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

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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 patiens. Nearly all patients (97%) had prestenting 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.