

RESULTADOS PERI-OPERATÓRIOS E SOBREVÍDUA A LONGO PRAZO APÓS ENDARTERECTOMIA CAROTÍDEA EM DOENTES DE IDADE AVANÇADA

PERIOPERATIVE OUTCOMES AND LONG TERM SURVIVAL AFTER CAROTID ENDARTERECTOMY IN ELDERLY PATIENTS

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RESUMO

Introdução: O acidente vascular cerebral constitui um problema de saúde significativo. Globalmente, 10-15% de todos os acidentes vasculares cerebrais estão relacionados com uma estenose carotídea >50% previamente assintomática. A endarterectomia carotídea é eficaz na prevenção do acidente vascular cerebral; o risco/benefício é menos evidente em doentes idosos. Os autores avaliaram os resultados de endarterectomia carotídea do Serviço em doentes de idade igual ou superior a 75 anos, focando nos resultados peri-operatórios e na sobrevivência a longo-prazo.

Material e métodos: Estudo retrospectivo, unicêntrico, englobando 156 cirurgias em 149 doentes de idade ≥75 anos, entre Janeiro de 2010 e Dezembro de 2017

Resultados: O acidente vascular cerebral/mortalidade peri-operatória foi de 2.6% (4.0% em sintomáticos, 0% em assintomáticos); a morbilidade peri-operatória foi de 6.4%; a sobrevivência estimada a 5 anos foi de 71.9%.

Conclusão: A endarterectomia carotídea é uma abordagem de baixo risco no tratamento da aterosclerose da bifurcação carotídea, mesmo em doentes de idade avançada, com morbilidade e mortalidade perioperatória comparável com os padrões internacionais para a população em geral. A sobrevivência a longo prazo é bastante boa e a idade per se não deve ser impeditivo da realização de endarterectomia carotídea nestes doentes.

Palavras-chave

Carotídea; Endarterectomia; Idoso

ABSTRACT

Introduction: Stroke is a major health problem. Overall, 10-15% of all strokes are related to a previous asymptomatic carotid stenosis >50%. Carotid endarterectomy (CEA) is effective in stroke prevention; risk/benefit assessment is less apparent for elderly. The authors evaluate department CEA outcomes in elderly population aged 75 years and older, focusing in perioperative outcomes and long term survival.

Material and methods: Retrospective unicentric analysis was performed, encompassing 156 surgeries in 149 patients aged 75 years and older, between January 2010 and December 2017.

Results: Perioperative stroke/mortality was 2.6% (4.0% for symptomatic, 0% for asymptomatic); perioperative morbidity was 6.4%; estimated five-year survival was 71.9%.

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Conclusion: CEA continues to be a low-risk approach to treat carotid bifurcation atherosclerosis, even in elderly population, with perioperative morbidity and mortality resembling international standards for general population. Long term survival is quite good and age alone should not be a reason to refrain from offering carotid endarterectomy to this patients.

Keywords

Carotid; Endarterectomy; Elderly

INTRODUCTION

Stroke is a major health problem. Overall, 10–15% of all strokes are related to a previous asymptomatic carotid stenosis >50%. Carotid endarterectomy (CEA) is effective in stroke prevention. Clinical Practice Guidelines of the European Society for Vascular Surgery (ESVS) released in 2017 recommend carotid endarterectomy for symptomatic carotid stenosis \geq 50%; regarding asymptomatic patients, carotid stenosis \geq 60% can be an indication for carotid endarterectomy in average surgical risk patients with at least 5-year life expectancy⁽¹⁾. Risk/benefit assessment is less apparent for elderly and women.

