

Analysis of Parameters Associated with Hemodynamic Instability after Carotid Artery Angioplasty and Stenting

Introduction: Systemic hypotension has been observed for up to 72 hours in response to stimulation of the carotid baroreceptor by carotid angioplasty and stenting (CAS). This study sought to identify risk factors and cardiac outcomes for post procedural hypotension after carotid artery angioplasty and stenting (CAS)

Methods: Between 2002 and 2005, 143 patients (84 men, mean age 74) with high-grade carotid artery stenosis (mean 90%) were treated with CAS. All patients received prophylactic atropine and appropriate intravenous fluid administration during CAS. Patients were stratified into three groups on the basis of hypotension (systolic blood pressure < 80) requiring vasopressor support for < 4 hours, 4-24 hours and >24 hours. Phenylephrine was used as a primary agent and norepinephrine was added for profound or protracted hypotension.

Results: Post procedural hypotension requiring vasopressors was seen in 16/143(11%) of patients, with 6/143 (4%) requiring more than 24 hours (mean 12.3 hours, range 2.3-37 hours). Patients requiring vasopressors for greater than 24 hours (Table) were more likely to be female, with a history of hypertension and hypercholesteremia. One patient had hypotension during both the primary CAS (duration: 11 hours) and subsequent CAS (duration: 26 hours) for restenosis, implying this phenomenon is mediated through individual patient factors. There was no significant difference in the incidence of periprocedural myocardial infarctions or arrhythmias in patients with post-operative hypotension, suggesting this phenomenon is not caused by and does not induce cardiac complications.

Conclusion: Prolonged hypotension requiring vasopressor support is rare after CAS, with higher incidences in older females with hypercholesteremia and hypertension. Prolonged hypotension is not associated with an increased incidence of perioperative cardiac complications.

Hypotension requiring vasopressors	Male: Female	Mean Age	High Chol	HTN	Periprocedural	
					MI	Arrhythmias
No vasopressors n=127	85:42	74	50%	56%	2%	5.6%
Vasopressors 4-24 hours n=10	10:6	72	60%	60%	10%	10%
Vasopressors > 24 hours n=6	1:5	77	100%	100%	0%	0%
P value*	0.031	NS**	0.027	0.047	NS**	NS**

*Chi squared comparing no vasopressors with vasopressors > 24 hours, **NS= Not significant

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