

AORTIC VALVE REPLACEMENT WITH CONCOMITANT MODERATE MITRAL REGURGITATION: DOUBLE VALVE REPLACEMENT, RISK OR BENEFIT?

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Introduction

Functional mitral regurgitation (MR) is often associated with severe aortic stenosis (AS) and may improve after aortic valve replacement (AVR).

The clinical decision to surgical intervention is based on the degree of MR. However the evidence is clear on Mild and Severe MR, there's no consensus regarding Moderate MR. The evidence suggests that coexistent Moderate MR may increase both early and late mortality after Surgical AVR. However, MR may improve significantly following isolated surgical AVR.

This study was undertaken to compare the surgical outcome between patients with AVR with and without mitral valve replacement (MVR) and if it's recommended for Moderate functional MR at the time of AVR for severe AS.

Methods and Material

From our Institution Database, we retrospectively evaluated data from patients who underwent AVR from 2014 to 2015 with concomitant Functional MR as shown on a preoperative echocardiogram.

We excluded patients with structural mitral valve disease, combined procedures involving coronary artery bypass grafting (CABG), treatment of endocarditis and history of ischemic heart disease or stroke.

We also made echocardiogram and clinical 24-months follow-up of the patients with Severe MR and Moderate MR with or without Mitral Valve Replacement (MVR) and measured survival and valve-related events (MACE). A probability of $p < 0.05$ was considered to be statistically significant.

RESULTS

218 patients underwent to AVR, 53% presented concomitant MR (Mild: 30%, Moderate: 17%, Severe: 6%).

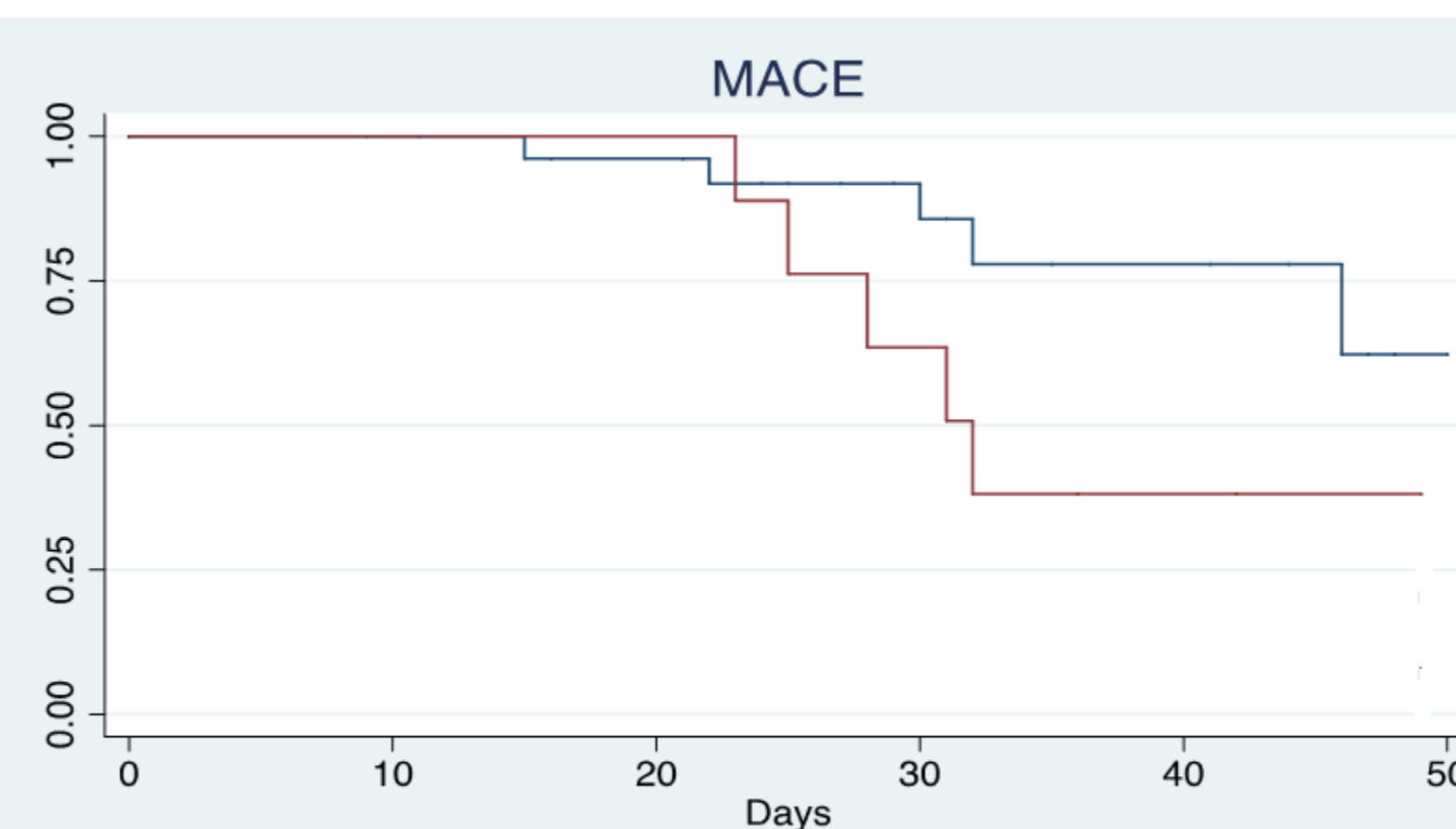
General mortality was 6%. There was a trend toward a higher mortality in the group with Moderate MR with MVR vs the group with Moderate MR No MVR (22% vs 10%; $p = 0.363$).

