P.I. Zakharov, A.V. Tobokhov

SURGICAL TREATMENT OF GENERALIZED ATHEROSCLEROSIS WITH THE COMBINED HEMODYNAMICALLY SIGNIFICANT LESION OF CORONARY AND CAROTIDARTERIES

Abstract

This article illustrates surgical treatment results analysis of 98 patients with the combined disease of coronary and carotid arteries. The patients underwent a multi-step (69) or a single-step (29) surgery. On the basis of received results, a strategy of surgical tactics has been offered on how to treat this category of patients.

Keywords: combined disease, coronary and carotid arteries, postinfarction aneurysm of left ventricle, single-step and multi-step surgeries.

The aim of this work - to study the results of the milestone and simultaneous operations on the carotid and coronary arteries to produce optimal strategy for patients with co-hemodynamically significant lesions of the carotid and coronary arteries.

Materials and Methods

During the period from 2001 to 2011g.g. we operated on 98 patients with concomitant hemodynamically significant lesions of coronary and carotid arteries in age from 42 to 69 years, mean age 54.3 years, the patients were all male. Of these, 69 patients underwent staged surgery of the carotid and coronary arteries - I group, the other 29 patients underwent simultaneous operations on the carotid and coronary arteries - II group, significant difference in age between the groups ($p = 0.57$). Most patients in both groups belonged to the III and IV angina. Table 1 shows the distribution of patients in functional class (FC) in the two groups before surgery.

Among the patients in group I patients with angina dominated FC II - III (81.2%), while Group II patients with angina dominated III and IV CHF (86.2%). It should be noted that in group II operated with unstable angina 13.8% when they were in Group I of - 1.4%. Patients operated with class II angina in group I -26.1%, and in group II were not. Thus, most operated in both groups of patients with III and IV angina (76.6%).

According to the degree of chronic cerebral vascular disease (HSMN), the majority of patients treated HSMN II degree (see Table. 2).

It should be noted that among the patients operated on in the asymptomatic stage HSMN in group II was 31.0%, and in Group I, there were only 17.4%. Also note that in both groups the percentage of operated in the III and IV Art. HSMN about the same. Thus, only asymptomatic stage HSMN operated 21.5% of patients, in Article II. HSMN operated 61.2% of patients. Operated in the III century. HSMN up 12.2%, in Article IV. HSMN - 5.1%.

Volume of transactions with combined lesions of the carotid and coronary arteries in both groups is presented in Table 3.

As seen in Table 3 patients in group I carotid endarterectomy (CEA) and coronary artery bypass grafting (CABG) performed in 42 (60.9%) patients, and patients in Group II - in 19 (65.6%) cases. Total operations - 61 (62.2%).

CABG, resection of the aneurysm of the left ventricle (RALZH) patients in group I performed in 18 (26.1%) patients, and patients in Group II - 7 (24.1%) cases, only two groups - 25 (25.5%).

CABG, thrombectomy of the left ventricle (TLZH) RALZH and CEA performed in patients in group I - 9 (13.0%), and Group II - 3 (10.3%), only two groups - 12 (12.3%).

It should be noted that in Group II simultaneously CEA and CABG performed on a beating heart 3 (15.8% in this group) patients. To reduce the risk of cerebrovascular accidents in the first simultaneous operations performed carotid endarterectomy, then revascularization.

Group I first stage is performed carotid endarterectomy, then after 10 - 15 days performed heart surgery. It should be noted that bilateral CEA performed 7 patients in group I, on the 4th of them simultaneously performed bilateral CEA, the rest of the 3rd patients - in stages, with the interval between the operations of 7 days.

Three patients from group II made redressatsiya kinkinga ICA. The volume of interventions on the carotid arteries are shown in Table 4.

As can be seen from Table 4 in both groups, most of operations performed on the carotid arteries - the carotid artery patch plasty outs, CEA overlapping seam line on the artery and eversion CEA (56.5% and 51.7%, 17.4% and 27 6%, 20.3% and 17.2%, respectively, in groups I and II).

Discussion of Results

All patients discharged from the hospital in both groups reported significant improvement of health and reduction of angina, the majority of patients at discharge treated 0-I angina - 87.0% and 83.0% in groups I and II, respectively. These results are consistent with other authors [2,5,8,12] (see

Table. 5).

In Group I, one patient died after perioperative myocardial infarction with the development of progressive heart failure with a fatal outcome in the early postoperative period. In group II died two patients: one patient due to myocardial infarction in the perioperative period with the development in the immediate postoperative period of multiple organ failure on a background of gastrointestinal bleeding and a second patient from ischemic stroke with the development of brain edema.

Contractile function of the myocardium in the immediate postoperative period in both groups decreased (see Table 6)..

By echocardiography (echocardiography), the kinetics of the left ventricle in both groups improved by analyzing the data of pre-and post-operative period can reliably ensure that adequate revascularization increases normokineza zones and reduction of hypokinetic areas, thus improving both systolic and diastolic function the left ventricle.

Analysis of the results of the carotid arteries in the immediate postoperative period in both groups are shown in Table 7.

Most patients in both groups after surgery, CEA in the immediate postoperative period, there was some improvement - 78.2% and 55.2% respectively in groups I and II, the results remained unchanged in 17.3% of patients in group I and 31.0% in group II, the deterioration was observed in 3.0% of patients in group I and in 6.9% of patients in Group II. From ischemic stroke in the immediate postoperative period II died in group 1 (3.4%) patients died from other causes, one patient - 1.5% and 3.4% in groups I and II, respectively. Draws attention to some reduction in CEA results in group II patients studied.

Complications in the immediate postoperative period after the combined operations of the carotid and coronary arteries are shown in Table 8.

