

## P2-77

### **Effect of percutaneous stent implantation on arterial hypertension and aortic flow dynamics in patients with aortic coarctation: identification of responders and non responders**

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**INTRODUCTION:** Arterial hypertension (HT) is a common complication after successfully repaired aortic coarctation and involves complex mechanisms. Moderate to severe recoarctation or late diagnosed native coarctation are accessible to endovascular treatment but the effect of aortic stenting on HT is variable.

We sought to identify the factors contributing to persistent abnormal aortic flow dynamics and hypertension despite optimal endovascular treatment.

**METHODS:** 30 consecutive patients (median age 18.5 years, range 9 to 58 years, 76.7 % male) who underwent aortic stenting for coarctation and HT (17 native, 13 recoarctations) between 2007 and 2015 were retrospectively enrolled. Optimal treatment was defined by hemodynamic peak-to-peak gradient of less than 10 mmHg after stent implantation. HT was defined according to current recommendations. Aortic arch shape (gothic, crenel or normal) and aortic arch hypoplasia were identified. All patients underwent exercise echocardiography and ambulatory blood pressure monitoring with QKD assessment 6 months after the procedure. Multivariate analysis was performed. **RESULTS:** Arm-leg pressure gradient ( $28.5 \pm 15.5$  vs  $8 \pm 8$  mmHg,  $p < 0.01$ ), systolic arterial pressure ( $142 \pm 35$  mmHg vs  $120.5 \pm 22.5$  mmHg,  $p < 0.01$ ), hemodynamic peak-to-peak gradient ( $33.5 \pm 22.5$  mmHg vs  $9 \pm 9$  mmHg,  $p < 0.01$ ), aortic isthmus maximal velocity at rest ( $3.1 \pm 1.5$  m/s vs  $2.4 \pm 1.2$  m/s,  $p < 0.01$ ) and at exercise ( $5.6 \pm 0.9$  m/s vs  $3.9 \pm 2.1$  m/s,  $p < 0.01$ ) were significantly decreased after optimal endovascular treatment. 14 patients had persistent HT (46.7 %) and 12 had exercise-induced HT (40 %). Persistent HT at rest was associated with higher body mass index ( $p = 0.043$ ), smoking ( $p = 0.043$ ), and the length of the implanted stent ( $p = 0.017$ ). Normal shape of the aortic arch was associated with the absence of persistent HT ( $p = 0.029$ ).

Exercise-Induced HT was associated with aortic arch hypoplasia ( $p = 0.01$ ). Arterial distensibility assessed by QKD measurement seems to be lower in hypertension patients but not statistically significant ( $p = 0.054$ ).

**CONCLUSIONS:** Identifying clinical, hemodynamic and anatomic parameters associated with residual hypertension can help to define the non responders after stent implantation. The QKD is a non invasive useful tool in the follow up of corrected aortic coarctation.