Emergency CEA (e-CEA) for Stroke-in-evolution (SIE) Background

- SIE: acute neurologic deficit progressing within hrs-days
- 10-20% of all ischemic strokes are associated with a car lesion
- Evidence-based indications for elective CEA, but not for e-CEA
- Early recanalization is effective (ESCAPE, EXTEND-I, MR CLEAN, REVASTAT, SWIFT PRIME)
- Clinical outcome difficult to predict, assumed high risk of surgery

Role of e-CEA play in stroke treatment?

The German Carotid Registry 1999 – 2014:

- > 160,000 patients
- 3,176 Patients
  - Male: 67%
  - Age: 70.8 years (mean)
  - Modified Rankin Scale at admission: mean 2.9
  - ASA stage III-V: 84%
  - Degree of carotid stenosis
    - Occlusion: 12.7
    - 70-69%: 78
    - 60-69%: 6.5
    - <50%: 2.8

Date from the The German Carotid Registry 1999 – 2014:
Methods

Inclusion Criteria
- 6-year data (2009-2014) of all emergency CEAs performed in GER
- Documentation of all CEAs (and CAS since 2012) is mandatory

Exclusion Criteria
- Recurrent stenosis, aneurysms, treatment of multilevel lesions, crescendo-TIA

Statistics
- Chi-Squared-Test, multivariable logistic regression analysis, p<0.05

Disclosures
- Research grants by MEDTRONIC and COOK
- Executive board of VASCULAR INTERNATIONAL
E-CEA for Stroke in evolution (SIE): preop diagnostics (%)

- CT Angiography: 44%
- MR Angiography: 38%
- Catheter Angiography: 6%
- Duplex ultrasound: 93%
- CCT or MRI: 96%

Pathological findings in CCT or MRT in 82% of all patients

- Lacunar infarction/microangiopathy: 27%
- Territorial infarction: 45%
- Hemodynamic infarction: 33%

E-CEA for Stroke in evolution (SIE): postop outcomes (%)

- Cranial nerve palsy: 0.8%
- Major neck bleeding: 2.7%
- Myocardial infarction: 1.1%
- Any new non-fatal stroke: 4.0%
- Any new major stroke and death: 8.2%
- Any new stroke or death: 9.0%
- Death: 6.1%

E-CEA for Stroke in evolution (SIE): risk predictors

- Close collaboration with the STROKE UNIT
- Proper brain imaging: diffusion/perfusion MRI or CCT
- High suspicion of an embolizing carotid stenosis/occlusion
- Exclusion criteria
  - Cerebral bleeding
  - Patient unconscious
  - Major cerebral infarction with massive swelling

E-CEA for Stroke in evolution (SIE): patient selection

- General anesthesia might be better
- "no-touch technique" of the carotid bifurcation + early CCA clamping
- Elevation of the blood pressure: increase the back flow from the intracranial a.
- Cave Catheter thrombectomy! (local dissection, a-v-fistula to the jugular vein)
- Shunting might be better + CEA with patch closure
- Completion on-table angiography in an antegrade and a lateral view
- Selective angiography if patency is not confirmed (endovascular thrombectomy)
- Strict blood pressure control postoperatively
49 yrs, male, aphasia at 5.00 am, acute occlusion of the left ICA, perfusion-diffusion mismatch

Emergency thrombectomy and CEA

49 yrs, male, complete recovery, MRI: no mismatch

72 yrs, male, acute stroke: emergency CEA catheter thrombolysis (500,000 Urocinase)

Conclusions
- E-CEA is still one therapeutic option
- Patient selection is crucial
- Cooperation with a stroke unit

Thank you very much

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