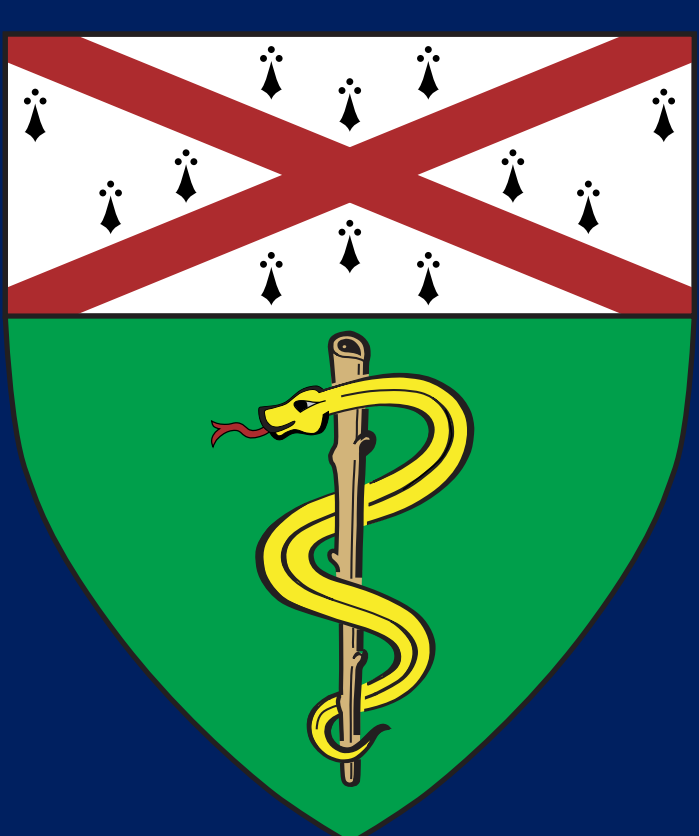




Mitral Valve Replacement With The Mitris Resilia Biological Prosthesis: Short-term Results

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Background

- The MITRIS RESILIA biological prosthesis (Edwards Lifesciences, Irvine, CA) combines the anti-calcification technology of the RESILIA bovine pericardial tissue with the low-profile, saddle-shaped design of the Carpentier-Edwards PERIMOUNT valve.
- To date, there are no retrospective studies investigating real-world outcomes and hemodynamics of the MITRIS RESILIA bioprosthesis.

