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Opinion
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Vascular Surgery Cases Guidelines (Carotid Endarterectomy)

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History and Physical

Hypertension (Know patient's SBP/DBP range)

CAD

Valvular Disease Smoking

Kidney Disease

COPD

DM

Neurological Deficits Documented

Labs

Chem 10

CBC- base line and need for Type and screening, Type and crossing, early type and cross (72 hours) if difficult cross match or history of transfusions

PT/INR-especially when planning regional

Diagnostic Tests

EKG-baseline

ECHO-poor functional status

Pharmacologic stress/nuclear perfusion test- poor functional status and symptomatic CAD

Pulmonary function tests may be available in COPD and help predict post op course and tolerance of one lung ventilation.

Consults

Cardiology in non-emergent symptomatic patients or positive stress test or poor ECHO results

Educate Patients

Risks involved including MI, stroke, death

Lines to be placed Arterial Line, Other IVs, Foley,

Discuss with surgeon regional *vs* General anesthetic

Regional is rare -conversion to general may be more difficult due to positioning

Intraoperative

A line-use ultrasound early to find the radial artery for the art line if you can't get it

- Foley-may or may not be placed (depending on the anticipated length of the surgery)
- Bair Hugger-may be placed below the nipples

ECG - don't place leads near ipsilateral chest and neck (place on back of patient)

Positioning

- Arms-will be tucked

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- use IV or Aline extensions if necessary
- may untuck the opposite arm in most cases
- keep ipsilateral side clear if possible
- try to place Aline, cuff and main large bore IV on unused arm ideally for easy access

Head-up slightly and turned to the opposite side of the surgery. Some beds auto position to “Beach Chair” position.

- ACT - is obtained every 30 minutes
- ACT machine in the room before starting - check that it is calibrated

Ensure the surgeon answers back when you tell them the result of the test.

Stump Pressures (Occasionally Done)

Needle will be placed in the common carotid to measure the “back pressure” coming down from the internal carotid. Extension pressure tubing will be needed. Once the ACT is therapeutic (usually 300 sec), connect the extension tubing into the open port of the aline3-way stopcock (you will need a male-male adaptor). Flush the tubing back to the surgeon and Zero it when the air is out (the surgeon’s needle will be out of the patient and open to air). Carotid stump pressure will be measured. Surgeon will decide if it is adequate to proceed without a shunt and switch the A-line stopcock back to the patient’s pressure. If a stump pressure is determined to be good to proceed without a shunt, notice the systemic BP at that time. *Do Not Allow The Bp To Go Below This*. If the systemic BP drops lower than where the stump pressure was OK, then the stump pressure will also drop. This will put the patient at higher risk for stroke (without a shunt)

SSEPsometimes used will need IV anesthesia with low MAC volatile anesthetic

If the patient becomes suddenly hypertensive right after the carotid is clamped, this may mean the brain is ischemic. Alert the surgeon, but don't drop the BP. Allow the surgeon to consider placing a shunt, which once placed, will usually be followed by normalization of the BP

Intra-Operative Caveats

Phenylephrine drip ready -BP >100 at all times

Hypotension may lead to strokes especially before clamps are off

Avoid wide swings of BP especially during clamping

Use a drip rather than "boluses"

Volatile anesthetic- Keep stable during critical portions of the case

- Aware/awake and tachycardia and HTN may ensue
- Avoid this and preferably use pressors to raise BP

Nitroglycerine available (may need to dilute as some patients very sensitive) hypertension after the repair is done is high risk for bleeding

After surgical stop time- minimize bucking and coughing

- Deep extubation is preferred, assuming they can be safely done coughing and bucking increases risk for hematomas
- *Tachycardia and or hypertensive* - preferably treat beta blockers to avoid AMI and/or bleeding.

Follow simple commands (wiggle toes, stick out tongue, squeeze hand etc) before leaving the room

Post Operative

Look for major complications of carotid surgery and notify vascular team for any problems in PACU

- MI - order EKG and/or enzymes if any EKG changes on monitor
- Stroke- new neurological deficits
- Expanding Neck hematoma compromising airway
- Labile blood pressure - some patients require fluid boluses and possible need for phenylephrine drip to maintain MAPs >60
- Hypertension - some patients significantly hypertensive post-operatively

SICU *vs* Floor discharge.