

Death and Complications of Patients in the Early Period of Aorto- and Mammary-Coronary Bypass Surgery

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Abstract

Among the early perioperative complications of CABG led MI (43.8%) and in 28.6% of deaths in patients with myocardial infarction, he appeared for the first time, while 71.4% people - against the background of myocardial infarction in history of illness. Heart defects were observed in all patients with MI in the perioperative period due to the myogenic dilatation of the heart chambers and atherosclerosis, which is about 67% of people, who underwent valve replacement. The main type of early complications and causes of death with CABG is a myocardial infarction. Myocardial infarction as the cause of death in patients with coronary heart disease after bypass surgery, UGS promotes the presence of previous myocardial infarction, as well as the presence of cardiac arrhythmias, heart disease, makes it necessary to perform plastic valves, and arterial hypertension. Obviously, the performance of combined operations including plastic valves along with CABG increases the risk of complications in the first occurrence of myocardial infarction.

Keywords: minimally invasive dentistry; piezoelectric surgery; laser dentistry; computer-guided surgery; dental implants; surgical case reports

Introduction

Coronary artery bypass grafting (CABG) is widely used to treat coronary artery disease (CAD) - bypass grafting, CABG and mammary-coronary bypass grafting (MCBG) [1, 2]. This surgery is recommended for patients with critical narrowing of the lumen of the coronary arteries detected during coronary angiography [3 – 4]. CABG significantly reduces the recurrence of myocardial ischemia and the need for revascularization [3 – 5]. During CABG and MCBG, another pathway for blood flow to the part of the heart that was insufficiently or completely not supplied with blood is created around the site of narrowing. CABG is dangerous due to the possibility of developing cardiac and non-cardiac complications (early – up to 12 weeks after CABG) and late complications, developing at a later date [6, 7, 8]. Early complications include perioperative complications occurring in the period preceding surgery, during surgery or immediately after it [9]. Cardiac complications of CABG include: myocardial infarction (MI), carditis, arrhythmia, circulatory failure, hypertension, non-cardiac complications include stroke, cerebral edema, deep vein thrombosis, pulmonary embolism, sepsis, mediastinitis, wound suppuration, keloid scar on the skin, diastasis of the sternum, postcardiotomy syndrome, bleeding, neurological disorders (convulsions), acute renal failure, etc. [9].

The aim of the study. was to study the mortality structure in patients with coronary artery disease in the early period of aorto- and mammary-coronary bypass surgery.

Materials and methods of the study.

The material for the study was the death certificates of the regional pathological anatomy bureau of Grodno for 27 deceased patients with coronary heart disease after undergoing CABG for 2020-2024. CABG was performed in 18.8% of the deceased, MCS - in 6.3% of people, CABG and MCS - in 74.9% of people. The frequency and causes of perioperative MI, the nature of its complications were analyzed. In most of the deceased, CABG, MCS was performed under artificial circulation (AC), and only in one person CABG was performed on a beating heart with subsequent repeat CABG under AC. The age of the deceased ranged from 51 to 80 years, of which the majority of patients were 61-70 years old (68.8%), 12.4% of patients were 51-60 years old, and 18.8% of patients were over 70 years old. The majority of patients were men (81.3%), and 8.7% of patients were women.

Results and discussion.

Early complications (up to 12 weeks) were observed in 56.3% of deceased patients, in 12.4% of deceased patients - in the period from 12 weeks to 2

