

P-272

Two Melodies in Concert: catheter-interventional double valve replacement

*Jux C., Billinger K., Bauer J., Valeske K., Akintuerk H., Schranz D.
Pediatric Heart Centre, Justus Liebig University, Giessen, Germany*

Introduction: Percutaneous pulmonary valve implantation (PPVI) has been established as a valuable treatment option for elder children and adolescents with conduit failure in the right ventricular outflow tract (RVOT). Transcatheter valve implantation in the tricuspid position is restricted to single case reports.

Patient and Methods: A 26 year-old male initially diagnosed with tetralogy of fallot and hypoplastic pulmonary arteries hitherto underwent a total of 5 open chest procedures (BT-shunt, corrective surgery with transannular patch, pulmonary homograft implantation and tricuspid annuloplasty, tricuspid valve replacement with 27 mm bioprosthesis, pulmonary homograft exchange (26 mm). He now presented with a degenerated pulmonary homograft (PR) and tricuspid bioprosthesis (TS; TR) in NYHA functional class III with severe signs of right heart failure, grossly dilated right atrium and ventricle and severely reduced RV function. Echo showed a 2 cm IVC width with pendulum flow, tricuspid E wave of 2.4 m/s and a mean pressure gradient of 11 mmHg.

After a full hemodynamic study and coronary angiograms, the RVOT was pre-stented using a Plamaz P 4014 on a 20 mm BiB-Ballon followed by a Melody stent implantation on a 22 mm delivery system. The calcified tricuspid bioprosthesis was pre-dilated with a 20 mm Mullins high pressure balloon followed by a second Melody stent implantation in the tricuspid position with a 22 mm delivery system. **Results:** Immediately after the second Melody valve implantation the RA pressure dropped from 22 to 15 mmHg, SVC oxygen saturation increased from 57 to 70% reflecting an improved cardiac index. Echocardiographic assessment at immediate and at 6 months follow-up showed a reduction of IVC width from 20 to 14 mm with no significant gradient across the Melody valve in tricuspid (vmax 1.5 m/s) or pulmonary position (vmax 1.4 m/s) and trivial (tricuspid) and no (pulmonary) detectable regurgitation.

Conclusion: In carefully selected patients not only the failing conduit in pulmonary position but also a degenerated and calcified bioprosthesis in the tricuspid position can be successfully treated by percutaneous valve implantation. Nearly 50 years after the first surgical double valve replacement, we report on the first catheter-interventional double valve replacement.