Outcomes of Balloon-Expandable Versus Self-Expandable Valves in TAVR for Mixed Aortic Valve Disease

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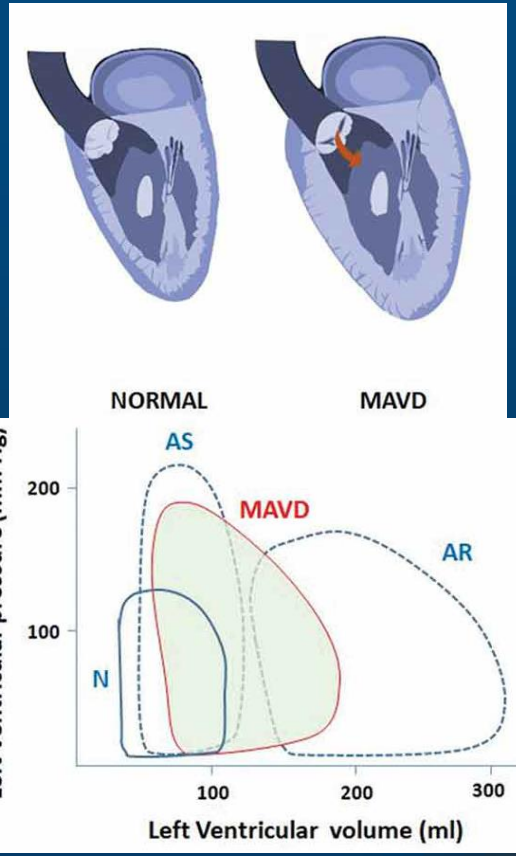
Disclosure of Relevant Financial Relationships

I, Xander Jacquemyn DO NOT have any financial relationships to disclose.

Introduction

- TAVR well established for isolated aortic stenosis (AS).
- ~10-15% of TAVR patients have mixed AS + AR, often excluded from trials.

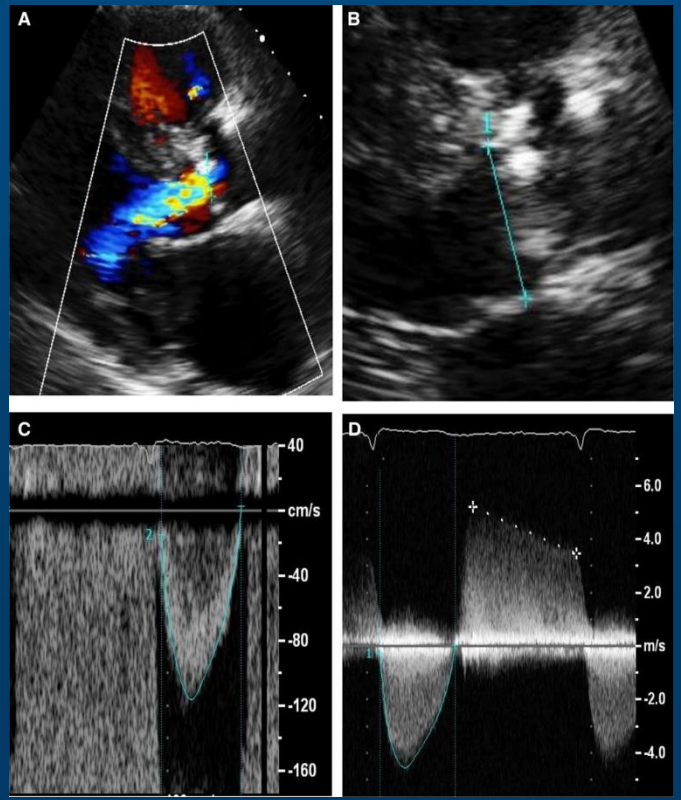


Unger et al. *Structural Heart, 4 (6) 468-474.*

Methods & Objectives

- Retrospective analysis of prospectively collected institutional data (2012-2024).
- Population: 796 pts with severe AS + ≥moderate AR.
  (80 ± 7 years, 43% female)

Compare clinical and echocardiographic outcomes between BEV and SEV in TAVR for mixed aortic valve disease.



Unger et al. *Circulation: Cardiovascular Imaging*, 11 (8) e007862.

