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Research Article

Our Experience in Carotid Endarterectomy

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Abstract

Introduction: Carotid endarterectomy (CEA) operations are more frequent in our practice last years, mostly for asymptomatic patients. In this article we present our experience in this field.

Ojectives: Primary endpoints were death and stroke within 30 days of the procedure for asymptomatic patients. Secondary endpoints were acute myocardial infarction wthin 30 days of th procedure and peripheral nerve injury in all patients.

Patients and Methods: This is retrospective review for our experience. Data of 219 consecutive CEA, 177 in asymptomatic patients, operated on from January 2004- February 2009 by our equip are collected, All the patients were diagnosed with Duplex scanner and confirmed with multy-slice CT scanner angiography.Endarterectomy was performed either with loco-regional or general anesthesia with selective use of shunt.Combined anti-aggregation with Clopidogrel and Aspirin was the rule at discharge. Patients were controlled for new neurological and cardiac events 30 days after the operation.

Results: One asymptomatic patient had major stroke and died. In this group stroke and mortality rate is 1,69%. No peri-operative new acute myocardial infarction happened in any patient. Perpheral nerve lesions happened in 2,7% of all procedures.

Conclusions: CEA is a safe treatment for asymptomatic internal carotid stenoses in the hands of an experienced vascular surgeon. Our results for asymptomatic carotid stenoses are according to those recommanded by international guidelines.

Keywords: Carotid Endarterectomy; CEA; Asymptomatic Carotid Stenosis

Introduction

Carotid endarterectomy (CEA) in Albania began in 1988. A number of patients were treated in the service of vascular surgery until 1998 but patient selection and timing of surgery in relation of cerebral symptoms were still not quite well estalished and therefore the results were not very satisfactory. After a period of pause, we began the new era of carotid surgery, this time being careful to follow at best the actual guideline recommendations on the subject. We usually treat asymptomatic patients who have been diagnosed during screeing workup for other atherosclerosis diseases or risk factors.

Patients and Methods

In this aritcle were presented the results of CEA performed by our team of vascular surgeons during nine years. Patient data are collected from their clinical recordes and post operative control 30 days after the procedure.This is an article observational retrospective study. Primary endpoints were death and stroke within 30 days of the procedure. Secondary endpoints were peripheral nerve injury and acute myocardial infarction within 30 days of the procedure in all patients. From January 2004 to february 2009 we have realised 219 CEA in 216 patients, 180 men (83percent) and 36 Women. 177 (180 CEA), 138 men and 36 women, were asymptomatic. Only 42 symptomatic men were operated times, 21 patients simultaneously with coronary artery bypass and one simultaneously with a femoral-politeal bypass. 51 patients were scheduled for coronary surgery and CEA was performed as the first stage procedure. Patients were aged 50-80, mean age 64 years. Diagnosis was made with Duplex scans and confirmed in all cases with Angio-CT. The first 30 inteventions, 27 for asymptomatic and 3 for symptomatic disese were performed under loco-regional anesthesia. The latter cases,153 for asymptomatic and 39 for symptomatic disease, were performed under general anestesia. We have not used any cerebral activity or oxygenation monitoring equipment, but constantly measured the retrograd perfusion pressure in the internal carotid artery we were operating on. Mean retrograde pressure>mmHg was considered optimal for CEA without shunting. Based on this consideration intra-carotid shunt was used in 60 cases (27%), 54 of them asymptomatic. The others were considered god risk patients for CEA without protection. Different reconstructing techniques were used. In asymptomatic patients: direct suture in 57 cases, patch angioplasty in 111 (72 Poliuretane, 27 Dacron, and 12 vein) and 9 cases with eversion endoarterectomy.In symptomatic patients: direct suture in 12 cases, patch in 30 (Pliuretan 18, PTFE 6, Dacron 3, vein 3).

