Atrial fibrillation after transcatheter tricuspid valve repair: rhythm control strategies and outcomes

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Background: Transcatheter tricuspid valve (TV) repair emerged as a viable treatment option in patients with severe tricuspid regurgitation and high operative risk. Although atrial fibrillation (AF) is common in these patients, the prognostic value of maintenance of sinus rhythm (SR) after transcatheter TV repair is unknown.

Purpose: We sought to assess the prevalence and efficacy of rhythm control strategies and impacts of maintenance of sinus rhythm on outcomes after transcatheter TV repair.

Methods: All patients undergoing transcatheter TV repair in our center between April 2017 and December 2022 were included in this single-center retrospective analysis. Patients who maintained SR throughout the follow-up (FU) were compared to patients who did not. The composite study endpoint included death from any cause, heart failure (HF) hospitalization and repeat TV repair. Furthermore, prevalence and efficacy of rhythm control strategies were evaluated.

Results: A total of 203 patients (mean age 78 ± 7 years, 145 (68 %) female) after transcatheter TV repair was analyzed. After a median follow-up of 12 months (IQR 4-20), 21 patients (10 %) did maintain SR. AF was present in 183 patients (90 %), of whom 134 had permanent AF. In the AF group, direct-current cardioversion (DCCV) was performed in 6 patients (3 %). Following DCCV, SR was restored in 4 patients (75 %), of whom 3 patients (75 %) presented in SR 30 days after DCCV. 2 patients (1 %) underwent AF ablation. After a case-control matching including 38 patients (SR vs. AF), during a median follow-up of 8 months (IQR 1-20) the study endpoint occurred in 7 of 19 patients (37 %) in the SR group and 12 of 19 patients (63 %) in the AF group (HR 0.70, p = 0.43).

Conclusions: The incidence of AF among patients undergoing transcatheter TV repair is high. In the present patient cohort, there was a trend towards a higher likelihood of death from any cause, HF hospitalization and repeat transcatheter TV repair in patients with AF. Further randomized studies are needed to evaluate the impact of rhythm control in patient undergoing TV repair.