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EPO-259

Could median nerve somatosensory evoked potentials be helpful in extracranial internal carotid artery recanalization

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Background and aims: Favorable clinical outcome after extracranial internal carotid artery (eICA) recanalization therapy is reported between 30–62%. Median nerve somatosensory evoked potentials (SEP) amplitude is a direct marker of rolandic area neuronal activity and correlates well with cortical cerebral blood flow. Rolandic neurons survival is the main condition for the attainment or recovery of motor function. Evaluate the role of preoperative and intraoperative SEPs on functional outcome after urgent surgical eICA recanalization.
Methods: Prospective enrollment. Inclusion criteria: Acute ischemic stroke with eICA occlusion within 24 hours eligible for recanalization therapy. Pre-stroke performance modified Rankin score (mRS) ≤2.Parameters measured: Preoperative ipsilateral SEP amplitude (SEP-amp), side-to-side ratio (SEP-ratio) and significant intraoperative SEP amplitude decrease after carotic artery cross-clamp (SEP-CC). 3-month functional outcome according to mRS.
Results: Cohort: 33 patients, 30 males (90.1%), age of 70.4±8.9 years.Abnormal SEP-amp (<0.8uV) and SEP-ratio (<0.5) were in 6 (18.2%) and 4 (12.1%) respectively. Positive predictive value for unfavourable (mRS >2) outcome: 92.6% and 100%, false negatives: 9.1% and 3.1% respectively.Intraoperatively SEP-CC decreased in 6 (18.2%). SEP-CC recovered after intervention (blood pressure gain, shunt insertion) in 5 of them. 3-month outcome: favorable (mRS 0–2) in 28 (84.8%), (mRS 4–5) in 2 (6.1%), three (9.1%) died.
Conclusion: In urgent eICA recanalization SEP-ratio might be promising and reliable predictor of functional outcome after eICA recanalization.
Intraoperative SEP seems to be beneficial in the prevention of intraoperative ischemia development.
Functional outcome could be positively affected both by intraoperative and preoperative SEPs.

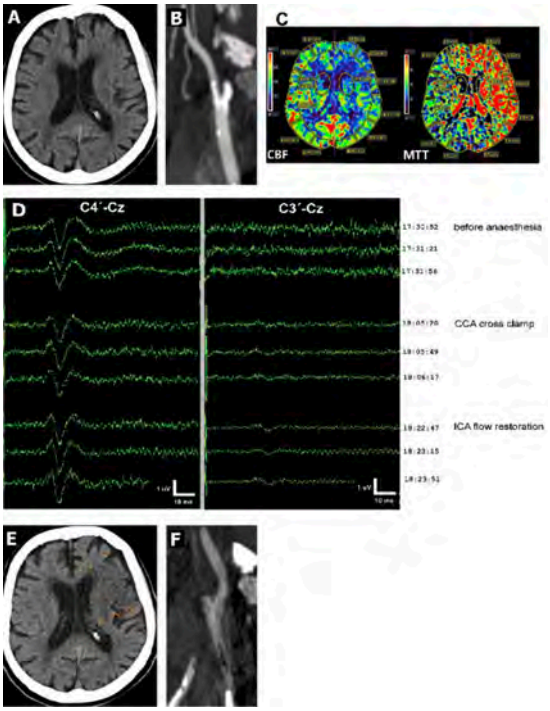

Fig 1. Preserved SEP-amp and SEP-ratio, NIHSS 19 before surgery. Right eICA occlusion (A, B), right MCA, ACA hypoperfusion with CBF decrease and MTT prolongation (C) and preserved SEPs on symptomatic side (D). 24 hours after surgery: nonenhanced brain sc..

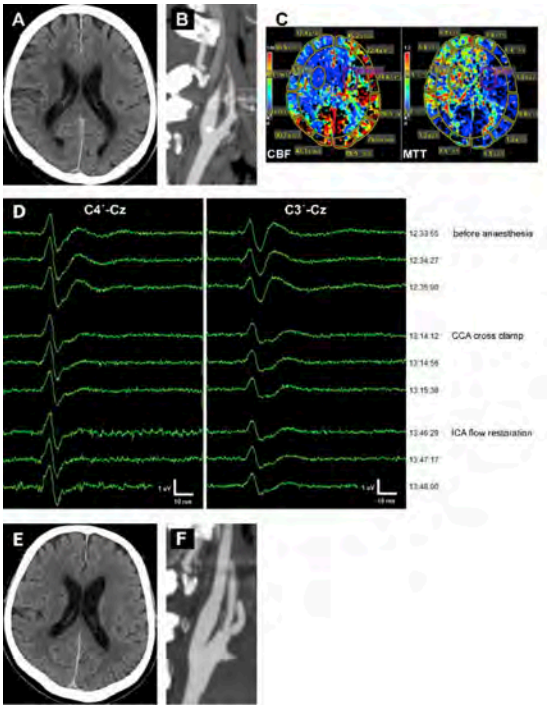

Fig. 2 Ipsilateral absent SEP-amp, abnormal SEP-artio, NIHSS 19 before surgery. Left eICA occlusion (A, B), left MCA, ACA hypoperfusion with CBF decrease and MTT prolongation (C) and severely decreased median nerve SEPs on symptomatic side (D) before.

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