

**Percutaneous pulmonary valve implantation in small children: a single center experience**

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**Introduction:**

The advent of percutaneous pulmonary valve implantation (PPVI) may avoid risks of serial surgical reinterventions in patients with dysfunctional right ventricle outflow tract (RVOT).

As experience with PPVI is gained, new challenges arise from complicated anatomy and patient characteristics. A patient body weight over 35 Kg is the traditional recommendation to achieve successful Melody valve implantation. We report our experience in such a technique in smaller patients.

**Methods and Results:**

From January 2009 through December 2011, 10 patients weighing  $\leq 30$  Kg underwent transcatheter Melody valve implantation in our institution; median age was  $6 \pm 2,5$  years and median weight was 21,8 Kg (range 16-29,5 Kg). Primary implantation indication was Pulmonary Regurgitation in 7, and mixed disease in 3. Type of RVOT was bioprosthetic valve or conduit in 8 cases (7 Contegra Conduits), and native tract in 2. The valve was delivered from a femoral venous approach in 7, and from the right internal jugular vein in 3. Pullback gradient across RVOT decreased from  $25 \pm 8,95$  mmHg to  $10 \pm 5,07$  mmHg ( $p=0,004$ ). The Right Ventricle/aortic pressure ratio decrease from  $0,65 \pm 0,17$  to  $0,45 \pm 0,10$  ( $p=0,004$ ). Intraprocedure complications included: pulmonary hemorrhage ( $n=1$ ); complex tachycardia ( $n=1$ ); elevation of Left Ventricle filling pressure treated acutely with milrinone and non invasive ventilation ( $n=1$ ). No patient had more than mild pulmonary regurgitation early after implantation or during follow up (median time 11 months). Only 1 patient presented significant stenosis associated with stent fracture.

**Conclusions:**

We consider percutaneous Melody valve implantation as a safe and effective therapy in infants with dysfunctional RVOT weighing less than 30 Kg (even as small as 15,8 kg).

Jugular vein rout may suppose a technical advantage for Melody delivery in these patients. Suitable anatomical substrate can also include native RVOT.