ONE MONTH FOLLOW-UP OF POST-DISCHARGE COVID-19 PATIENTS SHOWS PERSISTENT SONOGRAPHIC SIGNS OF CARDIAC REMODELING AND MILDLY IMPAIRED LONGITUDINAL FUNCTION REGARDLESS OF PRESENCE OF HYPERTENSION

Oleksii Honchar, MD, PhD
Kharkiv National Medical University, Kharkiv, Ukraine, ov.honchar@knmu.edu.ua

Purpose. To study the typical features and short-term dynamics of cardiac remodeling and possible signs of cardiac dycfunction in hospitalized patients with COVID-19 infection.

Methods. 149 hospitalized patients (72 male and 77 female, mean age 52,4+-14,0 years) with COVID-19 infection (CoV) underwent comprehensive transthoracic echocardiography at the baseline (pre-discharge, 23,1+-7,7 days from the symptoms onset) with repeated evaluation after 30 days. The control group included 40 age-, sex-, height- and weight-matched healthy individuals, with a subset of those (n=31) matched to non-hypertensive cohort (n=80).

Results. Non-hypertensive, non-diabetic CoV patients have, nevertheless, displayed persistent concentric phenotype of left ventricular remodeling throughout the observation period (38 (47,5%) at baseline vs 44 (53,7%) at 1 month, p=0,343, with 4 (19,0%) in control group, p < 0,001 vs both vizits), presented in increased relative and absolute wall thickness, as well as mildly increased LV myocardial mass index (LV hypertrophy detected in 3 (3,8%) patients. Functionally, signs of mild worsening of LV longitudinal function have been detected at both visits, presented as a relative decrease in LV global longitudinal strain (GLS), mitral annular e', and higher E/e' ratio. CoV patients with a history of hypertension were characterized by a more pronounced structural remodeling and functional impairment of a similar phenotype (with LV hypertrophy observed in 10 (14,5%) cases, p=0,021 vs non-hypertensives) that also persisted at the repeated vizit (concentric LV geometry in 54 (78,3%) cases at baseline vs 57 (82,6%) at 1 month, p=0,519, with 7 (17,5%) in control group, p < 0,001 vs both vizits). LV diastolic filling was characterized by significant incidence of DD both in non-hypertensive patients (16 (20%) Grade I + 4 (5%) indeterminate DD at baseline vs 18 (22%) Grade I + 6 (7,3%) indeterminate DD at 1 month, p=0,479, with 0 cases in control group, p < 0,01 vs both vizits), as well as hypertensive participants (21 (30,4%) Grade I + 7 (10,1%) indeterminate DD at baseline vs 25 (36,2%) Grade I + 8 (11,6%) indeterminate DD at 1 month, p=0,391, with 0 cases in control group, p < 0,001 vs both vizits). No cases of LV EF decrease <50% at baseline and a single case of LV EF of 44% at 1 month have been detected in the study group.

Conclusions. Hospitalized patients recovering from COVID-19 were characterized by frequent development of LV concentric geometry (ranging from 48% in non-hypertensive to 78% in hypertensive participants), mild decrease in global longitudinal strain, and predominantly Grade I diastolic dysfunction (25 to 40%, respectively), both of which persisted at 1 month after discharge with no tendency to improvement in both clinical groups.