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Percutaneous pulmonary valve implantation (Melody® valve) in the failing pulmonary valved Contegra® conduit in children and young adults

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Introduction:

Since CE market approval in 2006 Melody® transcatheter pulmonary valve implantation has been an interventional treatment option for the dysfunctional right ventricular outflow tract conduit. The aim of this new procedure is to restore pulmonary valve competence without the need of open chest operation and therefore potentially reduce the number of open-chest interventions over a patients lifetime.

We present our first experience in percutaneous Melody® valve implantation in the failing pulmonary valved Contegra® conduit in children and young adults.

Methods:

Between May 2010 and December 2010 we implanted 10 Melody® valves in 10 patients with a failing pulmonary valved Contegra® conduit. Patient age ranged from 9 to 23 years (mean 14.1 years) and weight from 30.7 kg to 79.2 kg (mean 48.6 kg). Contegra® conduit size ranged from 12 mm to 22 mm (mean 17.6 mm) with a conduit lifespan from 5 to 11 years (mean 9 years). All Contegra® conduits were pre-stented with Andra® XL and/or Cheatham platinum (CP) stents. The number of stents required to achieve a rigid tube without any re-coil as a Melody® valve landing zone in the right ventricular outflow tract ranged from 1 to 5 stents (mean 2.2 stents). All calcified Contegra® conduits were pre-stented with at least 1 covered CP stent. The Melody® valve was implanted in 7 patients on a 22 mm delivery system, in 2 patients on a 20 mm delivery system and in 1 patient on a 18 mm delivery system.

Results:

All Melody® valves were successful implanted with no procedural complications. Residual gradients between RV and PA ranged from 0 mmHg to 15 mmHg (mean 7.8 mmHg). Pulmonary angiograms after valve implantation demonstrated a functional Melody® valve with no pulmonary insufficiency in all patients.

Conclusion:

In our limited experience percutaneous implantation of the Melody® valve in the in the failing pulmonary valved Contegra® conduit can be performed safely. Whether these encouraging short-term results will be stable in the long term needs to be investigated.