The MACE measured was statistically significant (67% vs 17%; $p = 0.006$).

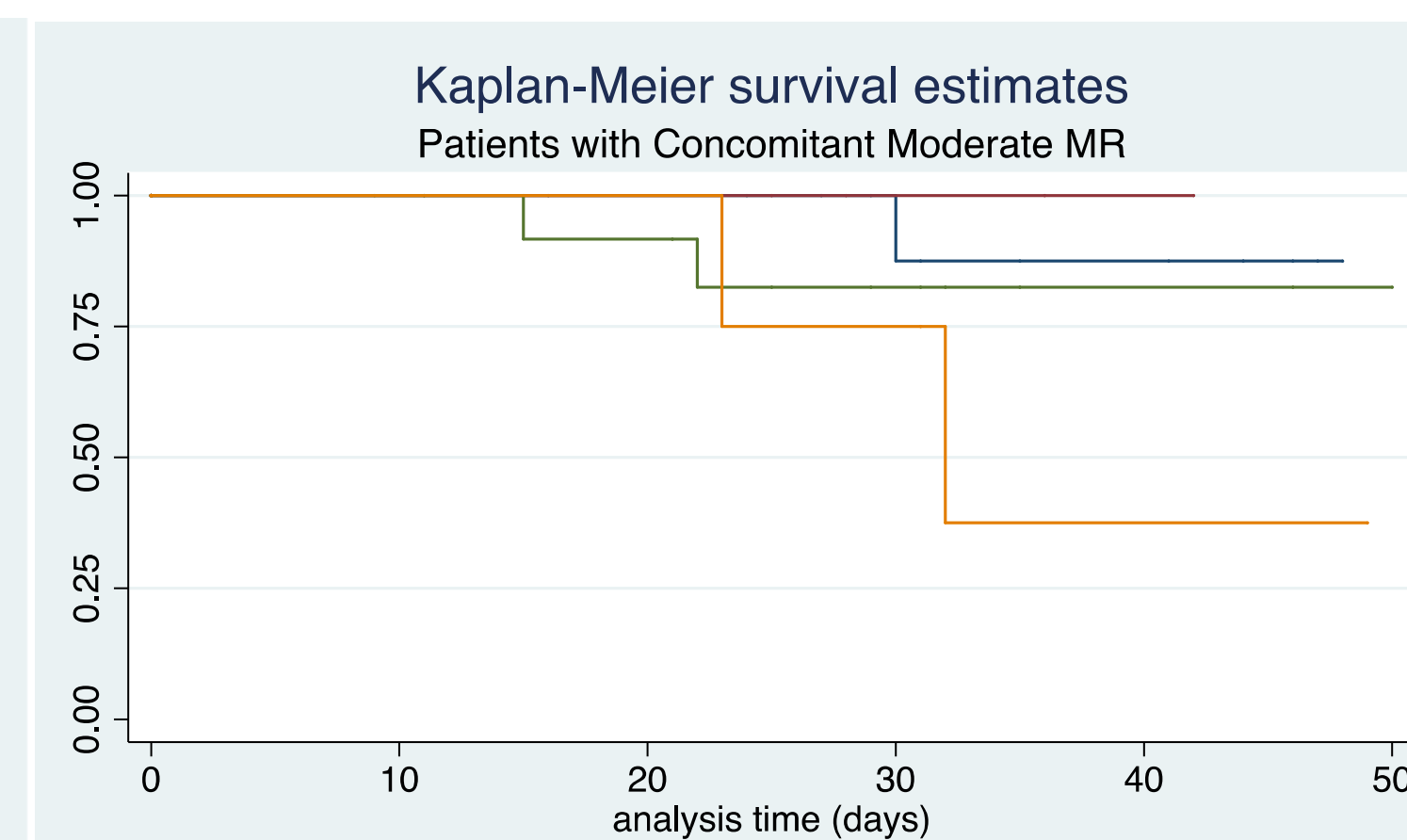
TABLE 1. MORTALITY AND MACE IN AVR AND WITHOUT OR CONCOMITANT MR

	TOTAL		Isolated AVR		Mild Regurgitation No MVR		Moderate Regurgitation No MVR		Moderate Regurgitation + MVR		Severe Regurgitation + MVR		p-Value	IC 95%	
	n	%	n	%	n	%	n	%	n	%	n	%			
N	218	100%	102	47	66	30	29	13	9	4	12	6			
Mortality	13	6%	3	3	3	5	3	10	2	22	2	17	0.287	1.21-1.39	
					3	5	3	10	3	10	2	22	0.363	0.09-0.37	
							3	10	2	22	2	17	0.754	1.34-1.80	
MACE	40	19%	13	13	12	18	5	17	6	67	4	33	0.893	1.21-1.40	
					12	18	5	17	6	67	2	17	0.006	0.09-0.38	
							5	17	6	67	6	67	0.139	1.34-1.80	
								6	67	6	67	4	33		