As seen in this table, the rate of complications in the early postoperative period after a few more simultaneous operations on the carotid and coronary arteries. Both groups are more common pulmonary complications and bleeding, with simultaneous operations are more common ischemic: stroke - 1.4% and 6.9%, TIA - 1.4% and 3.4% in groups I and II, respectively.

We also conducted an analysis of mortality in the immediate postoperative period, depending on the total amount of the operation (see Table 9)..

Direct dependence of mortality from heart surgery performed not clear, however, significantly increase mortality in patients of group II.

Mortality occurs in patients III and IV angina II group also notes the absence of mortality in

4 patients with unstable angina in operated simultaneously on the carotid and coronary arteries, whereas the patient with the same diagnosis from group I died in the immediate postoperative period. These data are consistent with the results of other authors [1,7, 9,11] (see Table. 10).

In the analysis, depending on the initial state of Art. HSMN notes mortality among patients with stage III and IV HSMN in both groups (see Table. 11).

It should be noted that patients with a landmark performance of operations was the cause of mortality in patients with unstable angina, perioperative myocardial infarction, it is obvious there was a need surgery simultaneously in both regions of the arterial system. At the same time there is a higher rate of mortality in patients undergoing one-stage operation in the carotid and coronary arteries with III and IV Art. HSMN. Our results of surgical treatment of associated lesions of the carotid and coronary arteries are consistent with the majority of authors [3,4,6,9,10].

Findings

1. Patients with concomitant coronary and carotid arteries, an individual approach to address the issue of staged or simultaneous operation, depending on the tolerance of the brain to ischemia and angina degree.

2. Patients with a high degree of tolerance to cerebral ischemia preferable landmark performance of procedures in these patients when there is a high degree of angina to the first phase of myocardial revascularization.

3. Patients with a low degree of tolerance to cerebral ischemia is necessary to satisfy a one-time, in the presence of low degree angina preferred embodiment of the method of staged (stage CEA) operations.

4. Conducting simultaneous operations increases the risk of stroke in the immediate postoperative period in patients with poor perfusion reserve of the brain, it is necessary to use additional methods of protecting the brain from ischemia during surgery.

5. In the presence of low-grade angina and a high degree of tolerance to cerebral ischemia, preference should be given to simultaneous operations on the carotid and coronary arteries.

1. Akhmetov V.V. The optimal technique of side plastic internal carotid artery patch in carotid endarterectomy / V.V. Akhmetov, A.A. Shamshidin, V.L. Lemenev. // Cardiovascular Disease. - 2005. - V. 6, № 5. - P. 109.

2. Argunov V.A. About carotid and coronary artery atherosclerosis on autopsy data /Argunov V.A., Vinnichuk S.A. // Issues of health and pathology in the North: facts, problems and prospects: Proceedings of the scientific - practical conference. - Yakutsk: Published by YSC RAMS. - 2002. - P. 94-96.

3. Bokeria L.A. Surgical treatment of coronary artery disease patients with lesions of the brachiocephalic arteries // L.A. Bokeria, V.A. Bukharin, V.S. Rabotnikov, Alshibaya M.D. –M.: NTSSSH named after A.N.Bakulev RAMS, 1999. – 176 p.

4. Belov Yu.V. Combined atherosclerotic lesion of coronary and brachiocephalic arteries/ Yu.V. Belov, N.A .Hadjiyev, A.V. Salganov / / Kardiologia. - 1991. - V. 31, № 5. - P. 89-90.

5. Zakharov P.I. Surgical treatment of critical carotid stenosis / P.I. Zakharov, A.K. Fedoseeva, L.A. Popova, N.P. Stepanov / / Modern problems of cardiovascular disease in the Far North. -Yakutsk. - 2004. - P. 81-83.

6. Pokrovskii A.V. Ischemic stroke can be prevented / A.V. Pokrovskii, V.A. Kiyashko / / Russian Journal of Medicine (Rus.). - 2003.-V. 11, № 12. - P. 75-78.

7. Khubulava G.G. Geriatric features of surgical treatment of carotid artery / G.G. Khubulava, A.A. Erofeev, K.K. Kozlov, D.L. Yurchenko / / Clinical Gerontology (Rus.). - 2005. - № 11. - P. 31-37.8. ACAS: Asymptomatic carotid arteriosclerosis stady group. Stady desing for randomazed prospective trial of carotid endarterectomy for asymptomatic arteriosclerosis / / Stroke 25 - 1994. - P. 2223-2224.

9. Avril G., Batt M., Guidoin R. et al. Plaques d'endarterectomie carotidienne: correlations anatomo_cliniques / / Ann. Chir. Vase. - 1991. - Vol. 5. - P. 50-54.

10. European Carotid Surgery Trialists Collaborative Group. MRC European carotid surgery trial: Inter im results for symptomatic patients with severe (70-99%) or with mild (0-29%) carotid stenosis / / Lancet. - 1991. - Vol. 337. - P. 1235-1243.

11. Ringleb P.A., Allenberg G., Brukcmann H. et al. 30 day results from the SPACE trial of stent-protected Angioplasty versus Carotid endarterectomy in symptomatic patients: a randomizet non-inferiority trial / / Lancet. - 2006. - Vol. 368. - P. 1239-1247.

The authors:

Zakharov Pyotr I., PhD, Head of the Division of Cardiovascular Surgery, Head of the Department of Cardiac Surgery of the Clinical Center, “Republic hospital № 1 – National Medical Centre”, chief cardiac non-staff surgeon MH Sakha (Yakutia) Republic, Yakutsk;

Tobohov Alexander V., MD, Head of Chair, Medical Institute of the "M. K. Ammosov North-Eastern Federal University" Yakutsk, Russia. E-mail: avtobohov@mail.