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## Application of CAVI in idiopathic pulmonary arterial hypertension

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**Aim:** The purpose of the study was to describe structural and functional alterations within the vessel wall of systemic circulation arteries in patients with idiopathic PAH (IPAH) and PAH associated with congenital heart disease (PAH-CHD) using cardio-ankle vascular index (CAVI).

**Methodology:** The study included 45 patients (82,2%female) with IPAH (group 1), 40 patients (77,5% female) with PAH-CHD (group 2), 32 (63,5% female) patients with arterial hypertension (AH) and 35 (80,0% female) healthy patients (control group). CAVI was used to estimate arterial stiffness, right heart catheterization was done to confirm hemodynamic variant of pulmonary hypertension. The mean age of the patients was 39.3±1.0 years.

**Findings:** Right side CAVI was equally high in IPAH and AH patients (7.41±0.20 vs 7.33±0.19; p>0.05), at the same time in IPAH CAVI was 18% higher in comparison with controls. Right side CAVI in group 3 was significantly higher than in group 2 (7.33±0.19 vs 6.39±0.19, p<0.05) and controls (7.33±0.19 vs 6.07±0.14, p 0.001). Left side CAVI in IPAH patients and AH patients was 7.52±0.20 and 7.14±0.15 (p>0.05) and in IPAH group it was 18% than in controls. Left side CAVI in AH patients was 7.14±0.15, that was significantly higher than in controls 6.18±0.14 (p<0,001) and didn't differ with PAH-CHD patients (7.14±0.15 vs 6.59±0.24, p>0.05). In our study CAVI 7.0 was determined as a cut-off value. CAVI>7.0 was found in 60% of patients with IPAH and in 64% of the patients in patients with AH, while in PAH-CHD patients it was observed in every 4 patient and in control group – in every 8 patients.

**Conclusion & Significance:** Our study found structural and functional alterations within the vessel wall of systemic circulation arteries in patients with IPAH.

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