

Percutaneous Pulmonary Valve Implantation with Edwards–Sapien XT in Patients with Native and Large Right Ventricular Outflow Tract; Early Results

Celebi A., Yucel I.K., Bulut M.O., Balli S., Kucuk M.

Dr.Siyami Ersek Hospital for Cardiology and Cardiovascular Surgery, Department of Pediatric Cardiology, Istanbul, Turkey

Introduction: Percutaneous pulmonary valve implantation (PPVI) has been used mainly for conduit dysfunction in right ventricular outflow tract (RVOT). Until recently, native RVOT without stenosis used to be considered a relative contraindication to transcatheter valvulation. We present early results of PPVI with Edwards–Sapien XT (ES-XT) in repaired tetralogy of Fallot (TOF) patients with native-large RVOTs.

Method: 34 s/p repaired TOF patients who had native RVOT with free pulmonary regurgitation and right ventricular dilatation without significant stenosis. Balloon sizing was performed with compliant (34 mm Amplatzer sizing) and semi-compliant balloons for interrogation. The size of the Z-Med balloons and BIB catheters that the Andra Stents XXL would be mounted on was decided up to the indentation diameter occurred during interrogation; as at least 1 mm larger than the indentation diameter.

Results: Mean age and weight of the patients were 18 9.2 (7-50) years and 48 15 (22-84) kg, respectively. Before presenting pressure gradient between right ventricle and pulmonary artery was 5.6 4.3 (0-14) mmHg. Indentation diameter with balloon interrogation was 25.6 2.2 (22-28) mm. Balloon size used for prestenenting was 27.72.2 (24-30) mm. Successful valve implantation was achieved in all patients; 29 mm in 27 and 26 mm in seven. Valvulation was performed in same session in four and 3-12 weeks after prestenenting in 30. Valve function was good in all immediate after and at the last follow-up; a median of 4.5 months (1-15 months). Mild paravalvular leakage was observed only in two. Stent fracture has not been observed and no reintervention required yet.

Conclusion: PPVI with ES-XT valve, which has larger sizes as 26 and 29 mm, is feasible and safe in patients larger native RVOT without stenosis in adolescents and adults. Newer delivery system (Novaflex), which is used through 14-20 Fr smaller sheaths, gives us also an opportunity of early transcatheter valvulation in smaller patients with native RVOT. Prestenenting for providing a secure landing zone is the most important part of the procedure. Only Andra XXL stents which has an expansion capacity up to 32 mm can be used in this purpose, currently.