MOST RECURRENT STENOSIS IS BENIGN WHEN & HOW TO INTERVENE?

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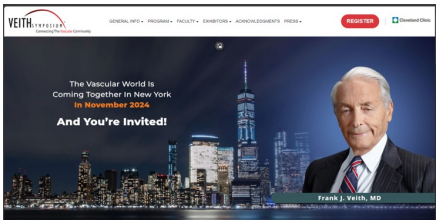
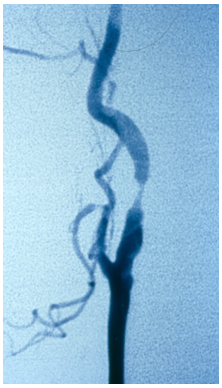
Disclosures

- Nothing to disclose



OUTLINE

- Epidemiology of RCS
- Diagnosis
- Management:
  - TCAR vs. tfCAS?



RCS in CREST: 6% vs. 6.3%

Restenosis after carotid artery stenting and endarterectomy: a secondary analysis of CREST, a randomised controlled trial

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Summary

Background In the Carotid Revascularization Endarterectomy versus Stenting Trial (CREST), the composite primary endpoint of stroke, myocardial infarction, or death during the periprocedural period or ipsilateral stroke thereafter did not differ between carotid artery stenting and carotid endarterectomy for symptomatic or asymptomatic carotid stenosis. A secondary aim of this randomised trial was to compare the composite endpoint of restenosis or occlusion.

Methods Patients with stenosis of the carotid artery who were asymptomatic or had had a transient ischaemic attack, amaurosis fugax, or a minor stroke were eligible for CREST and were enrolled at 117 clinical centres in the USA and Canada between Dec 21, 2000, and July 18, 2008. In this secondary analysis, the main endpoint was a composite of restenosis or occlusion at 2 years. Restenosis and occlusion were assessed by duplex ultrasonography at 1, 6, 12, 24, and 48 months and were defined as a reduction in diameter of the target artery of at least 70%, diagnosed by a peak systolic velocity of at least 3·0 m/s. Studies were done in CREST-certified laboratories and interpreted at the Ultrasound Core Laboratory (University of Washington). The frequency of restenosis was calculated by Kaplan-Meier survival estimates and was compared during a 2-year follow-up period. We used proportional hazards models to assess the association between baseline characteristics and risk of restenosis. Analyses were per protocol. CREST is registered with ClinicalTrials.gov, number NCT00004732.

Findings 2191 patients received their assigned treatment within 30 days of randomisation and had eligible ultrasonography (1086 who had carotid artery stenting, 1105 who had carotid endarterectomy). In 2 years, 58 patients who underwent carotid artery stenting (Kaplan-Meier rate 6·9%) and 62 who had carotid endarterectomy (6·3%) had restenosis or occlusion (hazard ratio [HR] 0·90, 95% CI 0·63–1·29; p=0·58). Female sex (1·79, 1·25–2·56), diabetes (2·33, 1·63–3·33), and dyslipidaemia (2·07, 1·03–4·26) were independent predictors of restenosis or occlusion after the two procedures. Smoking predicted an increased rate of restenosis after carotid endarterectomy (2·26, 1·34–3·77) but not after carotid artery stenting (0·77, 0·43–1·42).

Interpretation Restenosis and occlusion were infrequent and rates were similar up to 2 years after carotid endarterectomy and carotid artery stenting. Subsets of patients could benefit from early and frequent monitoring after revascularisation.

Lancet Neurol 2012; 11: 753–63
Published Online August 2, 2012
http://dx.doi.org/10.1016/S1474-4422(12)70193-X
See Comment page 740

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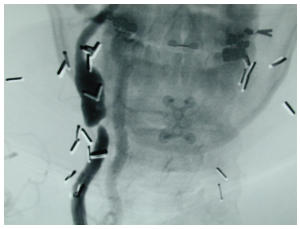
Recurrent Carotid Stenosis after CEA

- Incidence: 5-10%
- Symptoms: <5%
- Early vs. Late



- <24 m. >2years
- Intimal hyperplasia
- Recurrent plaque

Patterns and Symptoms

- Early vs. Late
- Mostly asymptomatic

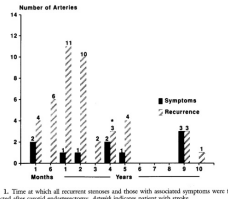


Fig. 1. Time at which all recurrent stenoses and those with associated symptoms were first detected after carotid endarterectomy. Asterisk indicates patient with stroke.

Mattos et al. JVS 1993; 17:819

RCS Lifetable

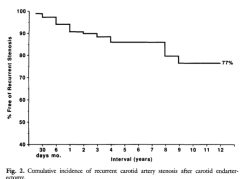


Fig. 2. Cumulative incidence of recurrent carotid artery stenosis after carotid endarterectomy.

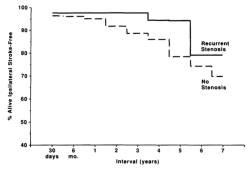
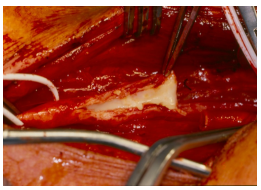


Fig. 6. Ipsilateral stroke-free survival rates in patients with and without recurrent carotid artery stenosis.

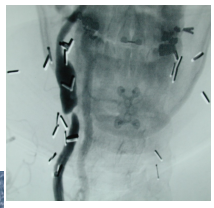
Pathology of RCS

- Early vs. Late
- Reoperation:
  - Higher complications
  - Cranial N. injury



Is there a role for carotid stenting?

- Recurrent stenosis
- Neck radiation
- Tracheostomy
- High bifurcation
- Severe heart disease
- Severe COPD

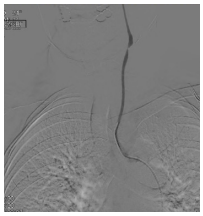


TCAR vs. CAS

	TCAR	tfCAS
Anesthesia	GA or local	Local
Access	Neck	Groin
Embolic protection	Flow reversal	Filter
Stent	SilkRoad	Abbott, other
Stroke	1.4%*	4.1%**
Publication	*Roadster**	*CREST***

* Not randomized
**Randomized controlled trial

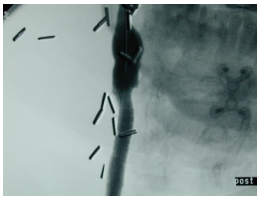
Case 1

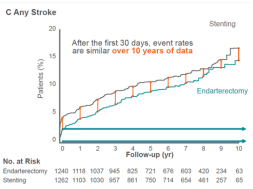


Case 2

70 yo man presents to ED with *symptomatic* recurrent left carotid stenosis.
Received neck radiation for vocal cord cancer in 2000.
He previously had Left tfCAS in 2006 and Right tfCAS in 2010

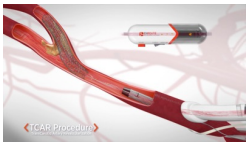
Is stenting durable?





Complications of TCAR

- Hematoma
- Cranial nerve injury
- Dissection (post wall)
- Patient selection
  - (CCA length)
- Stroke-MI-Death



SUMMARY

- Recurrent carotid stenosis is uncommon after CEA or CAS 5-10%
- It is mostly asymptomatic (>80%)
- TCAR is probably best option to treat it
- Redo CEA is difficult and associated with increased risk of stroke and Cranial Nerve injury