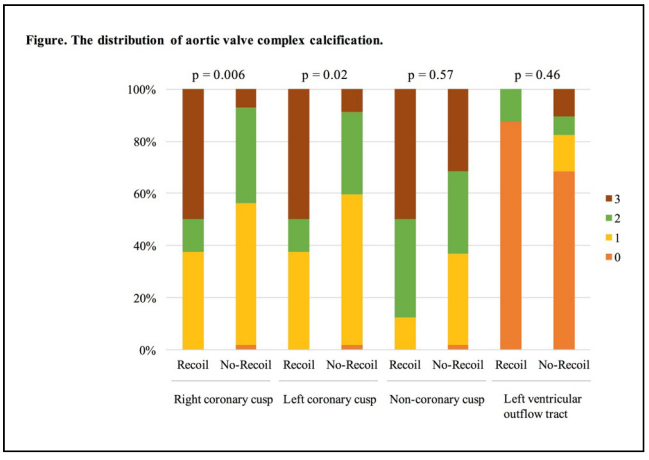
recoil after TAVI with the balloon-expandable bioprosthesis by using multidetector computed tomography (MDCT).

METHODS We analyzed data from 101 patients undergoing TAVI with balloon-expandable THVs in the Optimized Transcatheter Valvular Intervention (OCEAN-TAVI, Japan) registry, which is an on-going, prospective multicentre registry. We obtained follow-up multidetector computed tomography before discharge and at 6 months along with data on echocardiography and clinical outcomes including death, New York Heart Association (NYHA) class, and aortic regurgitation (AR). Using MDCT, we measured THV area at each follow-up and scored aortic valve complex calcification from 0 to 3 at baseline. Significant late THV recoil was defined as a percent decrease of ≥3% in an area during 6 months. We divided the 101 patients into two groups according to the degree of the interval change in THV area between the time of discharge versus at the 6-month follow-up (the recoil group; patients with significant THV recoil and the no-recoil group; patients without significant THV recoil).Furthermore, we compared the baseline characteristics and clinical outcomes between the groups.

RESULTS Significant late THV recoil was observed in 13 of 101 patients (12.8%; the recoil group). Late absolute and percent recoil was 18.1 mm^2 (interquartile range, 14.5-21.1) and 5.0% (4.1-6.0) with the recoil group; -4.5 mm^2 (-7.6-0.8) and -1.3% (-2.0-0.4) with the no-recoil group, respectively. Patients in the recoil group had greater body mass index (24.4 ± 4.8 kg/m^2 vs. 22.1 ± 3.1 kg/m^2, p=0.02), higher rate of atrial fibrillation (38.4% vs. 19.3%, p=0.02), smaller indexed aortic valve area (0.37 (interquartile range, 0.32-0.43) vs. 0.45 (0.40-0.54) cm^2, p=0.01) and larger annulus area (394 (368-443) vs. 365 (329-412) mm^2, p=0.04). The approach and bioprosthesis size were similar between the groups. No significant differences were observed in the frequency of pre-dilatation, underfilling, and post-dilatation. However, the annular area oversizing rate was lower in the Recoil group (9.2 (3.4-16.8)% and 20.3 (13.0-29.6)%, respectively, p<0.01). Patients in the recoil group had a higher degree of leaflet calcification in right and left coronary cusp (p<0.01 and p=0.02, respectively) (Figure). No significant differences were observed in valve hemodynamics including AR, indexed effective orifice area, and mean aortic gradient and clinical outcomes including death, NYHA class, and AR at 1 year between the groups.



CONCLUSION A certain degree of late THV recoil was shown in patients undergoing TAVI with a balloon-expandable bioprosthesis. Patients with heavily calcified leaflets may have an increased risk for THV recoil in the late phase. However, the condition was subclinical and did not affect valve hemodynamics at 1 year.

