

**Percutaneous pulmonary valve implantation for free pulmonary regurgitation after conduit-free RVOT plasty**

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Objectives: To evaluate in patients with severe PR the feasibility and safety of a strategy of pre-stenting the conduit-free dilated right ventricular outflow tracts before excessive dilation occurs, followed by percutaneous pulmonary valve implantation (PPVI).

Patients and methods: 27 patients with free PR (26 post repair Fallot, 1 post balloon PS; age 12.1 years (6.0–44.9), weight 39.0 kg (range: 20–88)) were selected by echocardiography (RVOT < 21 mm) which predicted an adequate retention zone (size  $\leq$  24mm defined by semi-compliant balloon interrogation of the RVOT with 23-25 mm Tyshak™ balloon). RVOT pre-stenting was done with open cell bare metal stent (Andrastent™ XXL range 30-57 mm at 20-25 mm); PPVI 2 months later.

Results: 26 patients had successful prestenting and proceeded to PPVI a median of 2.2 months (range: 1.4–3.4) after initial pre-stent placement. 25 Melody™ valves at 20-23 mm and one 26mm Sapien™ valve were implanted. Complications consisted of immediate embolization of pre-stent (n=1) and mild stent dislocation (n=2) at initial procedure, crumpling (n=4) at second procedure. At 3 months, RV volume had decreased from 188±38 to 158±35 ml (p<0.01) and LV volume increased from 77±8 < 88±8 ml/m<sup>2</sup> (p<0.05). During follow-up 0.2- 3 years, no stent fractures were observed, and valve function remained perfect.

Conclusions: Post-surgical conduit-free RVOT with free pulmonary regurgitation can be stented and re-valvulated percutaneously if anatomical (predominantly size) criteria are met. In experienced hands, the technique is safe with acceptable morbidity.