

Glucocorticoids in myocarditis therapy after COVID-19

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The aim of the study - to evaluate the efficacy of glucocorticoids (GC) in patients with acute myocarditis (AM) after COVID-19 infection.

Material and methods: We included 60 pts with severe AM and heart failure (HF) with reduced (<40%) left ventricular (LV) ejection fraction (EF) who had COVID-19 infection 1–2 months before the enrollment. According to the results of cardiac magnetic resonance (CMR) included pts had ≥ 2 Lake Louise criteria for myocarditis. All pts on the background of HF therapy (β -blockers, ACE-inhibitors, MRA antagonists, diuretics) were prescribed GC: 0.25 mg/kg per day methylprednisolone for 3 months, followed by a gradual dose reduction of 1–2 mg per week until complete discontinuation after 6 months. Evaluation before the start of GC therapy and after 6 months included CMR, 2D- and speckle-tracking echocardiography.

Results: After 6 months according to the results of CMR the number of LV segments with inflammatory lesions decreased to (3,58 \pm 0,42) from (6,32 \pm 0,77) segments in average (p=0,001). This was followed by improvement of LV systolic function: increase of LV EF in average to (43,5 \pm 2,6) from (32,2 \pm 2,4) % (p=0,003), longitudinal global systolic strain (LGSS) absolute value to (11,3 \pm 1,1) from (7,9 \pm 0,5) % (p=0,012) and circumferential global systolic strain (CGSS) to (12,1 \pm 1,0) from (8,9 \pm 0,6) % (p=0,023).

Also we observed LV volume reduction: decrease of LV end-diastolic (from 118,9 \pm 8,6 to 95,3 \pm 7,2 ml/m², p=0,033) and LV end-systolic (from 80,1 \pm 5,1 to 59,1 \pm 4,4 ml/m², p=0,027) volume indexes. Wherein in 24 of 60 pts (41,6%) on the background of significant decrease in the number of LV segments with inflammatory lesions (to 1,34 \pm 0,21 from 6,12 \pm 0,73 segments, p=0,0001) after 6 months we observed the recovery of LV EF \geq 50%, followed by an improvement of LGSS and CGSS on 42,1 and 39,4% respectively (p=0,001). According to multivariate regression analysis, predictors of LV EF recovery (\geq 50%) after 6 months of GC treatment were established: presence of inflammatory lesions in \leq 5,0 LV segments, values of LGSS and CGSS \geq 9.0% and \geq 9.5% respectively before the start of GC.

Conclusions: The use of GC in pts with severe AM after COVID-19 was followed by the decrease of LV segments number affected by inflammation, improvement of LV systolic function and reduction of LV volume indexes. In 41,6% of pts GC therapy was associated with LV EF recovery after 6 months and predictors of its effectiveness were found: presence of inflammatory lesions in \leq 5,0 LV segments, values of LGSS and CGSS \geq 9.0% and \geq 9.5% respectively before the start of GC.