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CORONARY STENTING IN INDIVIDUALS WITH ISCHEMIC HEART DISEASE AND CONCOMITANT ONCOLOGICAL DISEASES

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Abstract

Coronary heart disease and cancer are leading causes of death worldwide. The combination of coronary heart disease (CHD) and oncopathology , given the prevalence of both nosologies, is not uncommon [2]. The presence of concomitant coronary artery disease in patients with malignant neoplasms in most cases serves as an aggravating factor, complicating and/or limiting the treatment of oncopathology [1]. Coronary artery disease in patients with oncopathology can increase the incidence of postoperative complications, in-hospital mortality, and also reduce long-term survival after radical surgery for malignant neoplasm. Myocardial revascularization , performed as the first stage in patients with hemodynamically significant coronary artery (CA) stenosis, is the main treatment method preventing the development of cardiovascular complications during and after oncopathology treatment .

Currently, the foreign literature describes many studies that have evaluated the results of single-stage surgery in this category of patients - coronary artery bypass grafting (CABG) and surgical treatment of oncopathology [3]. A two-stage approach is also used as an alternative to single-stage intervention [1].

Due to the spread of endovascular methods In myocardial revascularization, there is great interest in evaluating the staged surgical treatment of patients who underwent coronary artery stenting before the start of oncopathology treatment . However, to date, few studies have evaluated the effectiveness of primary percutaneous coronary intervention (PCI) in patients with oncopathology , and the data obtained are quite contradictory [2]. A number of studies have only

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evaluated the short-term results of two-stage treatment performed in patients with coronary artery disease and oncopathology [3]. It should be taken into account that no studies have yet been conducted in this area on a sufficiently large number of patients to determine clear criteria for recommending the performance of angioplasty with stenting as the first stage in patients with coronary artery disease and oncopathology . Nevertheless, a number of studies have shown the high effectiveness of primary myocardial revascularization in this category of patients [1].

An analysis of the immediate and long-term results of both one-stage and two-stage treatment of patients with coronary heart disease and oncopathology is presented by Davydov M.I. et al. In this observation, in the staged treatment group, endovascular surgery was performed as the first stage in ten patients. myocardial revascularization , with drug-eluting stents used in half of the cases and coronary artery bypass grafting in ten. In the single-stage treatment group, 13 patients underwent coronary artery bypass grafting and lung surgery. The staged treatment group showed a significantly lower in-hospital mortality (4.3%) compared to the single-stage treatment group (15.4%). Lower mortality in the staged treatment group was also noted at long-term follow-up periods - 22.7% versus 27.3% in the single-stage intervention group [8]. Nevertheless, the choice between single-stage and staged surgical strategies in this category of patients remains controversial .

The aim of the study.Analysis of immediate and medium-term results endovascular treatment of coronary heart disease in patients with oncopathology .

Research Objectives

1. To study the results of two-stage treatment of patients with coronary heart disease and oncopathology , where the first stage was endovascular myocardial revascularization , and the second is treatment of oncopathology .
2. To analyze the results of PCI in patients with oncopathology in the remission stage.

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Study Results

Coronary heart disease and cancer are the leading causes of death worldwide. Coronary heart disease remains the leading cause of death from circulatory diseases. According to the demographic electronic journal (ischemic heart disease is the cause of death of more than half of those who died from diseases of the circulatory system (in Uzbekistan 53.1% in 2012, or 29.2% of the total number of deaths). The second place among the causes of death is occupied by neoplasms (mainly malignant). Thus, in 2012, malignant neoplasms were the cause of death in 15% of deaths. In recent years, the proportion of deaths from neoplasms has been growing, which is quite consistent with the trend of population aging. The real prevalence of the combination of these diseases still remains unknown, but a number of authors have noted that patients with cancer have a high probability of having ischemic heart disease. According to Reicher-Reiss H., the combined manifestation of coronary heart disease and malignant neoplasms in the male population is about 6.9%, and according to Mishra PK, the combination of cardiovascular pathology and oncopathology reaches 25.4%. According to Annie On Chan , the prevalence of rectal cancer in patients with coronary artery disease was significantly higher compared to the general population and patients without coronary artery disease. Moreover, smoking and metabolic syndrome were independent risk factors for the combined occurrence of late-stage rectal cancer and coronary artery disease.

There are observations demonstrating that patients with cancer have an increased risk of developing coronary heart disease. For example, it has been shown that patients with newly diagnosed malignancies have a higher rate of hospitalization for newly diagnosed coronary heart disease, especially in the first 6 months. These data were obtained in patients with malignant tumors of the lung, small intestine, kidneys, liver, and leukemia, as well as in patients with cancer and metastases. Cancer, especially in its late stages, is often associated with increased platelet activity, which is an unfavorable factor for the development of thrombotic complications. Hypercoagulability is also common in patients with cancer .

