Abstract: **P770**

The effects of handgrip stress test on hemodynamic parameters in patients with diastolic heart failure

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Aim. The effectiveness of isometric handgrip exercise on changes of cardiovascular hemodynamic parameters in patients with diastolic heart failure is unknown. We assess the effect of several hemodynamic parameters and its changes during handgrip maneuvers in patients with diastolic heart failure during different stages of chemotherapy.

Methods. The study population included 45 patients – females /20 pts with HFpEF and 15 pts with HFmrEF and 10 pts with HFnEF/ mean age of 45+/−12 years/. The effects of handgrip maneuver on hemodynamic parameters were studied by speckle tracking echocardiography. Following maximal squeeze until 100%, during the next 3 minutes patients were instructed to apply pressure at 50%. The global longitudinal strain were extracted by 3, 4 and 2 CV images 70-85 fr/s and MAP and HR were performed at basal level, 1st, 2nd and 3rd minutes during handgrip stress test.

Results: Heart rate (HR) and mean arterial pressures (MAP) increased significantly after handgrip maneuver (from 95+/−6 beats/min to 101+/−12 beats/min; from 109+/−15 mm Hg to 118+/−19 mm Hg, p<0.05 respectively). Pulmonary capillary wedge pressure (PCWP), pulmonary artery systolic (s) and diastolic (d) pressures (PAP), cardiac index (CI), left ventricular ejection fraction (LVEF), did not change after handgrip maneuvers (p>0.05). On the other hand, PAPs and PAPd, MAP and HR (p<0.05) decreased significantly during handgrip maneuvers in group with HFmrEF. In same group were found significantly decreases of GLVLS at 2nd and 3rd minutes during stress –test comparable with other 2 groups /p<0.01/.

Conclusion. Cardiovascular response to handgrip maneuver may be a marker of failure to respond to compensatory mechanisms. Patients with good LV reserve had a rise in stroke-work with little or no change in LVEDP. Patients with poor reserve had a fall in stroke-work together with a substantial rise in LVEDP. It is concluded that the stress imposed by sustained handgrip provides a simple test for the evaluation of left ventricular reserve in patients, who will develop cardiotoxicity during chemotherapy treatment.