Abstract: P4643

**Pulmonary hypertension incidence is higher than systemic arterial hypertension in children after aortic coarctation repair**

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**Introduction:** Coarctation of the aorta (CoA) is characterized by diffuse arteriopathy which can persist to upward of the aortic isthmus, even after successful surgical correction. This arteriopathy can also occur in the pulmonary vasculature, leading to pulmonary hypertension (PH), a strong risk factor of poor prognosis in CoA population.

**Purpose:** The purpose of this study was to determine the incidence of systemic and pulmonary hypertension in a CoA paediatric population after surgical repair, as well as the impact of PH in right ventricular function.

**Methods:** This cross-sectional study included children after successful surgical repair of the CoA in a tertiary centre [1996, 2009] up to the first year of age. Children with other cardiac structural lesions or recoarctation were excluded. Systemic arterial hypertension was defined as blood pressure in the 95th percentile or higher. PH was considered if the estimated pulmonary systolic arterial pressure (PSAP) was higher than 30mmHg. Pulse wave velocity, ambulatory 24 hours blood pressure monitoring, echocardiographic assessment of right ventricle (RV) and blood tests were performed 11±4 years after surgical procedure. Echocardiographic variables were normalized and evaluated by z-scores. One sample t test or sign test was used to estimate the deviation of measured/observed values from the normality/expected values (defined by z-score=0).

**Results:** We included 38 children with a mean age of 12±4 years (63% male). Late arterial hypertension was diagnosed in 29% of the children and PH incidence was 68% with a mean PSAP of 37±5mmHg. The mean of A’ wave (z-score: 0.34±0.93, p=0.030) and median of E/E’ ratio (z-score: 0.46 [-1.32; 3.68], p=0.004) z-scores were increased comparing with expected normal values in paediatric population. Moreover, E’ wave (z-score: -0.35±0.98, p=0.034) and RV index of myocardial performance (z-score: -0.20±0.41, p=0.006) were decreased. Regarding RV systolic function, TAPSE z-score was significantly increased (z-score: 2.06±2.33, p<0.001), being outside the z-score normal range.

**Conclusion:** Children submitted to CoA surgical repair before the first year of life showed a higher PH incidence than late systemic hypertension occurrence. Also, they already present with significant RV functional abnormalities when compared to the normal paediatric population. These abnormalities can underlie pulmonary vascular remodelling after left ventricular pressure overload in CoA population that seems irreversible after pressure overload relief.