TCTAP A-163

Follow-Up Results of Balloon Valvuloplasty in Aortic Stenosis of Rheumatic Etiology

Ajith Ananthakrishna Pillai,[1] Saranya Gousy,[1] Chandramohan Ramasamy,[1] Anupriya Annapurni[2]
[1]Jawaharlal Institute of Postgraduate Medical Education and Research, India; [2]Chesterfield Royal Hospital, United Kingdom

BACKGROUND To study the long-term results of balloon aortic valvuloplasty (BAV) in a large cohort of patients with rheumatic valvular aortic stenosis. Balloon aortic valvuloplasty is proved as a palliative procedure as a bridge to TAVI and surgical AVR. We do not know the long-term outcomes of BAV in rheumatic etiology. We studied the outcomes of BAV in aortic stenosis of rheumatic origin and immediate and long-term data analyzed. The long term data is prudent as a majority of rheumatic patients are younger in age. We looked at the need for a surgical replacement among patients following BAV in rheumatic AS and survival following BAV.

METHODS Single center retrospective data analysis of immediate and long-term outcomes in patients following BAV from 2000 to 2009. One hundred and forty-four (144) patients with rheumatic aortic stenosis (AS) were studied who underwent BAV. Patients were divided into 3 groups for analysis following BAV. Successful BAV (more than 50% reduction in baseline gradient) (Group A), partially successful BAV (25-50% reduction in baseline gradient) and BAV failed <25% reduction in baseline gradient (Group C).

RESULTS Mean age of patients was 21.7 years (95% CI 14.3-28.9) with a mean follow-up period of 5.7 years (± SD 1.3). 123 (85.9%) subjects were in Group A,12 (8.7%) subjects in Group B and 7 (5.4%) subjects in Group C. Concomitant balloon mitral valvuloplasty was done in 35/144 cases. Mean left ventricular systolic pressure decreased from 165.6 (95% CI 142.7-196.3) to 110.9 mmHg (95% CI 92.1-129.6) and mean aortic valve (AV) gradient from 50.7 (95% CI 35.12-66.22) to 27.2 mmHg (95% CI 25.83-31.23). The mean change in ejection fraction and mean AV gradient were significantly different between success (Groups A and B) and failure groups (P<0.001). Different grades of AR were noted in 50 (34.78%) patients post BAV (severe regurgitation in 2.18%). ANOVA post hoc analysis showed sustained gradient reductions at 1- and 5-year follow-up. 5-year survival in isolated rheumatic AS following successful BAV (N=123) versus and surgical AVR (205) showed similar outcomes (P=0.632).

CONCLUSION BAV is an effective treatment strategy in dominant AS in multivalvular rheumatic disease situations. Combined aortic and mitral valvuloplasty was performed in one-fourth of study patients. The need for surgery was much lower in Group A (2.5%) compared to Group B (50%) and C (100%). Five-year survival in isolated rheumatic AS following successful BAV showed similar outcomes with surgery.

TCTAP A-164

Post-procedure 3D Mitral Valve Geometry Alteration in Transapical Mitral Valve-in-valve Surgery Using Two Different Valve System

Li-Tan Yang,[1] Ming-Chon Hsiung,[2] Wei-Hsian Yin,[2] Jeng Wei[2]
[1]Division of Cardiology, Department of Internal Medicine, Tainan Hospital, Taiwan; [2]Cheng Hsin General Hospital, Taiwan

BACKGROUND Alteration of the 3-dimensional (3D) mitral valve (MV) geometry in transapical mitral valve-in-valve (VIV) procedure is not well-defined. We aimed to investigate the 3D post-procedural MV geometry change in patients who received two different types of prosthesis.

METHODS We enrolled 12 patients who had undergone tissue mitral valve surgery (degenerative mitral regurgitation, n=9; rheumatic mitral regurgitation, n=1; rheumatic mitral stenosis, n=1; ischemic mitral regurgitation, n=1) (Figure 1). After the median of 9.5 (IQR: 5.3-13.7) years post-MV replacement, all 12 patients had failed mitral bioprosthesis (2 had mitral stenosis and 10 had mitral regurgitation).

VIV procedure was performed using Edward Sapien XT valve in 6 patients, and Boston Lotus valve in the other 6 patients. 3D transesophageal echocardiography (TEE) was performed before and immediately after the procedure. 2D transthoracic echocardiography (TTE) was also performed before VIV procedure and during the follow-up period (3- and 6-month post-procedure). The severity of mitral regurgitation was graded as no regurgitation (0), mild (1+), moderate (2+), moderately-severe (3+) and severe (4+) on the basis of vena contracta, regurgitant volume, and effective regurgitant orifice area. All analysis of 3D MV geometry was performed using QLAB 10.4 (Philips, Andover, MA).