Physician - Vascular Acccess

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Carotid Arterial Revascularization in Patients with Contralateral Carotid Arterial Diseases

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Objective: This study aimed to report our early-term results in the treatment of bilateral carotid arterial diseases.

Methods: The study analyzed 244 patients who underwent isolated carotid endarterectomy between April 1, 2019, and June 30, 2024. Four groups were created according to the degree of carotid artery stenosis (CAS): Group 1, 141 patients with <50% contralateral CAS; Group 2, 44 patients with contralateral CAS ≥50% and <70%; Group 3, 45 patients with contralateral CAS ≥70% and ≤99%; Group 4, 14 patients with total occlusion of the contralateral carotid artery. In our clinic, a reason to change the routine procedure was not accepted. We performed carotid endarterectomy as the first option in all patients. Patients' postoperative early-term outcomes, including the neurological findings, were compared between the groups.

Results: Demographics and preoperative findings were similar between the groups. The early-term rates of minor and major neurological events were 2.45% and 2.04%, respectively. Postoperative neurological complications were similar between the groups. There were two mortalities, one of them was in Group 1, and the other was in Group 3. During follow-up, there were no neurological events or mortality. There were two cases of restenosis in Group 1 and in Group 2.

Conclusion: In the surgical treatment of bilateral CAS, performing the operation with the standard approach without changing the surgeon's routine practice has similar results to the surgical approach applied to unilateral stenosis. It is important to evaluate the circle of Willis and cerebral blood supply in the preoperative period and to decide the usage of shunting.

Keywords: Carotid arterial disease, endarterectomy, regional anesthesia, shunting, stenting.

Table 1. Comparison of demographics and preoperative variables

	Group 1	Group 2	Group 3	Group 4
Age (years)	69,21 ± 9,7	69,38 ± 8,3	69,48 ± 8,69	65,85 ± 12,3
Gender				
Male, no. (%)	91 (64,5 %)	27 (61,3 %)	29 (64,4 %)	12 (85,7 %)
Female, no. (%)	50 (35,4 %)	17 (38,6 %)	16 (35,5 %)	2 (14,2 %)
Smoking, no. (%)	41 (29,07 %)	11 (25 %)	18 (40 %)	8 (57,1 %)
Hypertension, no. (%)	110 (78,01 %)	41 (93,1 %)	40 (88,8 %)	12 (85,7 %)
Diabetes, no. (%)	70 (49,6 %)	40 (90,9 %)	31 (68,8 %)	7 (50 %)
Hypercholesterolemia, no. (%)	108 (76,5 %)	40 (90,9 %)	38 (84,8 %)	11 (78,5 %)
Coronary arterial disease, no. (%)	77 (54,6 %)	27 (61,3 %)	31 (68,8 %)	11 (78,5 %)
Symptoms				
Transient ischemic attack, no. (%)	12 (8,5 %)	6 (13,6 %)	4 (8,8 %)	2 (14,2 %)
Stroke, no. (%)	86 (60,9 %)	31 (70,4 %)	28 (62,2 %)	9 (64,2 %)
Amaurosis fugax, no. (%)	1 (0,7 %)		1 (2,2 %)	1 (7,1 %)
Vertigo and gait imbalance, no. (%)	29 (20,5 %)	7 (15,9 %)	8 (17,7 %)	

Table 2. Comparison of operative findings

Treatment Procedure	Group 1 (n=141)	Group 2 (n=44)	Group 3 (n=45)	Group 4 (n=14)
CEA under GA (%)				
Primary repair (%)	129 (91,4 %)	40 (90,9 %)	42 (93,3 %)	10 (71,4 %)
Patch repair (%)	10 (7,09 %)	3 (6,81 %)	2 (4,4%)	2 (14,2 %)
CEA under LA				
Primary repair (%)	2 (1,41 %)	1 (2,27 %)	1 (2,2 %)	2 (14,2 %)
Patch repair (%)				
Shunting (%)	3 (2,12 %)		1 (2,2 %)	2 (14,2 %)
Duration of cross clamping (min.)	15,96	14.9	15,4	14,64

Table 3. Comprasion of early-term neurological findings

	Group 1 (n=141)	Group 2 (n=44)	Group 3 (n=45)	Group 4 (n=14)	
Temporarily neurological event (%)					
Partially monoplegia (%)	1(0,7 %)				
Hemiparesis (%)		1(2,2 %)	1(2,2 %)		
Vocal cord paralysis (%)	1(0,7 %)		1(2,2 %)	1(7,1 %)	
Stroke (%)	1(0,7 %)		1(2,2 %)		
Revision (%)	3(2,12 %)	2 (4,5 %)			
Restenosis (%)	1(0,7 %)	1(2,2 %)			
Intra-cranial bleeding				1(7,1 %)	
Mortality (%)	1(0,7 %)		1(2,2 %)		