory Evoked Potentials in Anterior Circulation of Brain Aneurysm Surgery among Rasul Akram Hospital Patients during 2017-2018

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ABSTRACT

Background and Aim: Cerebrovascular brain incidents especially brain aneurysm ruptures are a major cause of death and disability. Monitoring somatosensory evoked potential and corresponding changes is used for identifying cerebral ischemia and helps to predict neuronal injuries during using temporary clips in brain aneurysm surgeries. This approach limits integrated performance evaluation for somatosensory and cortex paths.

Methods and Materials: This study was conducted as a clinical trial for candidate patients of anterior cerebral circulation aneurysm surgery during 2017-2018 in Rasul Akram Hospital. Somatosensory evoked potential (SSEP) monitoring was performed related to the median nerve in the contralateral wrist to examine the middle cerebral artery (MCA) and posterior tibialis nerve in the contralateral ankle to examine anterior cerebral artery (ACA) during the surgery procedure. Incentive parameters with a power of 5 to 25 milliamperere and corresponding duration of 0.2 milliseconds and waves with a frequency of 3.3 Hertz were registered. Before locating temporary clips, SSEP was extracted as a baseline from every patient and then recorded.

Results: Totally 9 patients (9 aneurysms) were studied. Three of them were men and 6 patients women. The age of patients ranged from 39 to 78 years old. The clinical status of patients was assessed using the Hunt-HESS scale. Five cases were grade 1, 2 cases classified as grade 2, and 2 cases in grade 3. Among 9 aneurysms, 7 cases were about A.com artery and 2 cases were in connection with MCA artery, having the size of 5 to 11 millimeters. Friedman test was applied to explore average latency change percentage and amplitude change percentage in 1st, 2nd, and 3rd minutes for the first, second, and third clips where results suggested that, was significantly different ($P=0.050$).

Conclusion: Neuromonitoring can be used as an index for examining tissue perfusion level of the brain and help to prevent accidental ischemic injuries of the brain followed by temporary clipping.

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