Three-year outcomes following transcatheter versus surgical aortic valve replacement in younger, low surgical risk patients with severe aortic stenosis

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Background/Introduction: Prior randomized studies in patients with severe aortic stenosis at low risk for surgery have shown comparable 3-year outcomes with transcatheter aortic valve implantation (TAVI) and surgery. Less is known about the intermediate term outcomes in younger (<75 years) patients at low risk for surgery treated with TAVI or surgery.

Purpose: To compare 3-year clinical outcomes in younger (<75 years) patients with severe aortic stenosis and low risk for surgery randomly assigned to TAVI or surgery.

Methods: The Evolut Low Risk randomized trial treated 1414 patients at low surgical risk with a supra-annular, self-expanding TAVI or surgery. Patients less than 75 years of age were selected for this analysis. The primary endpoint was the 3-year occurrence of all-cause mortality or disabling stroke (Kaplan-Meier estimates). Serial echocardiographic outcomes were also compared through 3-year follow-up.

Results: 703 younger (mean age, 69 years) low-surgical risk (STS PROM, 1.6%) aortic stenosis patients were treated with TAVI (N=352) and SAVR (N=351). At 3 years, the primary endpoint of all-cause mortality or disabling stroke was not different between TAVI (5.7%) or surgery (8.0%, p=0.241). TAVI was associated with lower incidence (0.6%) of disabling stroke compared with surgery (2.9%, p=0.019) and atrial fibrillation (13.3%) compared with surgery (36.4%, p<0.001) while surgery was associated with lower incidence of pacemaker implantation (7.1%) compared with TAVI (21.0%, p<0.001). Valve reintervention rates were low in both groups (1.5% with TAVI; 1.5% with surgery, p=0.962). Mean aortic gradients were significantly lower with TAVI (9.7 mmHg) compared with surgery (12.9 mmHg, p<0.001) and effective orifice areas were significantly larger with TAVI (2.2 cm²) compared with surgery (1.9 cm², p<0.001). There were no differences in the rates of residual moderate or greater paravalvular regurgitation (TAVI: 1.1% and surgery: 0.4%, p=0.626).

Conclusion(s): Low risk patients less than 75 years age who underwent TAVI with a supra-annular, self-expanding TAVI had comparable clinical and haemodynamic outcomes with surgery through the 3-year follow-up; additional study through 10 years in these low risk patients is ongoing.