Transvenous Edwards SAPIEN valve implantation in the tricuspid position

Godart F. (1), Baruteau A.E. (2), Riou J.Y. (2), Petit J. (2)
(1) Paediatric Cardiology, Lille 2, France
(2) Centre Chirurgical Marie Lannelongue, Le Plessis Robinson, France

Ebstein anomaly is a complex disease and surgical results may be not as good as expected. We report here 2 patients in whom percutaneous tricuspid valve implantation was realised after previous surgical repairs. Two boys underwent tricuspid valve plasty at the age of 4 and 12 years respectively. Because of persistent regurgitation, both of them had subsequently tricuspid valve replacement by a bioprosthesis (27 mm Mosaic Medtronic valve in pt 1 at the age of 7 years and 33 mm Carpentier-Edwards Perimount in pt 2 at the age of 12.5 years) in combination with a Glenn procedure. During follow-up, both of them had dysfunctional tricuspid bioprosthesis. Percutaneous implantation of the tricuspid valve performed under general anaesthesia and from a femoral venous approach at the age of 16 years in pt 1 and the age of 15 years in pt 2. Rapid pacing by a pacemaker lead placed in the left ventricle from the femoral artery was used during valve deployment. In pt 1 during balloon inflation, the 23 mm Edwards Sapien slipped into the right ventricle where it became free. Using the extrastiff guidewire, this stented valve was anchored to the tricuspid annulus by different overlapping stents (Intrastent, EV3 and a self-expandable stent) and then a second 23 mm Edwards Sapien was implanted with success within the annulus. In pt 2, pre-stenting of the tricuspid annulus was realized first with a bare stent (Intrastent, EV3), and then a 26 mm Edwards valve was implanted with success. Tricuspid valve-in-valve implantation using the Edwards Sapien valve is feasible. To secure valve positioning, it may be advisable to pre-stent the tricuspid annulus to have adequate landing zone for further Edwards Sapien valve implantation. To conclude, the Edwards Sapien valve seems appropriate for implantation in the tricuspid position in selected patients with prior tricuspid valve surgery but additional long-term results including more patients are mandatory.