

# FUNCTIONAL TRICUSPID REGURGITATION AFTER TRANSCATHETER CLOSURE OF ATRIAL SEPTAL DEFECT IN ADULT PATIENTS: LONG-TERM FOLLOW-UP

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## BACKGROUND

Tricuspid regurgitation (TR) frequently occurs in patients with atrial septal defect (ASD). Transcatheter closure has been established as an effective treatment for ASD and has become an alternative to surgical closure. However, the therapeutic strategy for ASD complicated with significant TR is controversial (i.e., transcatheter closure alone vs. surgical closure combined with tricuspid valve repair) because the change in TR during long-term follow-up after ASD closure remains unknown.

## OBJECTIVES

This study aimed to assess the fate of TR after transcatheter ASD closure.

## METHODS

Four hundred nineteen adult patients who underwent transcatheter ASD closure were enrolled. TR was assessed on the basis of the spatial distribution of the central regurgitant jet within the right atrium by color Doppler flow mapping on echocardiography. The severity of TR was determined as mild if the jet area was  $<5 \text{ cm}^2$ , moderate if 5 to  $10 \text{ cm}^2$ , and severe if  $>10 \text{ cm}^2$ .

## RESULTS

At baseline, 113 patients had severe/moderate TR and 306 had mild TR. Among 113 patients with severe/moderate TR, the severity of TR decreased to mild in 79 (70%) patients. There was no further progression of TR. TR jet area significantly decreased during a median follow-up of 30 months after the procedure (from  $9.2 \pm 4.0 \text{ cm}^2$  to  $4.3 \pm 2.9 \text{ cm}^2$ ,  $p < 0.001$ ), which was related to the improvement in right ventricular morphology. Persistent TR, defined as severe or moderate TR after the procedure, was independently associated with the prevalence of permanent atrial fibrillation. Regarding clinical outcome, 7 patients with severe/moderate TR and 2 with mild TR were hospitalized because of heart failure. Patients with severe/moderate TR had the worse event-free survival rate than those with mild TR, but more than 90% of them had no cardiovascular events. New York Heart Association functional class and plasma B-type natriuretic peptide levels improved in patients with severe/moderate TR, similar to those with mild TR.

## CONCLUSIONS

Significant TR decreased during the long-term follow-up period after transcatheter ASD closure. Heart failure symptoms improved in patients with severe/moderate TR. Our findings suggest that transcatheter closure alone can be valuable in patients with ASD complicated with TR.