Operative Characteristics

474 BEV (59.5%) vs 322 SEV (40.5%).

Characteristics	BEV (N = 474)	SEV (N = 322)	p-value
Age, yrs	79.1±8.2	80.7±7.4	0.005
Female, %	167 (35.2)	176 (54.7)	<0.001
LVEF, %	51.6±13.2	56.7±10.5	<0.001
NYHA IV	96 (20.3)	22 (6.8)	<0.001

1:1 PSM matching **286 pairs**
No significant baseline differences

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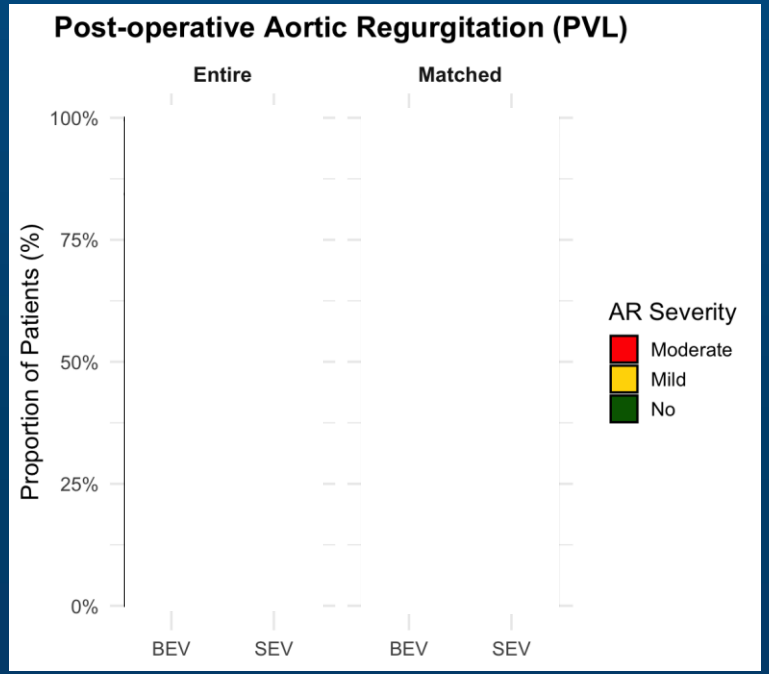
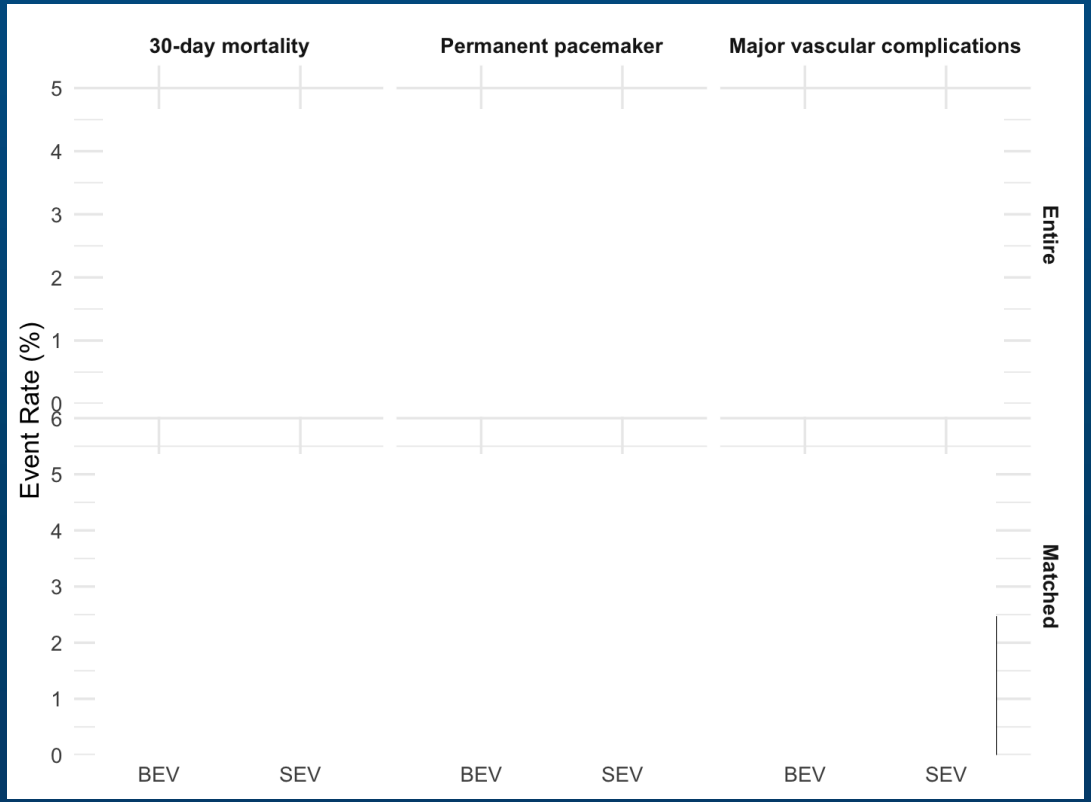
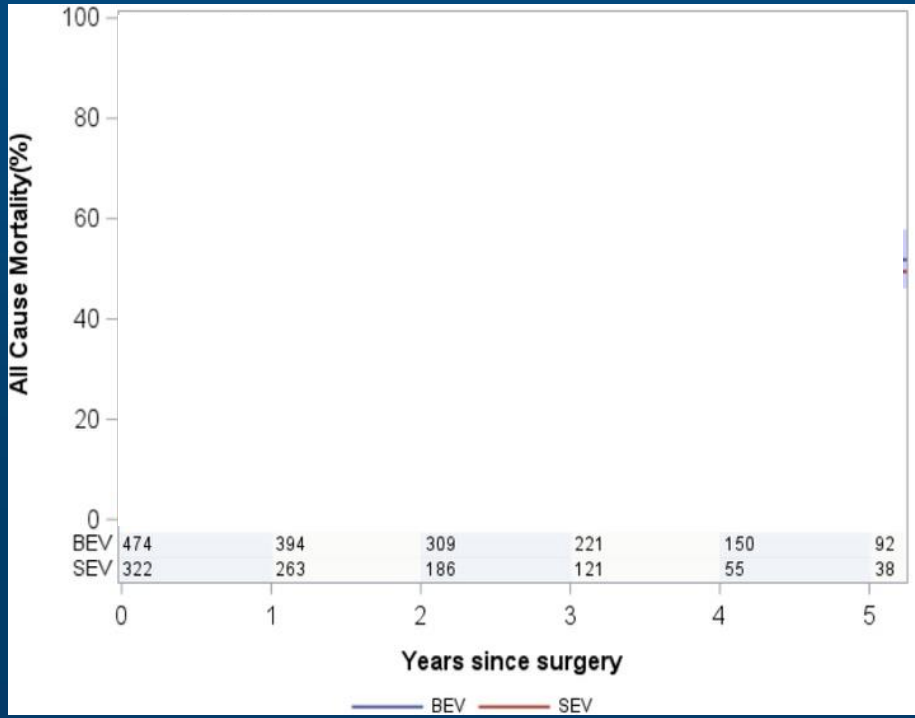


