

P-123

**Increased Arterial Stiffness in Patients With Congenital Heart Disease – A Cross Sectional Study of 1106 Patients with Various Congenital Heart Disease**

*Müller, J., Ewert, P., Hager A.*

*German Heart Center Munich, Technische Universität München, Germany*

Objective: Multiple studies have demonstrated the predictive value of aortic stiffness parameters like central systolic blood pressure (cSBP) and augmentation Index (AI) for cardiovascular events. Since some studies suggested that there is an increased aortic stiffness in patients with congenital heart disease (CHD), this study aims to investigate cardiovascular stiffness of patients with CHD by oscillometric measurement.

Patients and Methods: From June 2011 to November 2013, we prospectively examined 1106 consecutive patients with various CHD ( $27.4 \pm 12.1$  years, 459 female) referred for cardiopulmonary exercise testing (CPET) in our institution, and 332 healthy volunteers ( $29.6 \pm 18.6$  years, 173 female). CSBP and AI was estimated in supine position after 5 minutes rest using the oscillometric Vicorder device (SMT medical, Würzburg, Germany). Afterward patients performed a CPET.

Results: CSBP was higher in patients with CHD in comparison to healthy peers (CHD:  $119.1 \pm 14.1$  mmHg,  $p < .001$  vs Healthy:  $115.3 \pm 13.2$  mmHg,  $p < .001$ ). This was also observed for AI (CHD:  $16.1 \pm 9.0\%$  vs Healthy:  $14.1 \pm 10.5\%$ ,  $p < .001$ ). Mean peak oxygen uptake in patients with CHD was  $30.5 \pm 10.0$  ml/min/kg or  $84.8 \pm 22.2\%$  predicted, respectively.

After correction for age and body mass index, higher AI in patients with CHD was associated with lower peak oxygen uptake ( $r = -.118$ ,  $p < .001$ ) and vice versa, higher cSBP with higher peak oxygen uptake ( $r = .150$ ,  $p < .001$ ).

Conclusions: Central blood pressure and augmentation index is increased in patients with CHD. A better understanding of pathophysiologic mechanisms, genetic predisposition, and the role of surgical aortic scars, implanted conduits, stents or patches is needed in this cohort to define the predictive value.