

**Percutaneous pulmonary valve implantation versus surgical implantation/replacement in patients with right ventricular outflow tract dysfunction**

*Dilber D. (1), Eicken A. (2), Hager A. (2), Fratz S. (2), Hörer J.(3), Malcic I. (1), Hess J. (2)*

*(1) Department of Paediatric Cardiology, University Hospital Zagreb at the Medical School of Zagreb, Kispaticeva 12, 10 000 Zagreb, Croatia*

*(2) Department of Paediatric Cardiology and Congenital Heart Disease, Deutsches Herzzentrum München, Technische Universität München, Germany*

*(3) Department of Cardiothoracic Surgery, Deutsches Herzzentrum München, Technische Universität München, Germany*

Objective: Right ventricular outflow tract (RVOT) dysfunction (stenosis of regurgitation) can be treated by surgical valve implantation/replacement or by percutaneous pulmonary valve implantation (PPVI). In contrast to surgery, PPVI is usually performed in patients with dysfunction of an already existing valved conduit between RV and pulmonary artery. The aim of our study is to compare the rate of postprocedural complications, length of hospital stay and the function of the implanted valve during follow-up.

Methods and results: 109 consecutive patients with RVOT dysfunction were scheduled for PPVI (53) or operation (56) since December 2006. The median peak-systolic Doppler gradient across the RVOT was 69 mmHg before PPVI vs 33 mmHg before surgery ( $p < 0.0001$ ). Whereas RVOT stenosis was the prevailing lesion before PPVI, severe regurgitation was the leading lesion in the surgical group. Median age was 22.8 yrs in both groups. The median number of previous surgical procedures was significantly higher in the PPVI group (3.0 vs 2.0;  $p = 0.001$ ). The median postoperative stay was significantly longer in the surgical group (17 d vs 2 d;  $p < 0.001$ ). Post interventional complications were more frequent in the surgical group (2 patients needed urgent reoperation, 1 pacemaker insertion, 1 developed seizures, 13 fever, 4 arrhythmias) compared to those after PPVI (1 fever, 1 temporary AV-block). The median follow-up period was identical (11.7 months). The peak-systolic Doppler gradient across the RVOT was 30 mmHg after PPVI vs 19 mmHg in the surgical group ( $p < 0.0001$ ). Substantial post-procedural pulmonary regurgitation was only present in the surgical group. Conclusion: The duration of hospital stay was significantly shorter and the rate of complications after PPVI was lower than after surgery. During this time period pulmonary regurgitation was the primary indication for intervention in the surgical group whereas stenosis was the prevailing lesion before PPVI.

Therefore, PPVI seems to be the treatment of choice for selected patients with RVOT dysfunction.