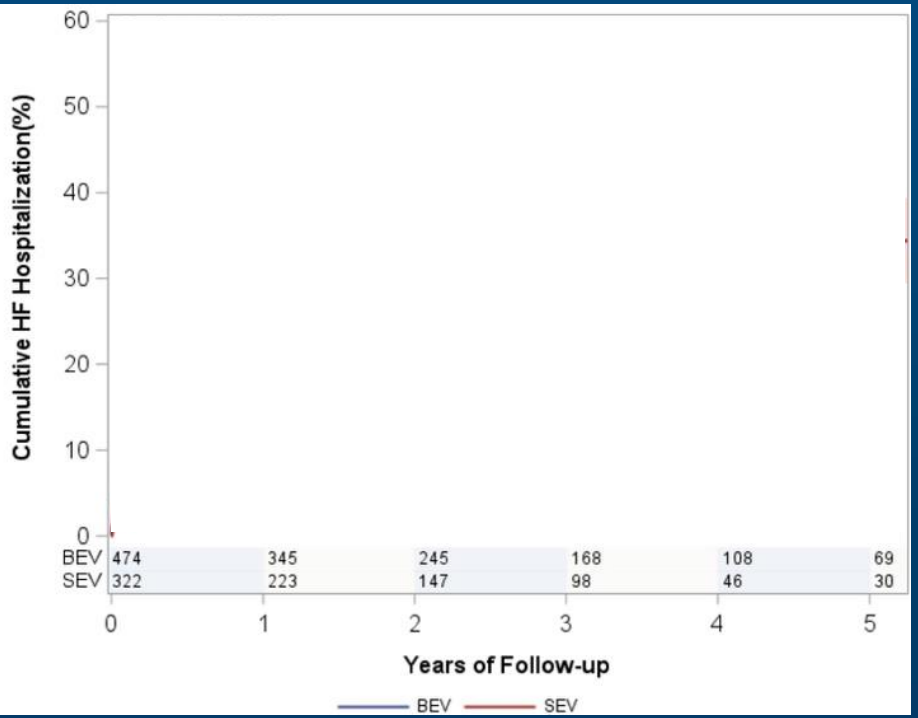
P<0.001 P<0.001

Early Outcomes



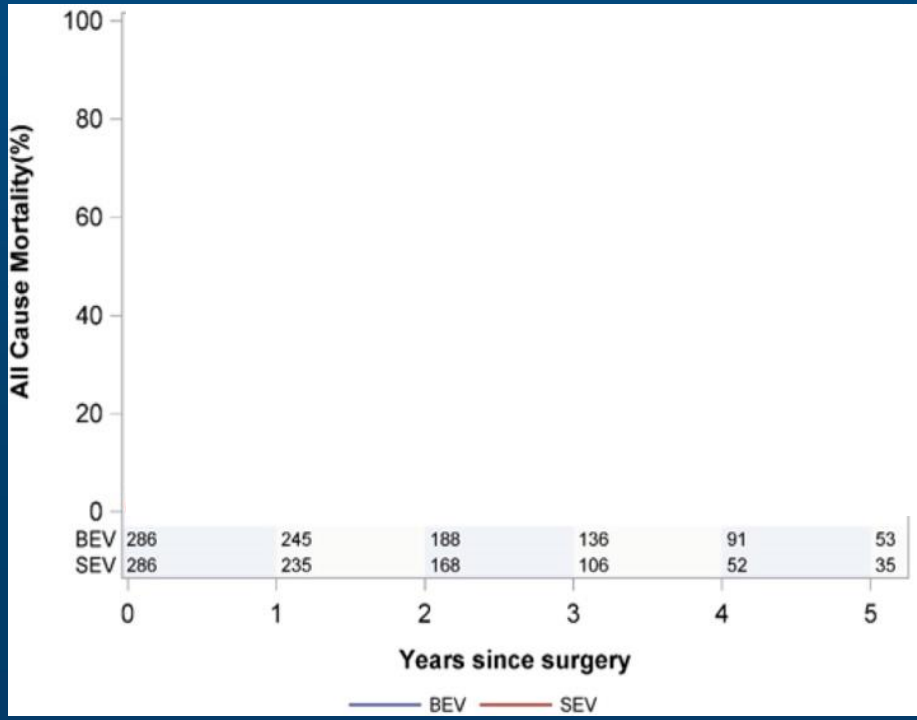
Long-Term Outcomes - Unmatched

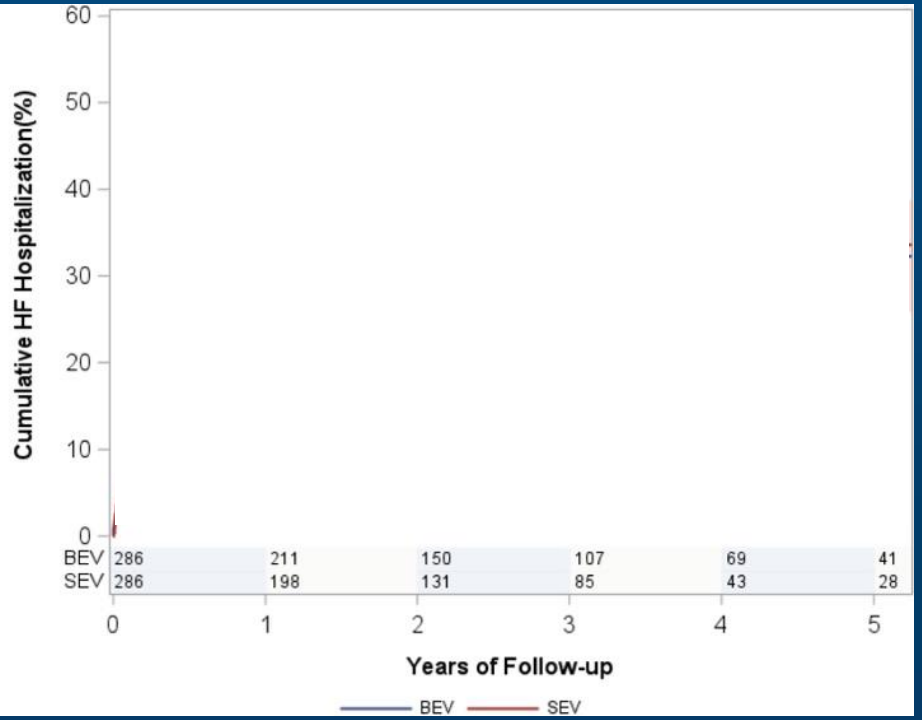




No Significant Difference

Long-Term Outcomes - Matched





No Significant Difference

Predictors of Mortality and HF Readmission

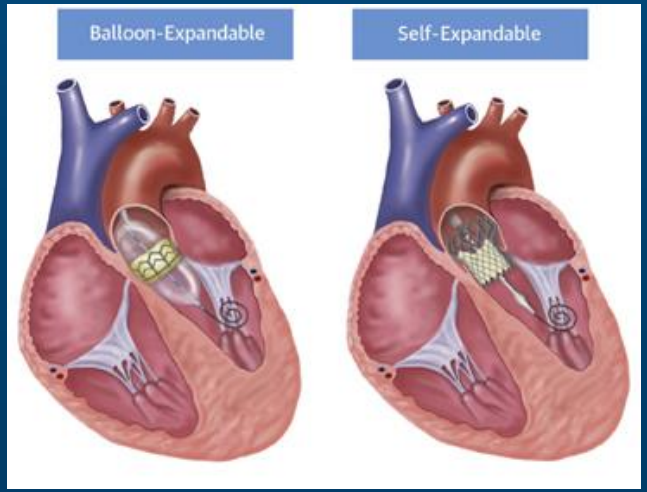
	Predictors of Heart Failure Admission			Predictors of Mortality		
Variable	HR	95% CI	p-value	HR	95% CI	p-value
SEV (BEV as ref)	**0.87**	**0.60-1.26**	**0.439**	**0.97**	**0.70-1.34**	**0.832**
Age (years)	1.01	0.99-1.03	0.475	1.04	1.02-1.06	**<0.001**
Female vs Male	1.62	1.14-2.30	**0.008**	1.08	0.79-1.46	0.637
Body mass index (kg/m^2)	1.02	1.00-1.04	**0.033**	0.99	0.97-1.01	0.198
Hypertension	1.30	0.80-2.13	0.290	0.84	0.57-1.23	0.363
Diabetes mellitus	1.04	0.78-1.39	0.791	1.31	1.01-1.69	0.041
Chronic lung disease	1.21	0.88-1.65	0.239	1.50	1.16-1.96	0.002