Results

One asymptomatic patient had major stroke and died. Thus stroke and death rate for this group are 1,69%. The patient was operated under local anesthesiaOne asymptomatic patient had major stroke and died, without shunting and had direct suture closure. Among the few symptomatic patients we had, 6 developed non fatal stroke (6/42), two in local infiltrative and four in general anesthesia group, two operated with shunt and four without,all three had patch angioplasty. No other stroke happened during follow up period. six of 216 patients (2.7% of all CEA procedures) had peripheral nerve deficit (one facial and one laryngeal), three each anesthetic group.No acute myocardial infarction occurred during the 30 day follow up perod.

Discussion

CEA should be a routine procedure for vascular surgeons, but in our recent experience it makes up less then 5% of surgical interventions for arterial disease. This is the result of a lack of knowledge of medical practioners about the preventive value of this procedure on stroke. On the other hand there is more interest from cardiologists and cardiac surgeons on preventive CEA in their patients. 35% of our patients were sent to us by them. It is well known that the more procedures a surgeon performs better are his results [1]. We were careful to fulfil the actual guidlines of the larger international vascular societed for carotid surgery. All our asymptomatic patients had ICA stenosis >70% and symptomatic patients>50% [2]. Our death and major stroke rates for asymptomatic patients of 1.69% are well within the limits of 3% accepted from major studies and guidelines [2-7] we can not say the same for our smoll group of symptomatic patients. However, thre strokes and the only death happened in the first 30 patients of this cohort (2004-2005). In the following 189 cases (2006-2009) we had no stroke or death among asymptomatic patients and only thre strokes and no death among 39 sympyomatic patients resultin in a better stroke rate for symptomatic cases. Based in the limited number of operations, we belive our results are good and encouraging. Regarding to intra-carotid shunting for cerebral protection we have chosen to use it in selective cases based on retrograde internal carotid pressure as recommended one the recent gidelines [2]. No stroke rate difference resulted in the whole cohort with regard to shunt usage. In fact 3 in 60 CEA performed with shunt and 9 in 159 operated without it had post operative strokes. CEA has been proved to be vey effective in preventing stroke and related death in symptomatic and non- symptomatic patients with more than 60-70% internal carotid artery stenosis [3-7]. There is also good evidence that CEA is effective as preventive measure in cases with less important stenosis but with ulcerated plaques [8,9]. So generally speaking, the indication for CEA is related with nine main items, namely the presence of symptoms, the grade of stenosis

and the presence of ulcerated plaques. This last item is particularly important since ulcerative lesions, irregular surface and vulnerable plaques predispose for thrombus formation and thromboembolic TIA-s or smoll infarcts of the brain. In our experience we have frequently encounter specimens of endoarterectomy with adherent thrombus. The time when CEA should be performed in patients with indications for coronary artery bypass surgery is not very clear [10]. In our experience 21 patients had simultaneous carotid and coronary surgery with CEA executed as the first step and 51 patients had staged procedures with coronary surgery postopered for 4-6 weeks after CEA. In total we have performed CEA before or concomitant with coronary artery surgery in 72 patients (1/3 of cases) with no new myocardial infarction or peri-operative death. Both loco-regional and general anaestesia have been showed to be indifferent in regard to post procedure stroke, myocardial infarction or death. GALA study very recently has confirmed this [11]. In our experience we have used both techniques without any difference in the results, although lately we have favoured general anesthesia as it is most comfortable for the patient. Loco-regional anaesthesia may be more reliable in cases with occlusion or high-grade stenosis of the contra lateral carotid artery.

Conclusions

CEA in asymptomatic patients is a safe procedure in the hands of an experienced vascular surgeon.Our results are comparable with those recommended by international guidelines for stroke, death, cardiac event or peripheral nerve damage but long term follow-up studies in our patients in the future should clarify the efficacy of CEA for stroke prevention over 3-5 years and the rate of restenoses. Increasing numbers of CEA procedures is crucial for surgeons to refine the techniqe so to insure better results even for symptomatic patients.

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