Study of cardiotoxicity in patients with oncological pathology during chemotherapy

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Background. Cardiological complications occur in 20% of all patients receiving chemotherapy for oncological diseases (the most severe are cardiac rhythm and conduction disturbances, myocardial ischemia and the development of heart failure), which complicates further high-quality antitumor therapy. In addition, 44% of all cancer patients have concomitant cardiovascular pathology, more often coronary artery disease and essential hypertension are detected. Carrying out cardiotoxic chemotherapy in this group of patients worsens the prognosis of concomitant disease.

Aim. Conduct a retrospective analysis of 237 patients undergoing antitumor therapy at different stages of treatment. The analysis included those patients who received drugs with a mechanism of myocardial damage according to type 1 cardiotoxicity — doxorubicin, cyclophosphamide, Herceptin.

Methods. Review of case histories of 237 patients treated in 2021 with doxorubicin (146 patients), cyclophosphamide (86 patients), Herceptin (5 patients).

Results. The use of chemotherapy with the drugs listed above causes irreversible myocardial dysfunction due to the death of cardiomyocytes with the development of left ventricular dysfunction and heart failure, and also worsens the course of concomitant cardiovascular pathology in patients. For more detailed data, further research is needed, which is continuously ongoing.

Conclusion. To date, the fact of the negative impact of chemotherapy on the cardiovascular system is indisputable, however, detailed studies are required. At Meshalkin National Medical Research Center, it is planned to conduct an electrocardiography, an echocardiography with an assessment of the ejection fraction, a general longitudinal strain of the left ventricle myocardium and left ventricle diastolic dysfunction, laboratory tests (troponin T and I, B-type Natriuretic Peptide (BNP), NT-proBNP) and also a comparison of these data with perfusion tomoscintigraphy of the myocardium of each patient undergoing chemotherapy treatment to identify early criteria for the development of cardiotoxicity after each cycle and at the end of chemotherapy, taking into account the total doses of drugs to obtain more accurate and up-to-date data.

Keywords: cardiotoxicity; chemotherapy; cyclophosphamide; doxorubicin; herceptin

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