Author:

Stanlies D'Souza Md, FRCA, FCARCSI

Associate Professor in Anesthesiology,

University of Massachusetts Medical School(UMMS)

Adjunct Associate Professor in Anesthesiology,

Tufts University School of Medicine

Division Chief, Neuroanesthesiology,

UMMS-Baystate

Springfield, MA, USA

Prevention of perioperative stroke during carotid endarterectomy: An Anesthesiologist perspective

Identify the risk factors for perioperative stroke during carotid endarterectomy (CEA):

1. Symptomatic patients: review of incidence of 30 day stroke and mortality phase 3 trials of symptomatic and asymptomatic carotid artery surgery trials and current literature update
2. Presence of contralateral stenosis(review of prospective and retrospective data)
3. Hypertension (review of literature)
4. Hyperglycemia with brief literature review
5. Presence of ulcerated plaque with data analysis
6. Emergency CEA and the risk of stroke, literature update

Early surgery vs. late surgery after embolic stroke or transient ischemic attack (TIA):

Review of the literature: surgery beyond 48 hours and within one month in symptomatic patients

CEA in a patient who requires coronary artery bypass grafting (CABG):

1. Prior CEA vs combined CEA and CABG: Review of the current literature

CEA in patient who needs clipping of intracranial aneurysm:

1. Describe the reason for increased risk of ischemic stroke with clipping of intracranial aneurysm in a patient with ipsilateral carotid artery stenosis.

2. Reason for increased risk of hemorrhagic stroke in a patient following unclamping during CEA procedure
3. Which should done first, CEA or clipping of aneurysm? Review of the current literature

Anesthesia for CEA

Regional vs General anesthesia (GA): Review of GALA trial and Cochrane systemic review with regard to incidence of perioperative stroke and patient's 30 day neurological outcome.

GA for CEA:

1. Volatile anesthetic agents vs. total intravenous anesthesia: perioperative neurological outcome, review of the data
2. Role of remifentanil and dexmedetomidine during GA
3. PaCO2 management during GA : Mild hypercarbia vs mild hyporcarbia on cerebral vasculature on ipsilateral and contralateral side in a patient with severe carotid artery stenosis and neuroglial outcome.

Shunting during CEA:

1. Routine shunting vs selective shunting with regard to no shunt and risk of perioperative stroke, review of the literature

Neuromonitoring techniques and their limitations during CEA and patient's neurological outcome as per current literature

1. Awake patient during regional anesthesia
2. EEG monitoring
3. Somatosensory and motor evoked potential monitoring
4. Cerebral oximetry
5. Jugular venous oxygen monitoring
6. Carotid artery stump pressure monitoring
7. Transcranial Doppler monitor (TCD)

Blood pressure targets during unclamping and clamping to avoid perioperative stroke: current data review

Prevention of carotid sinus reflex:

Description **of** advantages and disadvantages of routine carotid sheath infiltration with lidocaine and postoperative hypertension

Cerebral hyperperfusion syndrome (CHS)

Etiology, prevention, management and neurological outcome of CHS