



OFF-LABEL EDGE-TO-EDGE REPAIR OF THE TRICUSPID VALVE LEADS TO SUSTAINED IMPROVEMENTS IN ECHOCARDIOGRAPHIC AND FUNCTIONAL OUTCOMES

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Background:

Transcatheter edge-to-edge tricuspid valve (TV) repair is an emerging treatment for patients with severe tricuspid regurgitation (TR) at high risk for surgery. We evaluate the safety and effectiveness of transcatheter TV repair at a single US academic tertiary care hospital.

Methods:

Data from patients with severe TR who underwent successful transcatheter edge-to-edge TV repair were evaluated retrospectively. Procedural details, impact on TR and 30-day and 1-year follow-up measures were analysed. Twenty patients underwent successful deployment of a percutaneous edge-to-edge repair using the Mitraclip (Abbott Cardiovascular, MN) system in the tricuspid position. Fifty percent were men, mean age was 78.2±15.7 years, mean EuroSCORE II was 7.9±4.7% and all had history of severe tricuspid regurgitation as determined by echocardiography. Eight had previous non-tricuspid cardiac surgery. Eight had a pacemaker lead traversing the TV while 19 had atrial fibrillation, both contributing to tricuspid regurgitation severity. Transesophageal echocardiography (TEE) was used in all for procedure guidance with additional intracardiac echocardiography in twelve patients. Twenty-six total clips were implanted with a mean of 1.3 clips/patient. Clip position based on echocardiography findings was antero-septal in 17 patients, postero-septal in eight and antero-posterior in one. Mean procedural time was 183.9±85.5 minutes with ICE contributing to longer procedural times (212±103 minutes with ICE vs. 141±26.5 minutes without). There were no clip-related complications. One TEE-related complication was observed (minor esophageal bleed) and median discharge time was four days. Mean TR grade reductions was 1.5 grade with all patients except one having at least one grade reduction in TR at early follow-up. One patient did not achieve TR reduction despite a technically successful clip procedure and was the only patient hospitalized for heart failure within 30 days. Sixty-three percent of patients had New York Heart Association (NYHA) class 3-4 symptoms prior to repair, with 7% having class 3-4 symptoms at 30 day follow up. Right ventricular (RV) function also improved with 25% of patients having moderate-severe RV dysfunction prior to repair, and 15% following repair. There were no deaths, conversions to surgery, device embolization or vascular complications at 30-days. There were three deaths at 1-year follow up. Two cases had single-leaflet device attachment noted on follow up.

Conclusion:

Edge-to-edge TV repair appears to be safe with encouraging early results in a high-risk cohort with severe TR. It appears to be effective at short-term follow up. Factors associated with procedural time and efficacy as well as long term patient outcomes warrant further study.



Clinical Implications:

This study demonstrates real-world procedural effectiveness of transcatheter edge-to-edge tricuspid valve repair for severe tricuspid regurgitation for patients with both high surgical risk and/or no other indication for cardiac surgery who would otherwise be limited to non-invasive medical management. Short-term outcomes demonstrate an excellent safety and efficacy profile.

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