Anemia is known to be a "minor" sign of cancer. According to Mercadante S., anemia is detected in over 30% of cancer patients, and its prevalence increases

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with disease progression and treatment of the underlying disease (radiation and chemotherapy). Paraneoplastic anemia can also contribute to the worsening of myocardial ischemia in patients with coronary artery disease. These observations support the hypothesis of a high probability of worsening atherosclerosis in patients with cancer associated with existing coronary artery disease. Increased interest in patients with coronary artery disease and cancer is due not only to the social significance and prevalence of these conditions but also to the possible pathogenetic link between them. The pathogenetic mechanisms underlying the relationship between these two pathological processes remain poorly understood, but a number of observations have been conducted to date aimed at exploring this issue. Thus, there is a hypothesis about the presence of a connecting pathogenetic link— apoptosis —as well as changes in blood rheological properties that underlie the pathogenetic chain. E. S. Hansen believed that the pathogenetic link linking malignant neoplasms and atherosclerosis is based on somatic mutations arising under the influence of certain environmental factors, such as ionizing radiation. Inflammation is also an important link in the pathogenesis and progression of atherosclerosis and cancer.

The existence of common risk factors also suggests a pathogenic link. For example, some authors have found a link between obesity and the risk of developing both cardiovascular diseases and cancer. The development and progression of coronary heart disease can be facilitated not only by the cancer itself, but also by its treatment (including chemotherapy and radiation therapy). According to most authors, the incidence of post-radiation arteriopathy is approximately 5% of individuals who have received radiation therapy, but it may be higher in certain patient groups.

The high cardiotoxicity of some chemotherapeutic agents, especially at high doses, has been demonstrated in a number of studies. These agents may lead to heart failure/left ventricular dysfunction and myocardial ischemia, as well as thromboembolic complications due to venous thrombosis. Furthermore , there is a hypothesis that the use of drugs such as diuretics in cardiology may increase the risk of cancer. Data have been obtained on the effect of diuretics on the development of renal cell carcinoma in women.

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The question of performing cardiopulmonary bypass (CPB) in this category of patients remains unresolved. On the one hand, CPB can suppress immune function and lead to systemic seeding of malignant cells. On the other hand, CPB can affect neutrophil and platelet activity and lead to activation of the complement system, which may have a preventive effect in patients with neoplasms. For example, the results of coronary artery bypass grafting using CPB in patients with simultaneous lung resection for malignancy at one year and five years were comparable to the results of coronary artery bypass grafting with CPB in patients with benign tumors. Similar survival rates were also obtained when comparing the results of CABG using CPB in patients with cancer in remission and in patients without cancer .

However, a number of studies evaluating the results of coronary artery bypass grafting using cardiopulmonary bypass compared with off-pump revascularization in patients with cancer have not revealed significant differences in the efficacy of the two techniques. Currently, for this category of patients, the choice remains with a minimally invasive strategy — off-pump coronary artery bypass grafting —making it the leading technique. Most results obtained in the simultaneous surgical treatment of coronary artery disease and cancer are represented primarily by this technique. When stenting coronary arteries, it is necessary to choose between drug-eluting stents and bare stents . The question of the safe discontinuation of antiplatelet agents before the second stage—surgical treatment of cancer— is also controversial, which often requires an individual approach in each specific case, taking into account the risk of stent thrombosis /bleeding.

The use of chemotherapeutic drugs (cytostatics) can increase the time of endothelialization stent , which in some cases requires prolongation of dual antiplatelet therapy in patients with previously implanted stents . In turn, many chemotherapeutic drugs, such as thalidomide , have increased thrombogenicity , which may also require a change in the antiplatelet regimen . The use of chemotherapeutic drugs that can cause thrombocytopenia can also create difficulties with the use of antiplatelet agents. According to some authors, given the difficulties of using antiplatelet therapy in patients with oncopathology , the

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use of drug-eluting stents should be avoided, giving preference to non-drug-eluting stents .

Currently, a number of studies have traced the relationship between the high risk of developing cardiovascular complications in patients who have previously undergone treatment for oncopathology and who are in a state of remission from this disease.

The high incidence of cardiac complications in this category of patients is primarily associated with the cardiotoxic effects of radiation therapy, as well as the side effects of many chemotherapeutic agents. The efficacy and safety of PCI in this category of patients are also controversial. Data from several studies highlight both the safety and efficacy of PCI and the increased incidence of cardiovascular complications associated with this myocardial revascularization method in patients with cancer in remission. Therefore, this study is of great interest and has important practical implications for assessing the effectiveness of endovascular revascularization. revascularization in this category of patients. The obtained results will allow for more precise recommendations for the use of percutaneous coronary intervention in patients with coronary artery disease and oncologic pathology .

Conclusion

Percutaneous coronary intervention is an effective and safe method of myocardial revascularization in patients with comorbid oncologic pathology . PCI, performed as the first stage, reduces the risk of cardiac complications during oncologic surgery and also reduces the risk of cardiovascular complications in the early postoperative period. We have demonstrated good results of PCI in patients with oncologic pathology at mid- term follow-up (freedom from angina, good exercise tolerance in most patients). The safety of PCI has also been demonstrated in patients with coronary artery disease and oncologic pathology in remission.

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