Introduction: It is currently unknown what effect SARS-CoV-2 infection has on the parameters of aseptic inflammation in patients with cardiovascular diseases (CVD) in the long-term follow-up period and whether there is a relationship between the prolonged inflammatory response and the indicators of the global longitudinal strain, as the earliest marker of systolic dysfunction of left and right ventricles.

Purpose: To study the dynamics of markers of the inflammatory response and to assess the potential relationship of biomarkers of inflammation with parameters of left and right ventricular systolic function in patients with CVD who underwent COVID-19-associated pneumonia at the reference point 3 months after hospitalization.

Methods: The study included 63 patients (mean age 49.0±16.0 years) within “One-year Cardiac Follow-up of COVID-19 Pneumonia”. Group 1 (n=26) included patients without a history of CVD, group 2 (n=37) - patients with CVD. Three months after discharge from the hospital, patients came for a visit, where blood sampling and echocardiography with speckle tracking analysis were performed.

Results: At the stage of hospitalization, according to the computed tomography data, there were no differences in the volume of lung lesions in the groups. Patients with CVD had a higher level of highly sensitive C-reactive protein (CRP) upon admission to the hospital (group 1 – 33.12 [4.70–45.00] mg/l; group 2 – 47.16 [7.75–76.40] mg/L, p=0.039).

Naturally, in the general group after 3 months, the indicators reflecting the inflammatory response significantly decreased: CRP from 26.10 [5.02–57.5] mg/L to 1.86 [0.76–3.43] mg/L, p<0.001; neutrophil-lymphocyte ratio (NLR), from 2.05 [1.08–2.94] to 1.54 [1.27–1.90], p=0.009; coefficient of large platelets, M±SD from 34.30±6.74 to 23.60±6.59, p<0.001. There were no differences between the groups in the dynamics of inflammation biomarkers.

In group 1, there were no laboratory biomarkers associated with the parameters of myocardial systolic function. In group 2 negative relationship was recorded between the global longitudinal strain of the left ventricle and the CRP level c (r=−0.388; p=0.037) and with the platelet-lymphocyte ratio (PLR) (r=−0.383; p=0.040); endocardial global longitudinal strain of the right ventricle with CRP level (r=−0.386; p<0.001).

Conclusions: In patients who underwent COVID-19-associated pneumonia, after 3 months, the dynamics of laboratory markers of the inflammatory response did not depend on the presence of concomitant cardiac pathology, but only in patients with CVD there was a negative relationship between indicators of systolic function of the left and right ventricles and biomarkers of the inflammatory response.