

Unusual Techniques for Percutaneous Pulmonary Valve Replacement using the Melody valve.

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Percutaneous pulmonary valve replacement (PPVR) with the Melody valve (Medtronic) may be challenging in patients with unfavourable RVOT. Different techniques have been proposed to overcome this problem: jailing and/or Russian dolls techniques or the folded valve techniques. From March 2015 to October 2016, 11 patients (5F/6M) with a mean age of 19 ± 10 years (11-45 years) underwent these procedures. Initial pathology included tetralogy of Fallot (n=7), transposition of the great vessels (n=2), pulmonary valve stenosis (n=1), and aortic valve stenosis (n=1). These patients had undergone a median of 2 previous surgical repairs (1-5). The RVOT had been previously repaired with a transannular patch and 1 patient had homograft. The indications for pulmonary valve replacement were: significant pulmonary regurgitation (n=7) and a mixed lesion (n=4). All patients had before the procedure, MRI study and CT scan to delineate the exact morphology of the RVOT. Before implantation, balloon dilatation of the RVOT with control aortography to obviate any coronary artery compression was performed in all. Pre-stenting was realized in all with LD max stent (Ev3). A 22-mm Melody valve was implanted in 9 patients, a 20-mm valve in 2 (9/11 under left ventricular pacing). The folding techniques were employed in 8 patients, the PA branch jailing in 7, and the Russian dolls technique in 3. The folding technique on both extremities of the stent (n=1) and only on distal end (n=7) was performed because of short pulmonary artery trunk with early PA bifurcation. These advanced techniques were combined in 6 patients. RVOT dilated up to 25-26 mm in diameter could be thus corrected by PPVR with a 22 mm Melody using these techniques. During follow-up (1 to 19 months), no patient had reintervention. No endocarditis was observed. These advanced techniques for PPVR using the Melody valve can extend the classical indications. Native patched RVOT up to 25-26 mm in diameter can be repaired. However, these initial results are promising but more experience and longer follow-up are mandatory.