

Completion Arteriogram After CEA is Necessary and Helpful

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NO DISCLOSURES



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Completion CEA Study

- How many do completion arteriogram?
- How many do completion DU?
- How many use completion hand-held doppler?
- How many do nothing –
“My stroke rate is so low, it’s not worth it”

We analyzed results of *routine*
completion Agm following CEA

Completion CEA Study

”Difficult to advocate for
compulsory completion imaging after CEA.
However, if concerned about end-point...
completion studies should be performed.”

*(SVS Implementation Document for Management
of Extracranial Cardiovascular Disease.
Aburahma et al. J Vasc Surg 2022;75:26S-98S)*

Completion CEA Study

“Completion imaging with angiography, DU, or
angiосcopy should be considered
to reduce risk of peri-op stroke”

*European Society for Vascular Surgery 2023
Clinical Practice Guidelines in the Management of
Carotid and Vertebral Artery Disease.
Eur J Vasc Endovasc Surg 2023;65:7-111.*

Methods

- 1992 – 2019
- 1,439 isolated CEAs
- Patch closure = 78%, eversion = 22%
- Cervical block anesthesia = 73%

Technique of Completion Agm

- 21-gauge butterfly needle into CCA
- Hand-injection, AP and lateral view
- 5-10 cc's contrast
- Adds < 5 minutes to case



Results of Completion CEA Arteriogram

Significant finding prompted revision

= 1.7% (24 / 1,439)

Results

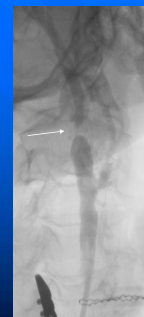
24 abnormal completion Agms

- 20 unsatisfactory distal endpoints
 - 12 residual stenoses
 - 7 intimal flaps
 - 1 dissection
- 3 kinks or stenoses within the body of the patch
- 1 thrombus

Treatment

24 abnormal completion Agms

- 20 unsatisfactory distal endpoints
 - stent = 17
 - patch revision = 3
- 3 kinks or stenoses within body of patch – Rx = patch angioplasty
- 1 thrombus – Rx = thrombectomy



Post-CEA



Intraop stent

Treatment
24 abnormal completion Agms

*None of these 24 patients
suffered perioperative stroke*

Overall 30-day results /1,439 patients
22 strokes (1.5%)

- All had normal completion arteriograms
- 15 *non-hemorrhagic* ipsilateral strokes
14 widely patent CEA
(CT-A = 13, re-exploration/repeat agm =1)
1 occluded CEA: thrombectomy
(no technical problem identified)
 - 7 *hemorrhagic* strokes
(4 reperfusion syndrome, 1 carotid bleed; 2 contralateral)

Stroke rates
1,439 cases

Actual overall stroke rate = 1.5% (22)
Revised based on agm = 1.7% (24)
If no completion agm = 3.2% (46)

*Peri-operative CEA stroke rate
potentially halved from
3.2% → 1.5%*

Conclusion

Maybe not all patients who underwent
intraoperative surgical revision due to abnormal
arteriogram would have suffered stroke,
**but quick, simple study possibly halved our
peri-operative CEA stroke rate from
3.2% to 1.5%**
(you know you did the best you could!)



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