Advanced age has been a controversial topic in the management of atherosclerotic carotid disease; regarding asymptomatic patients, advanced age was an exclusion criteria for some randomised trials. Twenty percent (n=650) of patients from Asymptomatic Carotid Surgery Trial 1 (ACST-1)⁽²⁾ had more than 75 years of age; this subgroup analysis showed reduced benefit from CEA compared to younger patients, considering higher perioperative risk and reduced stroke risk on medical therapy. Five year survival for this subgroup was about 50%. On the other hand, pooled data analysis⁽³⁾ from trials on symptomatic patients showed greatest risk reduction in ipsilateral stroke conferred by CEA in patients aged 75 years and older. Another meta analysis⁽⁴⁾ found little effect of age on CEA perioperative risk.

Life expectancy continues to increase over the last decades; Portuguese population⁽⁵⁾ life expectancy at birth is 81 years (Male:78; Female:83); moreover, life expectancy at age 65 is 19 years (Male:83, Female:86). Decision about performing CEA can be challenging in this aging population. Therefore, the authors intend to evaluate department CEA outcomes in elderly population, focusing in perioperative morbidity and mortality and long term survival.

MATERIAL AND METHODS

Retrospective unicentric analysis encompassing CEA performed in patients aged 75 years and older, between January 2010 and December 2017. Demographic and clinical data were collected; outcomes were perioperative morbidity

Table I Group baseline characteristics.

		Population (n=156)
Age (mean)		78.9 [Min 75; Max 88]
Age \geq 80		n=62 (39.7%)
Male gender		n=117 (75.0%)
Symptomatic status		n=101 (64.7%)
Comorbidities	Hypertension	n=139 (89.1%)
	Dyslipidemia	n=97 (62.2%)
	Diabetes mellitus	n=57 (36.5%)
	Tobacco abuse	n=17 (10.9%)
	Coronary heart disease	n=30 (19.2%)
	Peripheral artery disease	n=10 (6.4%)
General anesthesia		n=146 (93.6%)
Surgical technique	Partial eversion endarterectomy	n=153 (98.1%)
	Patch conventional endarterectomy	n=3 (1.9%)
	Shunt	n=1 (0.6%)
Clamping time (mean)		14 min [Min 6; Max 37]
Perioperative morbidity		n=10 (6.4%)
Global perioperative stroke/mortality		n=4 (2.6%)
Perioperative stroke/mortality	Symptomatic	4/101 (4.0%)
	Asymptomatic	0%



and stroke/mortality as well as long term survival. Age was stratified in two subgroups: 75-79 and ≥ 80 years and tested in cross tabulation with chi-square test like gender and symptom status for the outcomes perioperative morbidity and stroke/mortality. Survival analysis was performed using logrank test for gender, stratified age and number of studied comorbidities. Carotid stenosis was obtained from preoperative CT angiogram or carotid Doppler ultrasound using North American Symptomatic Carotid Endarterectomy Trial (NASCET) criteria. Transcranial cerebral oximetry was used for intraoperative neurologic monitoring. All statistical analyses were performed with the SPSS 20.0 statistical software package. Statistical significance was inferred for $p < 0.05$.

RESULTS

We performed 156 surgeries in 149 patients aged 75 years and older, representing 32.4% of carotid endarterectomies performed in our centre in the studied period. Demographic and clinical variables are summarized in table I. Perioperative morbidity and stroke/mortality are detailed in table II.

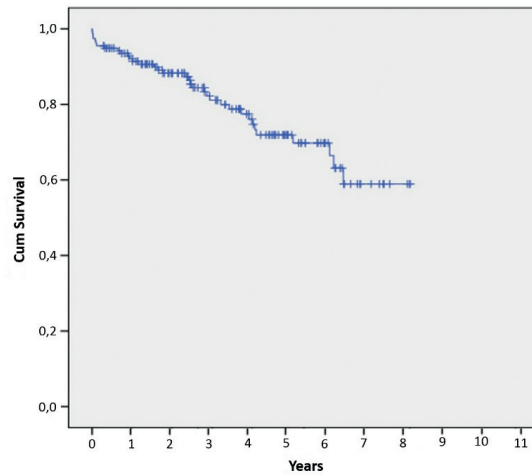


Figure 1. Estimated long term survival

Mean survival time	
Estimate	2293 days (6,3 years)
Standard error	100 days
95% Confidence interval	2097-2489 days

