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Transcatheter Pulmonary Valve implantation in native and postsurgical, non conduit right ventricular outflow tracts. A single center experience.

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Introduction: PPVI is a viable alternative to surgery in patients with RV outflow tract dysfunction. The extension of PPVI to patients without conduit has the potential to expand those patients eligible to benefit from nonsurgical restoration of RVOT function.

METHODS: Between June 2010 and October 2016, 34 pts underwent percutaneous pulmonary valve implantation in native outflow tract in our centre. Primary underlying diagnosis was tetralogy of Fallot (n=26), pulmonary valve stenosis (n=3), pulmonary atresia with intact ventricular septum (n=2), ventricular septal (VSD) defect with pulmonary valve stenosis (n=2), transposition of great artery with VSD and pulmonary valve stenosis (n=1). RV outflow tract remodelling included: transannular patch (n=29), pulmonary valvotomy (n=3), arterial switch (n=1), percutaneous pulmonary valvuloplasty (n=1). The leading problem consisted of a pulmonary stenosis (n = 2) and pulmonary regurgitation (n = 32).

RESULTS: Technical success was 53% (18/34 pts). The PPVI was not feasible in 47% of pts (16/34) for coronary artery compression during sizing balloon of RVOT with not compliant balloon (n=2), diameter of RVOT > of 30 mm at sizing balloon (n=14). Pre stenting was performed in all cases at the time of valve implantation with bare stent (Andrastent). The mean number of stents used for pre-stenting was $1.6 \pm 0,5$ (range 1 to 2). The Melody valve was implanted in 4/18 pts with Ensemble 22 (n=3) and 20 (n=1). The Edwards Sapien valve was implanted in 14 pts. Valve size were 23 mm (n=1), 26 mm (n=7), 29 mm (n=6). Instability of the valve occurred in 1 pt, which required insertion of two covered stents and second 26 mm Sapien valve with good results. No patient had clinically significant pulmonary regurgitation or stenosis after PPVI. Complications occurred in 3 patients (n=2 tricuspid valve injury that required surgical repair, n=1 mild hemoptysis which did not require treatment). At a mean follow-up of $12,4 \pm 9$ month (range 1 to 24 month), there were no episodes of endocarditis. There was preserved valve function during follow-up.

CONCLUSION: In our experience PPVI is a feasible procedure in about 50% of patients after surgical repair without the conduit with low rate of complications.