

ABSTRACT

Background: We generally assume that guideline recommendations deriving from RCTs are of benefit to most of our patients. However if these RCTs don't represent the majority of our patients, due to strict study protocols, in the worst case the recommendations could be of benefit for only a few and of harm to many of our patients.

Methods: 125 consecutive CEA (104), TCAR (15) and CAS (1) patients were screened for the eligibility to asymptomatic (SPACE-2, ACST-2, CREST^{asympt}) and symptomatic (SPACE-1, CREST^{sympt}, ICSS, EVA-3S) carotid RCTs.

Results: The number of inclusion and exclusion criteria vary considerably between the RCTs. This has significant influence on the amount of patients being potentially eligible following the protocols of the RCTs. ACST-2 for example has only a few exclusion criteria and therefore 77.9% of the investigated population would have been eligible to the trial. CREST on the other hand has a very extensive catalogue of inclusion and exclusion criteria. Hence, only 29.1% of our patients would be eligible to the asymptomatic and 20.5% to the symptomatic arm of the trial.

Conclusions:

- 22% (ACST2) to 71% (CREST^{asympt}) of asymptomatic patients wouldn't have been eligible in the asymptomatic RCTs
- 43% (ICSS) to 79% (CREST^{sympt}) of symptomatic patients wouldn't have been eligible in the symptomatic RCTs
- These preliminary results generate the hypothesis that some RCTs may not represent the real world

BACKGROUND

We routinely treat patients with (a)symptomatic carotid artery stenoses based on guideline recommendations. Level I recommendations are usually derived from randomized controlled trials (RCTs) and metaanalyses of RCTs.

However, since inclusion and exclusion criteria may vary significantly between the single RCTs, the individual trial results might not be applicable to all carotid stenosis patients. In other words: too many exclusion criteria might affect the external validity of single RCTs negatively

PURPOSE

We wanted to find out to which extent clinical and morphological exclusion criteria of recent carotid RCTs prevent a 1:1 transferability of those trials to a real world situation.

METHODS

We looked at all inclusion and exclusion criteria of the mayor asymptomatic (SPACE-2, ACST-2, CREST^{asympt}) and symptomatic (SPACE-1, CREST^{sympt}, ICSS, EVA-3S) carotid RCTs. These criteria were applied to 125 retrospectively analyzed, consecutive patients that were treated in our department by CEA, transcatheter artery stenting (T-CAR) or transfemoral carotid artery stenting (tf-CAS) (Table 1). Endpoint of this study was the eligibility to the individual trials.

RESULTS

The number of inclusion and exclusion criteria vary considerably between the RCTs. ACST-2 for example has only a few exclusion criteria and therefore 77.9% of the investigated population would have been eligible to that RCT. CREST on the other hand has a very extensive catalogue of inclusion and exclusion criteria. Hence, only 29.1% of our patients would be eligible to the asymptomatic and 20.5% to the symptomatic arm of the trial (Table 2).

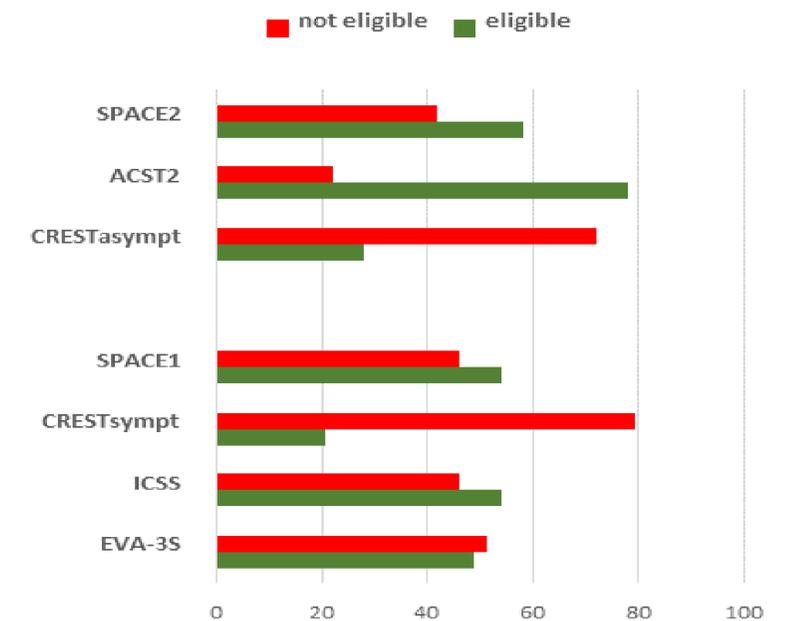
Tab. 1: Patient baseline characteristics (n = 125)

Age	(mean, sd)	72.7, ± 8.4
Sex	Men	90 (72.0%)
Symptoms	symptomatic	39 (31.2%)
ASA	1 - 2	48 (38.4%)
	≥ 3	77 (61.6%)
CVRF	Hypertention	108 (86.4%)
	Diabetes melitus	37 (29.6%)
	Nicotine	73 (58.4%)
	Hypercholest.	95 (76.0%)
Treatment	CEA	104 (83.2%)
	T-CAR	15 (12.0%)
	tf-CAS	1 (0.8%)

Tab. 2 Eligible patients to RCTs (n = 125)

		Eligible		Not eligible	
		%	%	Anatomic reasons	Clinical reasons
Asympt RCTs (n=86)	SPACE-2	58%	42%	27%	24%
	ACST-2	78%	22%	20%	5%
	CREST ^{asympt}	39%	71%	59%	33%
Sympt RCTs (n =39)	SPACE-1	54%)	46%	44%	15%
	CREST ^{sympt}	21%	80%	72%	87%
	ICSS	56%	44%	44%	5%
	EVA-3S	49%	51%	44%)	26%

Fig. 1: Eligible patients to RCTs



CONCLUSION

- ✓ 22% (ACST2) to 71% (CREST^{asympt}) of asymptomatic patients would not have been eligible in the asymptomatic RCTs
- ✓ 43% (ICSS) to 79% (CREST^{sympt}) of symptomatic patients would not have been eligible in the symptomatic RCTs
- ✓ These preliminary results question the transferability of RCTs to a real world situation of patients with carotid stenoses

DISCLOSURES

The authors do not have any relevant disclosures or conflicts of interest