Carotid Occlusion Studies

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Indication

– to predeter­mine patient's tolerance to carotid occlusion during preparation for carotid ligation.

30% population will not tolerate carotid ligation without stroke! (49% of ICA and 28% of CCA ligations) H: bypass [see p. Vas7 >>](HTTP://WWW.NEUROSURGERYRESIDENT.NET/Vas.%20Vascular/Vas7.%20Carotid%20Atherosclerotic%20Stenosis.pdf)

* carotid ligation is used:
  1. nonoperable ***aneurysms*** of carotid artery; now its rare - microsurgical techniques and multiple designs of clips allow for direct aneur­ysm obliteration and parent artery reconstruction.
  2. radical resections of ***tumors*** located along intracranial course of ICA (carotid ligation for cure or hemostasis).

Technique

- **temporary balloon occlusion**:

* after angiography, nondetachable balloon is posi­tioned in ICA under local anesthesia.
* patient is ***anticoagulated*** with heparin, 100 U/kg (serial activated clotting times should be twice control time).
* balloon is expanded and occlusion of flow verified *angiographically*.
* patient is examined *neurologically* throughout procedure.
* additional monitoring:
  1. scalp EEG (any slowing or change in symmetry of activity)
  2. transcranial Doppler (changes in direction and velocity of flows)
  3. regional CBF studies (additional verification of ade­quacy of collateral flow) – Xe inhalation, SPECT using 99mTc-HMPAO.

Complications

≈ 3.7% :

1. asymptomatic carotid dissection (2%)
2. permanent neurologic deficit (0.33%).

Bibliography for ch. “Neurovascular Examination” → follow this [link >>](http://www.neurosurgeryresident.net/Vas.%20Vascular\Vas.%20Bibliography.pdf)

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