Clinical Summary:

Mid-term Outcomes of the COMMENCE Trial Investigating Mitral Valve Replacement Using a Bioprosthesis with a Novel Tissue

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Inspiring Results

Objective

The COMMENCE trial is an ongoing prospective study to evaluate mitral valve replacement (MVR) using valves with RESILIA tissue. RESILIA tissue was designed to reduce leaflet calcification and may improve long-term durability. This paper describes 5-year outcomes in the mitral patient cohort.

Key Points

- With many patients desiring to avoid lifelong anticoagulation therapy, preferences in MVR are evolving.
- Through 5 years of patient follow-up, MVR patients implanted with a RESILIA tissue bioprosthesis had a favorable safety profile and clinically stable hemodynamic performance.

Methods

- A prospective, single-arm trial with adult patients requiring MVR at 17 sites in the United States and Canada
- Patients scheduled to undergo MVR with or without coronary artery bypass graft were eligible
  - Concomitant tricuspid valve repair and Maze procedure were allowed; no other valve replacements were allowed as part of the procedure
- 82 patients successfully underwent MVR with Edwards Lifesciences Model 11000M (Carpentier-Edwards PERIMOUNT Magna Mitral Ease valve with RESILIA tissue)
  - Median patient age was 70 years with 52.4% of patients aged 70 years or above
  - Median follow-up for the study cohort was 5.1 (1.4) years, with a total of 374.2 patient-years in aggregate
  - A total of 54 patients completed 5-year follow-up
- Safety endpoints including structural valve deterioration (SVD) and other safety outcomes were defined per "Guidelines for reporting morbidity and mortality after cardiac valve interventions" (Akins et al. 2008)
  - An independent echocardiographic core laboratory evaluated hemodynamic performance

Results

- 5-year event-free probabilities for all-cause mortality, SVD, and reoperation were 79.9%, 98.7%, and 97.1%, respectively (Table 1)
- The risk of death exceeded that of SVD throughout the follow-up period (Figure 1)
- 1 NSVD and 1 SVD* occurred that required re-operation. An additional NSVD occurred that did not require re-intervention as of the 5-year follow-up visit

Results (continued)

- Hemodynamic valve function measurements were clinically stable through the 5-year follow-up period
  - Stable pressure gradients: 4.1 (2.0) mmHg at discharge; 3.7 (2.2) mmHg at 5 years
  - Stable peak mitral velocity: 1.6 (0.4) m/s at discharge; 1.6 (4.0) m/s at 5 years
  - Effective orifice areas were lower than expected during the follow-up period (1.2 [0.6] cm^2, discharge; 1.4 [0.6] cm^2, 5 years)
  - As an additional measurement of valve function, Doppler velocity index (DVI) was also evaluated
    - From discharge to 5 years follow-up, DVI was stable (2.4 [1.3] and 2.0 [0.8], respectively) and largely within expected range

Table 1. Safety events in the COMMENCE mitral trial

Event	Early (≤ 30 days) N (%)	Cumulative at 5 y N	Probability event-free at 5 y % (95% CI)
All cause mortality	1 (1.2%)	15	79.9% (70.8-89.1%)
Reoperation	0 (0%)	2	97.1% (93.1-100%)
Thromboembolism	2 (2.4%)	9	87.0% (78.9-95.0%)
All bleeding	1 (1.2%)	18	74.6% (64.4-84.9%)
Endocarditis	0 (0%)	2	96.9% (92.7-100%)
Hemolysis	0 (0%)	0	100% (100-100%)
Valve dysfunction			
SVD	0 (0%)	1	98.7% (96.1-100%)
NSVD	0 (0%)	2	97.0% (92.8-100%)
Major PVL†	0 (0%)	0	100% (100-100%)
Study valve explant	0 (0%)	1	98.6% (95.8-100%)
Valve thrombosis	0 (0%)	1	98.5% (95.5-100%)

†Major PVL = paravalvular leak of any grade requiring surgical intervention or considered a serious adverse event.