Table II Detailed perioperative morbidity and stroke/mortality.		
Perioperative morbidity (n=10; 6.4%)	- Hematoma (n=7) • 5 out of 7: surgical revision needed • 2 out of 7: surgical wound infection	
	- Cardiac arrest (n=1); sudden cardiac arrest at postoperative day 4	
	- Dysphonia (n=2)	
Perioperative stroke/mortality (n=4; 2.6%)	- Haemorrhagic stroke (n=1) - Ischaemic stroke (n=1) - Reperfusion syndrome (n=1) - Carotid rupture (n=1)	Note: All patients deceased

DISCUSSION

Elderly patients represent a significant portion of clinical practice concerning management of atherosclerotic carotid stenosis. CEA proved safe for this population aged 75 and older with perioperative stroke/mortality within international standards.

Population size as well as low perioperative morbidity and stroke/mortality may hinder some statistical analysis regarding outcomes and studied variables and maybe justify absence of significant associations. It is possible that low event rate reflect case selection in favour of less frail patients.

Regarding perioperative morbidity, statistical significant association with gender (male vs female; $p=1$), age (75-79 vs ≥ 80 ; $p=0.64$) and symptom status (symptomatic vs asymptomatic; $p=0.74$) were not found.

Concerning perioperative stroke/mortality analysis, results are as follows: gender (male vs female; $p=0.05$), age (75-79 vs ≥ 80 ; $p=0.65$) and symptom status (symptomatic vs asymptomatic; $p=0.30$).

Estimated 5-year survival (Figure 1) was 71.9% (standard error - 0.046) and not associated with gender ($p=0.59$), age ($p=0.14$) and number of studied comorbidities ($p=0.50$).

However, analysis using age grouping (75-79 vs ≥ 80) showed no significant difference on perioperative morbidity and stroke/mortality. Similar results were reported in recent studies⁽⁶⁾. Gender also did not show to influence perioperative outcomes, despite some propensity for higher mortality in female patients; this finding has been confirmed in multiple large studies. Concerning symptom status, no association was found to perioperative outcomes; this surprised the authors as all deaths were symptomatic patients. Yet, sample size and zero deaths in asymptomatic patients may lead to this.

In our centre, carotid endarterectomy is performed by partial/modified eversion as first option. Still more widely used patched and eversion techniques, recent reports on partial/modified eversion are encouraging⁽⁷⁾. Despite issues on previous papers related to late restenosis, reduced clamping and operating times in this elderly patients with impaired cerebrovascular reserve must be brought to discussion.

Long term survival warrant particular attention in this population to ensure this patients live long enough to benefit from intervention. Our group estimated 5-year survival was 71.9%; despite inferior to global survival after CEA, still an excellent survival considering population under analysis⁽⁹⁾. Age (75–79 vs ≥80), gender and presence of great number of studied comorbidities did not show to affect survival.

About one third of patients underwent CEA for an asymptomatic carotid stenosis; it must be taken in account that guideline recommendations in the studied time interval were more broad-minded regarding these patients. Despite no perioperative stroke/mortality in our group, current recommendations state that only selected asymptomatic patients may benefit from carotid revascularization.

Considering several data showing improvement in CEA outcomes in elderly population as well as increased life expectancy, it seems relevant to have new randomized trials evaluating atherosclerotic carotid disease outcomes across the age spectrum.

CONCLUSIONS

CEA continues to be a low-risk approach to treat carotid bifurcation atherosclerosis, even in elderly population, with perioperative morbidity and mortality resembling international standards for general population.

Long term survival is quite good and age alone should not be a reason to refrain from offering carotid endarterectomy to this patients.

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