Short-term decrease of left atrial size predicts clinical outcome in patients with severe aortic stenosis undergoing transcatheter aortic valve replacement

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Background: Increased left atrium (LA) size is a hallmark of severe aortic stenosis (AS) and is associated with adverse patients' cardiovascular outcome. Whether transcatheter aortic valve replacement (TAVR) may lead to a decrease in LA size is not known. Aim: We investigated whether TAVR results in a short-term decrease in LA size and whether such decrease may predict patients' clinical outcome. Methods: 104 consecutive patients with severe symptomatic AS and dilated LA undergoing TAVR were enrolled. LA volume was assessed by echocardiography before and shortly after TAVR (median time: 7 days). Composite rate of death and hospitalization for acutely decompensated heart failure (HF) was recorded and clinical status was assessed through NYHA-class evaluation at 12 months median follow-up. Results: After TAVR, 49 patients (47%) demonstrated a decrease in LA volume. Despite a similar baseline NYHA class, patients with decrease in LA size had significant better improvement in clinical status respect to patients with unvaried LA size (NYHA post: 1.2±0.6 vs 1.8±1.1, p=0.001; NYHA reduction: -1.6±0.9 vs -0.9±1.0, p=0.002, respectively). Moreover, these patients had a significantly reduced rate of death or HF-hospitalization (4 vs 29%, p=0.001) and a significantly longer event-free-survival from Kaplan-Meier curves (p=0.003). COX regression analysis showed that, among echocardiographic parameters, decrease in LA-size was an independent predictor of clinical outcome (HR: 0.149, CI: 0.034-0.654, p=0.012). Conclusions: the lack of decrease in LA size shortly after TAVR is associated with significantly higher rates of death and HF-hospitalization, as well as with impaired improvement in clinical status during long-term follow-up.