Emergency CEA for a stroke in evolution: when is it indicated and how should it be performed?

Afshin Assadian and Hans-Henning Eckstein
Departments for Vascular and Endovascular Surgery, Wilhelminenspital Vienna/Austria and Klinikum rechts der Isar, Munich, Germany

Background

- Stroke-in-evolution (SIE): acute neurologic deficit progressing within hrs-days
- 10-20% of all ischemic strokes are associated with a carotid lesion
- Evidence-based indications for elective CEA, but not for e-CEA
- Early endovasc recanalization is effective (ESCAPE, EXTEND-I, MR CLEAN, etc)
- Emergency CEA is usually considered to be very risky (cerebral bleeding)

Is there a role of e-CEA in stroke treatment?

Emergency thrombectomy and CEA

49 yrs, male, aphasia at 5.00 am, acute occlusion of the left ICA, perfusion-diffusion mismatch

49 yrs, male, complete recovery, MRI: no mismatch
Date from the The German Carotid Registry

Inclusion Criteria
• 6-year data (2009-2014) of all emergency CEAs performed in GER

Exclusion Criteria
• Elective CEA, recurrent stenosis, aneurysms, crescendo-TIA

Primary Endpoint
• Any new in-hospital stroke or death

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

Patient demographics (3,176 patients)
• Male 67%
• Age 70.8 years (mean)
• Modified Rankin Scale at admission 2.9 (mean)
• ASA stage III-V 84%
• Degree of carotid stenosis
  - occlusion 12.7%
  - 70-99% 78%
  - 60-69% 6.5%
  - <50% 2.8%

Postoperative outcomes after e-CEA for SIE

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

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

- 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): how to do it

- "no-touch-technique" of the carotid bifurcation + early ICA clamping
- Elevation of the blood pressure: increase the back flow from the intracranial ICA
- Completion on table angiography in an antegrade and a lateral view
- Strict blood pressure control postoperatively

Emergency CEA: an option in selected pts
- Intraoperative angiography is mandatory
- Strong cooperation with a stroke unit

Thank you very much!

Afshin Assadian and Hans-Henning Eckstein
Departments for Vascular and Endovascular Surgery, Wilhelminenspital Vienna/Austria and Klinikum rechts der Isar (MRI), Munich, Germany