

Short and Midterm Outcome Evaluation of Surgical vs Transcatheter Pulmonary Valve Replacement at a Single Center

Kazmouz, Suhaib

Rush Center for Congenital and Structural Heart Disease, Rush University Medical Center, Chicago, IL

Background: Although transcatheter pulmonary valve replacement (tPVR) is evolving, comparative studies with surgical pulmonary valve replacement (sPVR) are lacking. We present short and midterm outcome evaluation of patients undergoing both surgical and transcatheter pulmonary valve replacement at a single center.

Method: Retrospective data analysis of all patients who underwent tPVR or sPVR between April 2008 and December 2012. Patient demographics, pre-procedural investigations, clinical, echocardiographic and electrocardiography follow-up data and procedural cost were included. Data are presented as mean \pm standard deviation.

Results: Sixty-three patients underwent pulmonary valve replacement (tPVR, n=39, sPVR, n=24) during the study period. Patient demographics were similar between the two groups. Primary indication included: regurgitation (tPVR (n=6), sPVR (n= 22)), stenosis (tPVR (n=15), sPVR (n=2)) or mixed (tPVR (n=18), sPVR (n=0)).

There was a significant difference in the pre-procedural peak Doppler gradient across the pulmonary outflow (tPVR=43.58 \pm 19.30mmHg, sPVR=19.55 \pm 17.53 mmHg, p< 0.001). The length of the hospital stay was longer in the surgical patients (tPVR 1.36 \pm 0.67 days; sPVR 4.67 \pm 2.61 days, p < 0.001). Comparative complications rates were higher in the surgical patients compared to transcatheter patients.

At median follow-up of 17.67 \pm 16.27 months for tPVR, and 9.38 \pm 13.89 months for sPVR, mean pulmonary Doppler gradients were higher with transcatheter replacement (tPVR 16.59 \pm 10.58 mmHg; sPVR 9.79 \pm 7.51 mmHg, p<0.001). There was a trend towards a higher grade of PR in the surgical cohort (tPVR 0.86 \pm 1.11, sPVR 0.87 \pm 0.92, p=0.091), Over the follow-up period re-intervention was required in 4 of the transcatheter patients (10%) compared to 1 of the surgical patients (4%).

Conclusion: Good outcomes are achievable with both surgical and transcatheter pulmonary valve replacement. These cohorts often represent different dominant valvar pathology. Length of hospital stay was greater in the surgical group; however residual RVOT gradient was higher in the transcatheter group.