Long-term results after percutaneous pulmonary valve implantation (PPVI) – single centre experience

Eicken A., Tanase D., Georgiev S., Hager A., Meierhofer C., Ewert P.
Department of Paediatric Cardiology and Congenital Heart Disease, Deutsches Herzzentrum München, Technische Universität München, Germany

Percutaneous pulmonary valve implantation (PPVI) is the first line treatment option for suitable patients with right ventricular outflow tract (RVOT) dysfunction in many centres. We report on our long-term experience with PPVI.

Since 12/2006 a total of 240 patients (female 84) were treated with PPVI. In 225 patients a Medtronic Melody valve was used and in 15 patients an Edwards Sapien valve was implanted (23 mm n = 3, 26 mm n = 8, 29 mm n = 4). Median patient age was 18.4 years (range 4.1-78.9y), weight was 59 kg(19-176 kg). Indication for treatment was leading RVOT stenosis in 102, regurgitation 38, both 100.

Diagnoses: TOF/PA+VSD 121, common arterial trunc 40, TGA after Rastelli 20, AoS after Ross 27, and miscellaneous 32. The valves were placed in a bioprosthesis in 215 patients, a “native” RVOT was present in 25 patients. Nearly all patients (97%) had pre-stenting of the RVOT with a variety of stents. Periprocedural mortality was 2/240 (0.8%, coronary occlusion 1, fatal conduit rupture 1). The gradient in the RVOT was lowered from 38 to 10 mmHg (p<0.001) and the RV:aortic pressure ratio fell from 67% to 36% respectively (p<0.001). During a follow-up of 922 patient years 91% of all patients still live with the percutaneously implanted pulmonic valve; 15 valves had to be explanted due to endocarditis (8), outgrowth (7) and in six patients a valve in valve procedure was performed.

In conclusion PPVI can be performed after careful patient selection with a low periprocedural morbidity and mortality. Coronary compression and conduit rupture are the procedural hazards. Long-term results are promising but lifelong surveillance is necessary.