Emergency Aortic Balloon Valvuloplasty in Era of Transcatheter Aortic Valve Replacement: Results from Two Centers Experience
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Background: Aortic balloon valvuloplasty (BAV) has often a compassionate use in the treatment of symptomatic and severe aortic stenosis (AS). Aim of this work was to evaluate the clinical outcomes of BAV performed in emergency clinical setting.

Methods: Between September 2007 and September 2012, forty-two consecutive emergency BAV were performed because of severe AS symptomatic or refractory pulmonary edema (71%) or cardiogenic shock (29%).

Results: Most of the patients were female (60%) with mean age of 86±5 years and Logistic Euroscore I of 40±21%. Baseline echocardiographic data showed an aortic valve area of 0.5±1.4 cm² and a mean transvalvular gradient of 46±14 mmHg, high pulmonary hypertension (50±15 mmHg) and left ventricular ejection fraction of 41±14%. Coronary artery disease was present in 52%, with multivessel disease in 24% of the cases. During BAV, a coronary revascularization was performed in 26% of the pts. An undersized balloon (20 mm) was used in 71% of cases. Drop of 33±20 mmHg of peak aortic gradient was observed after BAV and in 57% of the procedures one balloon inflation was enough. In-hospital death rate was 28%. All-cause death at 6 months was 45%. Transcatheter aortic valve replacement (TAVR) was performed in 56% of survival pts with a significant improvement in clinical outcomes (NYHA class II and no mortality at 6 months follow up in all pts).

Conclusions: Although high mortality rate was observed after BAV in emergency clinical setting (refractory pulmonary edema or cardiogenic shock due to severe AS), survival pts had a chance to be able to complete the treatment of AS by TAVR procedure.

The Prognostic Significance of Changes in B-Type Natriuretic Peptide (BNP) after Transcatheter Aortic Valve Replacement (TAVR): THE PARTNER I EXPERIENCE
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Background: BNP is synthesized in cardiac ventricular tissue in response to increased wall stress and is known to be elevated in patients with aortic stenosis, especially those with clinical heart failure. We sought to characterize the timing and prognostic significance of changes in BNP levels after TAVR in the PARTNER I trial.

Methods: A total of 801 patients treated with transcatheter TF TAVR had BNP levels determined at baseline, 1w, 6 m, 12 m, and 24 m after therapy. We further divided patients into Group I (those with rising BNP levels at 1m) and Group II (those with stable or falling BNP).

Results: Median Baseline BNP [IQR] was 619 [283, 1438], falling to 610 [289, 1342] at 1w and 479 [238, 1006] at 1m. Thereafter, BNP levels remained stable at 6m (357 [175,827]), 1y (341 [176,729]), and 2y (346 [187, 782]). Mortality was increased at 6m, 1y, and 2y for patients with rising BNP (See Figure). Similarly, repeat hospitalization was higher at 6m (18 vs 10%, p<0.008), 1y (24 vs 13%, p<0.0002), and 2y (40 vs 31%, p<0.006). Patients in Group I were more likely to have moderate/severe AR post-procedure (14.7 vs 9.3%, p=0.03596). Moderate or severe mitral regurgitation was similar between Group I and Group II at 1m echo (24 vs 18%, respectively, p=0.08), but was more common in Group I patients on the 6m echo (25 vs 16%, p=0.02).

Conclusions: BNP levels are elevated and tend to fall rapidly after TF-TAVR. Rising BNP levels after TAVR are associated with a significantly increased risk of death or rehospitalization and post-procedure moderate/severe AR.

Circulatory Support is Associated with Higher Mortality During TAVR
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Background: Circulatory support (CS) may be needed during TAVR, but little is known about the incidence, outcomes, and predictors of its use.

Methods: The study population included all patients in the PARTNER trial and Continued Access Registry (CAR) that underwent TAVR. Patients that received CS (intra-aortic balloon pump [IABP] or cardiopulmonary bypass [CPB]), either elective pre-procedure or urgent intra-procedure, were compared to patients that did not receive CS.

Results: Of the 2538 patients, 203 (8%) received support, including CPB (n=133, 66%) or IABP (n=70, 34%). Compared to those not receiving support, patients receiving CS were more likely male (64% vs 51%, p<0.0001), undergo transapical access (81% vs 39%, p=0.0001), have prior CABG (60% vs 41%, p<0.0001), lower left ventricular EF (47 vs 53%, p<0.001), and moderate or severe mitral regurgitation (28% vs 21%, p=0.03). The incidence of CS was higher in the CAR than in the PARTNER trial (9% vs 5%), partly due to an increased proportion of transapical cases (50% vs 20%, respectively). The use of circulatory support was associated with greater procedural complications, including major vascular complications (17% vs 5%, p<0.0001) and valve embolization (5% vs 0.5%, p<0.0001). CS was associated with a significantly higher 30 day all-cause mortality (25% vs 5%, p<0.0001), and was higher in patients that received CPB compared to IABP (32% vs 13%, p=0.003). The mortality difference between the CS and non-CS groups persisted at two years (48% vs 28%, p<0.0001). The specific indication for CS, elective pre-procedure or urgent resulting from a complication, will be separately analyzed to determine the effect on outcome.

Conclusions: The use of CS during TAVR is surprisingly frequent, associated with procedural complications, and portends a higher early and late mortality. CS was used more frequently in registry patients as compared to randomized trial patients. Identifying patients most likely to benefit from CS may represent an opportunity to improve outcomes.

Cost-Effectiveness Of Transcatheter Aortic Valve Replacement By Minimalist Or Standard Approaches
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Background: Transcatheter aortic valve replacement (TAVR) can be performed via different access routes and settings. The economic benefits of TAVR over SAVR in a variety of procedural settings are unclear. Our goal was to compare cost of TAVR by