Impact of diabetes mellitus on early clinical outcome and stent restenosis after carotid artery stenting

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Aim

Diabetes mellitus is closely related to both the severity of carotid disease and its outcome after revascularization. Carotid artery stenting (CAS) has emerged as a viable alternative to surgical endarterectomy but little is known about the impact of diabetes after CAS.

Methods

A consecutive cohort of 1940 patients undergoing CAS in two institutions were divided into two groups, diabetics and non-diabetics and major cerebrovascular events (MACCEs) were analyzed at 30 days post-CAS and at 1 year follow-up. A major cerebrovascular clinical event (MACCE) was defined as any stroke, or MI, or death. Any death, stroke, or MI < 30 days from the procedure was considered procedure-related. Stroke was defined as focal neurologic function acute disturbance that lasted over 24 h and resulted from intracranial vascular disturbance. The definition of minor strokes was neurologic deficits that resolved completely within 30 days or led to no functional impairment in daily activities. All other strokes were considered major strokes. Carotid restenosis was set at >50%, quantified by duplex ultrasound.

Results

There were 730 diabetic patients, with significantly higher BMI, hypertension, chronic dialysis and dyslipidemia frequency ($p<0.05$). There was no significant difference between the two groups in terms of early and late MACCEs (composite of transient ischemic attack, major stroke, myocardial infarction and death), with an early rate of 3.5 % non-diabetics vs 5.3 %, $p = 0.08$ and 2.4 non-diabetics vs 2.3% diabetics, $p=0.1$ at 12-months (Table 1). Overall stroke/death rate in the asymptomatic patients was 2.4% and the restenosis rate was higher in the diabetes population (2.3% vs 1%, $p = 0.04$).

	Non-diabetics	Diabetics	P-value	Non-diabetics	Diabetics	P-value
	(n = 1210)	(n = 730)		(n = 1182)	(n = 690)	
	At 30-days			**At 12-months**		
Minor TIA/stroke	27 (2.3%)	21 (2.8%)	0.37	33 (2.7%)	19 (2.7%)	0.96
Major Stroke	14(1.1%)	10(1.3%)	0.68	20 (1.7%)	13 (1.8%)	0.76
MI	5 (0.4%)	5 (0.6%)	0.41	21 (1.7%)	16 (2.3%)	0.41
Death	2 (0.1%)	1 (0.1%)	0.88	25 (2.1%)	16 (2.3%)	0.77
Restenosis	0 (0%)	0 (0%)		12 (1%)	16 (2.3%)	0.04

Table 1. *Perioperative (< 30 days) and 1-year follow-up results among diabetic and non-diabetic patients. TIA = transient ischemic attack, MI = myocardial infarction.*

Conclusion

The presence of diabetes was associated with an acceptable increased periprocedural risk for CAS, but no further additional risk emerged during longer term follow-up. Diabetes may precipitate the rate of early in-stent restenosis.

Declaration of interest: the authors have nothing to declare

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