years after surgery, in 31.3% - in the period after 2 years after surgery. In 69% of deceased patients in the early period, death occurred during surgery or in the first day after it. Among the early perioperative complications of CABG MI was the leading one (43.8%), and in 28.6% of deceased patients with MI it occurred for the first time, and in 71.4% of people - against the background of an existing MI in the anamnesis. In all patients with MI in the perioperative period, thrombosis of the bypass grafts was noted. In all deceased patients with MI, atherosclerosis of the aorta and coronary arteries was noted. According to angiography of deceased patients in the preoperative period, 90% of deceased patients had stenosis of 3 or more coronary arteries. It is important to note that all patients had stenosis at the level of the left coronary artery (LCA) trunk and its branches. Along with atherosclerosis of the aorta and coronary arteries, 75% of deceased patients had atherosclerosis of the carotid arteries, which contributed to the development of cerebral infarction in 18.8% of deceased patients, in 43% of patients the development of stroke was observed in combination with MI in the perioperative period. The occurrence of perioperative MI was facilitated by the presence of arterial hypertension (AH) in these patients. The majority of deceased (87.5%) suffered from AH, including grade 2 AH - 71.5% of people, grade 3 AH - 28.5% of people. Among the complications of MI in the perioperative period were cardiogenic shock - in 16.6% of patients, pulmonary edema - in 85% of patients and ventricular fibrillation - in 28.6% of deceased patients. A significant proportion of deceased patients (82%) with coronary artery disease and CABG, MCS had a heart defect, and 53.8% of patients underwent valve plastic surgery during coronary artery surgery. Mitral valve insufficiency (MVI) was noted in 92.3% of deceased patients with coronary artery disease after CABG, aortic valve insufficiency - in 54% of patients in this category, tricuspid valve insufficiency - in 76.9% of patients, pulmonary valve insufficiency - in 7.6% of patients. In 15.3%, mitral valve stenosis was noted, which was combined with mitral valve insufficiency. The most common type of defect in deceased patients with heart defects after CABG was ICD, with 8.4% of patients with this defect having grade 1 ICD, 25% of patients having grade 2 ICD, and 66.6% of patients having grade 3 ICD. Isolated defects (tricuspid valve insufficiency) were observed only in 7.7% of deceased patients with defects who underwent CABG. Combined defects (insufficiency) of the mitral, tricuspid, and aortic valves were observed in 92.3% of deceased patients with defects who underwent CABG. Heart defects were observed in all patients with MI in the perioperative period due to myogenic dilation of the heart cavities and atherosclerosis, for which valve replacement was performed in 67% of patients. Mitral valve insufficiency was observed in all APs with MI, in 75% of APs it was combined with tricuspid valve insufficiency and in 58% of APs - with aortic valve insufficiency. Thus, heart defects are an important factor in the unfavorable prognosis of CABG, in the early period. Before CABG, MCS, a significant proportion of deceased patients with coronary heart disease (51.3%) had cardiac arrhythmia. Among arrhythmias, the most common were those caused by a violation of the excitability function: atrial fibrillation (30%), ventricular extrasystole (18%), paroxysmal tachycardia (30%). Arrhythmias caused by conduction dysfunction were also observed (22%), of which left bundle branch block was observed in 33.3% of deceased patients with arrhythmias caused by conduction dysfunction, and transient third-degree AV block was observed in 66.7% of deceased patients. 12.5% of deceased patients had previously had an implanted pacemaker (P). Radiofrequency ablation was performed in one of the patients with P.C. In 12.5% of patients, a cardioverter-defibrillator was previously installed. In 60% of deceased patients with a history of arrhythmia, myocardial infarction developed in the perioperative period. In turn, 70% of patients who died with PMI before CABG, MCS had cardiac arrhythmia (blockades - in 30%, AF - in 15% of patients), in 28.6% of patients MI was complicated by ventricular fibrillation (VF). In 25% of patients who died during surgery, ventricular fibrillation developed, and in half it developed against the background of the developed myocardial infarction of the left ventricle. All patients who died before CABG, MCS suffered from chronic heart failure (CHF),

according to the classification of V.Kh. Vasilenko and N.D. Strazhesko, G.F. Langu (1935): H1 - 12.5% of people, H2A - 56.3% of people, H2B - 31.2% of people. All deceased patients showed progression of heart failure in the postoperative period, the pathological signs of which were general venous congestion. Myocardial hypertrophy was observed in 88% of deceased patients. Hydrothorax developed in 37.5% of UP after CABG, hydropericardium developed in 25%, ascites developed in 6.3%, and anasarca developed in 6.3%. Cerebral edema was observed in 25% of UP after CABG. A number of patients had hemostasis disorders: bleeding occurred in 12.5%, and shunt thrombosis as a cause of myocardial infarction occurred in 44% of patients. Thrombosis of the popliteal-femoral artery was observed in 1 patient (6.3%), pulmonary embolism occurred in 1 patient (6.3%), and disseminated intravascular coagulation syndrome developed in 1 patient (6.3%). In one case, a rupture of the left ventricular myocardial wall was observed. Non-cardiac complications included sepsis and multiple organ failure syndrome (25%). Acute renal failure developed in 75% of deceased patients. In some patients (27%), the unfavorable outcome of the operation was facilitated by the presence of respiratory pathology (COPD), bronchopneumonia, chronic bronchitis.

Conclusions.

1. The development of myocardial infarction as a cause of death in patients with coronary heart disease after CABG is facilitated by the presence of a previous myocardial infarction, as well as the presence of cardiac arrhythmia, heart disease, which necessitates valve plastic surgery, and arterial hypertension.
2. The presence of ventricular fibrillation, as well as atherosclerosis of the carotid arteries, contributes to the development of stroke in the early postoperative period.
3. It is obvious that performing combined operations, including valve plastic surgery along with CABG increases the risk of complications, primarily the occurrence of MI. The most common pathogenetic factors for the occurrence of myocardial infarction are shunt thrombosis.

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