Peripheral vascular disease	0.95	0.68-1.32	0.766	1.25	0.96-1.64	0.101
Coronary artery disease	1.28	0.96-1.70	0.089	1.11	0.86-1.42	0.429
Stroke history	1.09	0.69-1.71	0.719	1.12	0.79-1.58	0.537
Long-term dialysis	2.67	1.54-4.60	**<0.001**	2.38	1.47-3.87	**<0.001**
Elective vs emergency surgery	0.89	0.52-1.53	0.682	0.82	0.48-1.40	0.465
Bicuspid vs Tricuspid	0.79	0.37-1.70	0.549	0.53	0.23-1.21	0.131
Implanted aortic valve size	1.04	0.97-1.12	0.279	1.00	0.94-1.07	0.992
Ejection Fraction (>50% as ref)						
≤20%	2.44	1.23-1.83	**0.011**	0.84	0.38-1.87	0.672
21%-50%	1.92	1.39-2.63	**<0.001**	1.02	0.77-1.38	0.897

Valve Type No Significant Influence

Take-home Message

- Both BEV and SEV achieve *high technical success* and similar long-term outcomes.
- SEV offers superior hemodynamics but higher early PVL.

- Valve choice should be individualized based on anatomy, comorbidities, and operator experience.



Abdel-Wahab et al. *JACC. 2015 Aug, 66 (7) 791–800.*