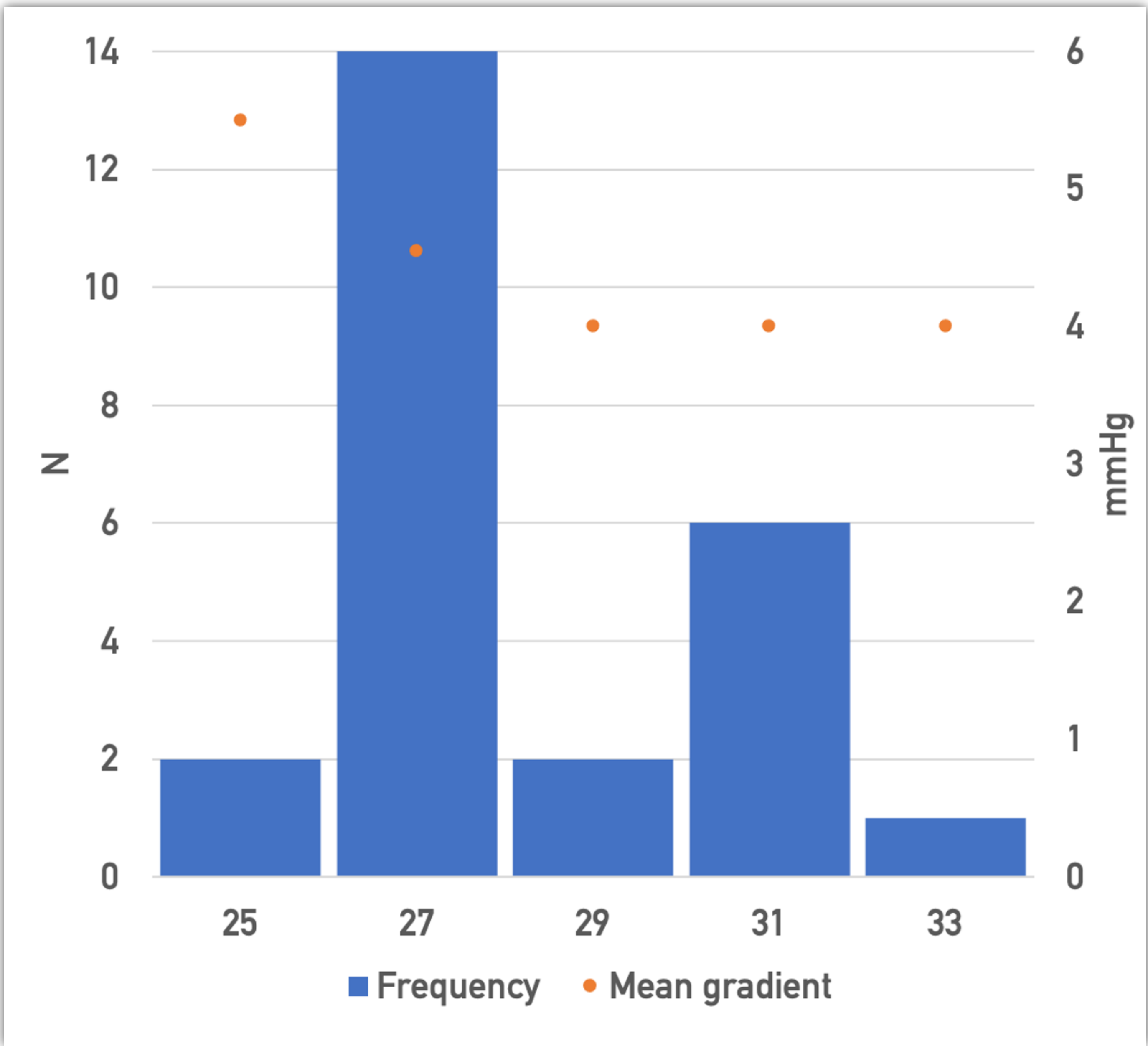
Methods

- We performed a single-center, retrospective cohort study of all consecutive patients undergoing mitral valve replacement (MVR) with the MITRIS RESILIA biological prosthesis at a quaternary academic center in 5/2022–10/2023.
- Information on demographics, comorbidities, intraoperative variables, short-term postoperative outcomes, and hemodynamics were retrieved from our institutional STS database as well as from direct review of electronic medical records.

Table 1: Preoperative and intraoperative patient characteristics

	N=25
Age, median [interquartile range]	70 [65–77]
Female sex	14 (56%)
Race	
Caucasian	20 (80%)
African American	1 (4%)
Hispanic	2 (8%)
Asian	2 (8%)
Other	0 (0%)
BMI, median [interquartile range]	27 [23.6–29.4]
Hypertension	12 (48%)
Dyslipidemia	11 (44%)
Diabetes	9 (36%)
Infective endocarditis	2 (8%)
Chronic lung disease	6 (24%)
Cerebrovascular disease	2 (8%)
History of Atrial Fibrillation	11 (44%)
Prior cardiac surgery	2 (8%)
Status	
Elective	25 (100%)
Urgent	0 (0%)
Emergent	0 (0%)
Cardiopulmonary bypass time	168 ± 66 minutes
Aortic cross-clamp time	114 ± 55 minutes
Prosthetic size, median [range]	27 [27–31] mm
Concomitant procedures	
Tricuspid valve repair	7 (28%)
Aortic valve replacement	9 (36%)
Coronary artery bypass grafting	4 (16%)
Cox-Maze procedure	6 (24%)
PFO closure	2 (8%)
Pulmonary embolectomy	1 (4%)

Figure 1. Postoperative mean gradients



Results

- Since the first implantation of the MITRIS RESILIA biological prosthesis at our Institution in May 2022, 25 consecutive patients underwent mitral valve replacement (MVR) with the MITRIS RESILIA biological prosthesis.
- Preoperative and intraoperative information are summarized in Table 1. Short-term outcomes were excellent, with no 30-day mortality and no need for reoperation.
- One patient (4%) underwent readmission for development of pleural effusion requiring drainage. No patient developed postoperative stroke (0%), one patient developed postoperative renal failure (4%), two patients developed pneumonia (8%), and three patients required permanent pacemaker implantation (12%).
- Median length of stay was 8 days (interquartile range, 5.75-14.75 days). Postoperative mean gradients are shown in Figure 1, stratified by prosthesis size.

Conclusion

- This is the first retrospective study investigating real-world outcomes in patients undergoing MVR with the MITRIS RESILIA biological prosthesis.
- Our findings suggest that the MITRIS RESILIA prosthesis provides good postoperative hemodynamics across all valve sizes, with no short-term degeneration.
- Further studies are warranted to evaluate real-world mid-term and long-term outcomes.