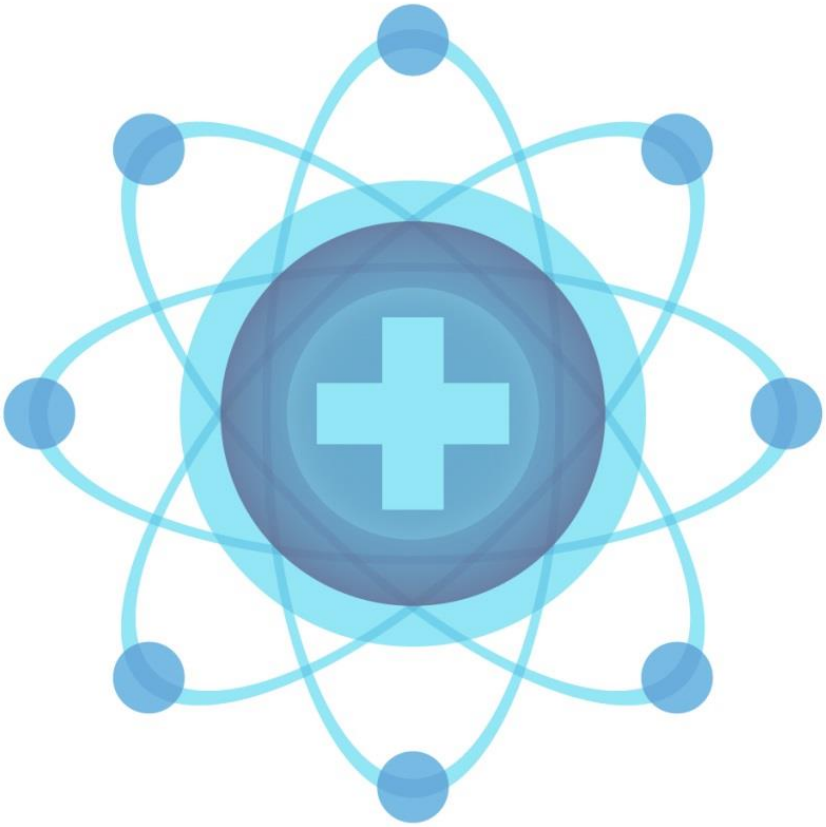

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PREPARATIONS ON LONGITUDINAL DEFORMATION OF THE LEFT VENTRICLE

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Abstract
To compare the indicators of longitudinal deformation of the left ventricular myocardium and the rate of deformation of the LV myocardium in women before and after receiving anthracyclines chemotherapy in breast cancer(BC) patients
Keywords: myocardium, left ventricle, oncological, cardiovascular, treatment.

Introduction. Currently, there is a steady trend towards an increase in the incidence of malignant neoplasms (MNO) in the world [1]. In Russia, the increase in newly diagnosed malignant neoplasms for ten years exceeded 20% [2]. At the same time, early diagnosis and improving approaches to the treatment of cancer patients have significantly increased their survival [3]. Today in the world there are several tens of millions of people receiving treatment for cancer, and the so-called oncological centenarians. According to estimates, their number will progressively increase. [4].

Oncological and cardiovascular diseases are often a comorbid pathology, the development of which is facilitated by common risk factors, such as old age, smoking, obesity, and a sedentary lifestyle [5]. The mutual influence and strengthening of a number of pathogenetic mechanisms are also important, in particular inflammation, oxidative stress, endothelial dysfunction, impaired apoptosis, dysregulation of angiogenesis, epigenetic and other factors [6]. Perhaps the maximum contribution to the development of cardiovascular pathology in cancer patients is made by the toxic effects of anticancer therapy.

One of the most significant cardiovascular complications (CVC) of anticancer treatment is left ventricular (LV) dysfunction - a decrease in LV ejection fraction (EF) by more than 10 percentage points from the initial value and below 50% [7, 8] and heart failure (CH). LV and HF dysfunction associated with anticancer therapy can lead to its interruption or premature withdrawal and thereby reduce the chances of cure. Being a late manifestation of cardiotoxicity of anticancer therapy, HF can not only worsen the quality of life, but also significantly affect the prognosis of patients successfully treated for Cancer. The overall mortality rate of patients with HF (6%) is ten times higher than the population one [9]. Studies of both past and recent years indicate that patients with late onset HF associated with anticancer therapy (more than five years after its completion) have a poorer prognosis than patients with HF due to other causes. [10].

Materials and methods. Patients received from 6 to 12 courses of chemotherapy. 22 patients were studied (mean age 48.8 ± 10.9 years) Depending on the chemotherapy option, the patients were divided into 2 groups: 1st (n = 12)

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treatment duration of 8 weeks or less, the cumulative dosage of doxorubicin was 360 mg / m2; 2nd (n = 10) duration of treatment 16 weeks, cumulative dosage of doxorubicin 500 mg / m2. All patients underwent echocardiography before and after chemotherapy. Echocardiographic examination was performed on a Vivid S70N (GE Health Care) using an M5Sc 1,7-3,0 MHz matrix transducer. All participants in the study underwent an assessment of the longitudinal deformation of the LV myocardium using the 2D Strain method. Data analysis was performed off line.

Results. In patients who received a higher cumulative dose of doxorubicin (group 2), there was a statistically significant increase in myocardial injury, a decrease in the global longitudinal strain of the left ventricle according to two-dimensional speckle-tracking echocardiography (from -18,6±0,4 to -14,8±0,4%; $p<0,05$)

Conclusions. An increased risk of developing subclinical cardiotoxicity was associated with a higher cumulative dose of doxorubicin (500 mg / m2) in breast cancer patients. On echocardiography, a decrease in longitudinal LV deformity is observed, this indicates a high cardiotoxicity of the drug and requires corrective therapy.