Abstract: P513

Immediate changes on aortic hemodynamics and wave reflections after surgical aortic valve replacement

Authors:
E Sigala¹, C Vlachopoulos², C Triantafylloy², N Koumallos², V Lozos², A Katsaros¹, I Kouterinis², N Giakis², M Demosthenous², D Terentes-Printzios², K Fillis³, D Tousoulis¹, ¹Hippokration General Hospital - Athens - Greece, ²Hippokration General Hospital, Cardiac Surgery - Athens - Greece, ³Hippokration General Hospital, Propaedeutic Surgery - Athens - Greece,

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Introduction: Aortic hemodynamics and wave reflections are predictors of adverse cardiovascular events. Surgical aortic valve replacement (SAVR) is the most effective treatment of patients with aortic stenosis.

Purpose: Our aim was to evaluate the immediate changes on aortic hemodynamics and wave reflections after surgical aortic valve replacement.

Methods:
In this pilot study, twenty-five patients (mean age 71.0±7.1 years, 11 female) with severe aortic stenosis undergoing SAVR were included. Aortic hemodynamics and wave reflections (aortic pressures, aortic augmentation index [AIx@75], augmented pressure, subendocardial viability ratio [SEVR]) were measured with Sphygmocor. Measurements were performed preoperatively and postoperatively.

Results:
There was a statistically significant decrease in aortic systolic blood pressure (SBP) (134±24 vs 118±17mmHg with p=0.002, respectively) that was not apparent in peripheral SBP. We observed a marginally significant decrease in aortic AIx@75 (29±13 vs 22±12% with p=0.05, respectively) and a decrease in aortic AIx (p<0.001, Figure) and augmented pressure (20±10 vs 8±7 mmHg with p<0.001, respectively). Moreover, there was a marginally non-significant trend for an increase in SEVR (137±30 vs 149±35%, p=0.095).

Conclusions:
The results of this study indicate that shortly after SAVR subjects show a decrease in aortic wave reflections with a small improvement of myocardial perfusion. These findings imply the short-term hemodynamic consequences of SAVR.