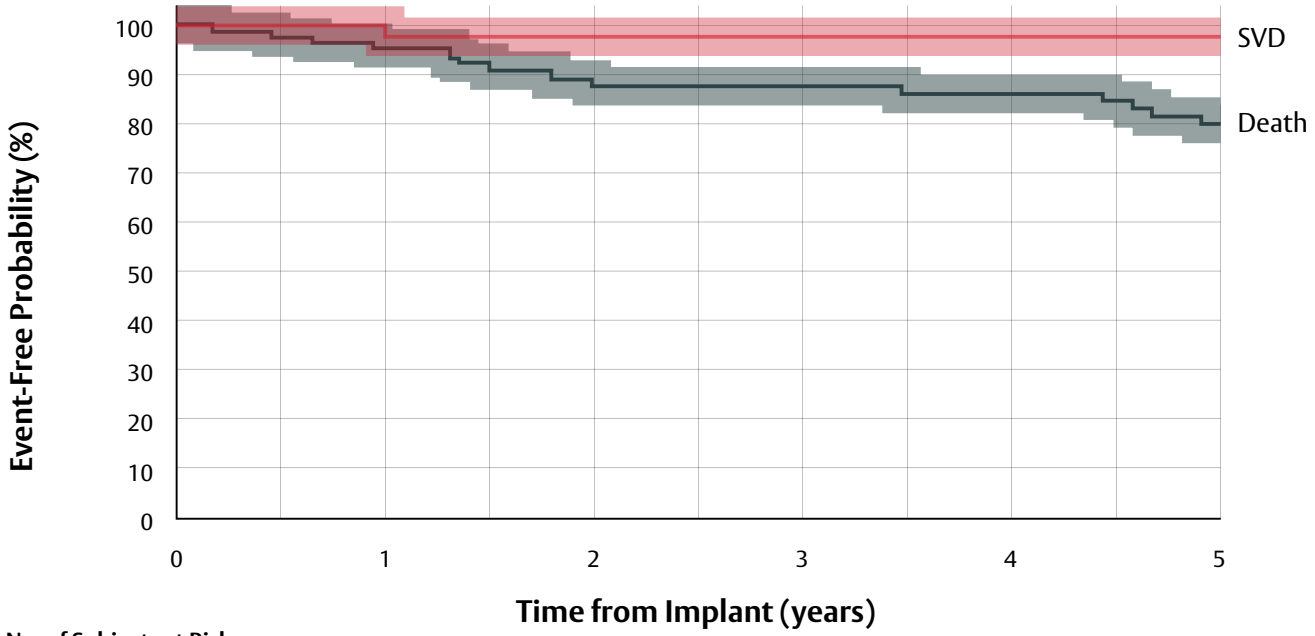
N = number of events; CI = confidence interval; SVD = structural valve deterioration; NSVD = non-structural valve dysfunction.

Edwards

Conclusions

- This study reports the first clinical data of RESILIA tissue in the mitral position
- Through 5 years of follow-up, the COMMENCE mitral trial reported a favorable safety profile and clinically stable hemodynamic performance
- The clinical implications of this study support the use of RESILIA tissue in the mitral position with excellent durability out to 5 years

Figure 1. Freedom from death and structural valve deterioration at 5 years in COMMENCE mitral patients



No. of Subjects at Risk						
SVD	82	75	65	63	61	46
Death	82	75	66	64	62	46
Cumulative No. of Events						
SVD	0	0	1	1	1	1
Death	0	5	9	10	11	15
Event-free Probability (95% CI)						
SVD	100.0 (100.0, 100.0)	100.0 (100.0, 100.0)	98.7 (96.1, 100.0)	98.7 (96.1, 100.0)	98.7 (96.1, 100.0)	98.7 (96.1, 100.0)
Death	100.0 (100.0, 100.0)	93.8 (88.6, 99.1)	88.5 (81.4, 95.6)	87.1 (79.7, 94.6)	85.7 (77.9, 93.6)	79.9 (70.8, 89.1)

***The observed SVD occurred in a 77 year-old patient implanted with the trial valve. The patient presented with end-stage renal disease on hemodialysis and underwent valve-in-valve with a 29-mm Edwards transcatheter heart valve on postoperative day 638 for severe central regurgitation.**

Important Safety Information: MITRIS RESILIA Mitral Valve

Indications: For use in replacement of native or prosthetic mitral heart valves.

Contraindications: There are no known contraindications with the use of the MITRIS RESILIA mitral valve.

Complications and Side Effects: Thromboembolism, valve thrombosis, hemorrhage, hemolysis, regurgitation, endocarditis, structural valve deterioration, nonstructural dysfunction, stenosis, arrhythmia, transient ischemic attack/stroke, congestive heart failure, myocardial infarction, ventricular perforation by stent posts, any of which could lead to reoperation, explantation, permanent disability, and death.

CAUTION: Federal (USA) law restricts this device to sale by or on the order of a physician. See Instructions for Use for full prescribing information.

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