*MR: Mitral Regurgitation; AVR: Aortic Valve Replacement; MVR: Mitral Valve Replacement; LVEF = left ventricular ejection fraction; ICU: Intensive Care Unit; MV: Mechanical Ventilation. **MACE: Death, Infection, Prolonged ICU and MV time.



MR: Mitral Regurgitation; MVR: Mitral Valve Replacement. MACE: Death, Infection, Prolonged ICU and MV time.



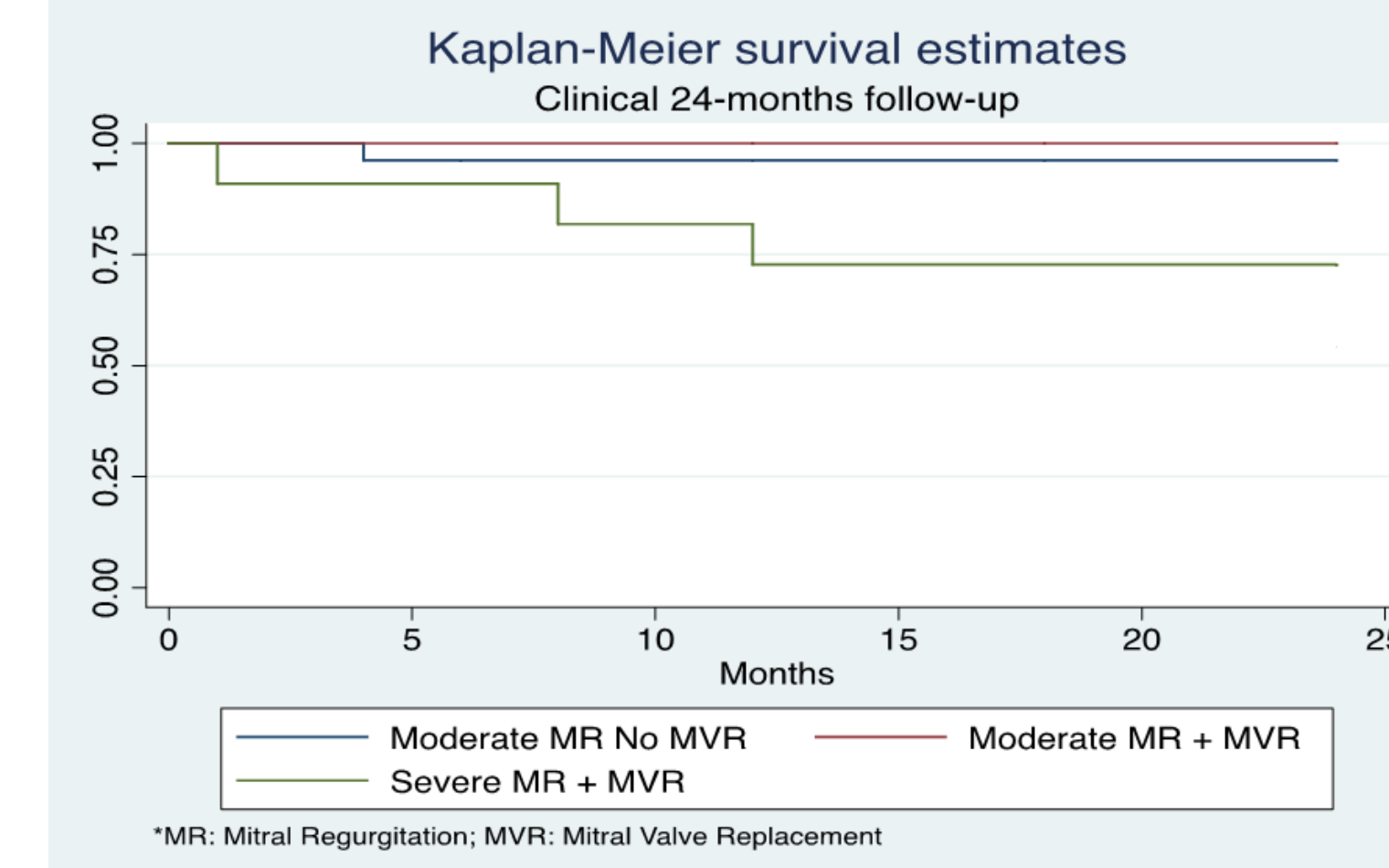
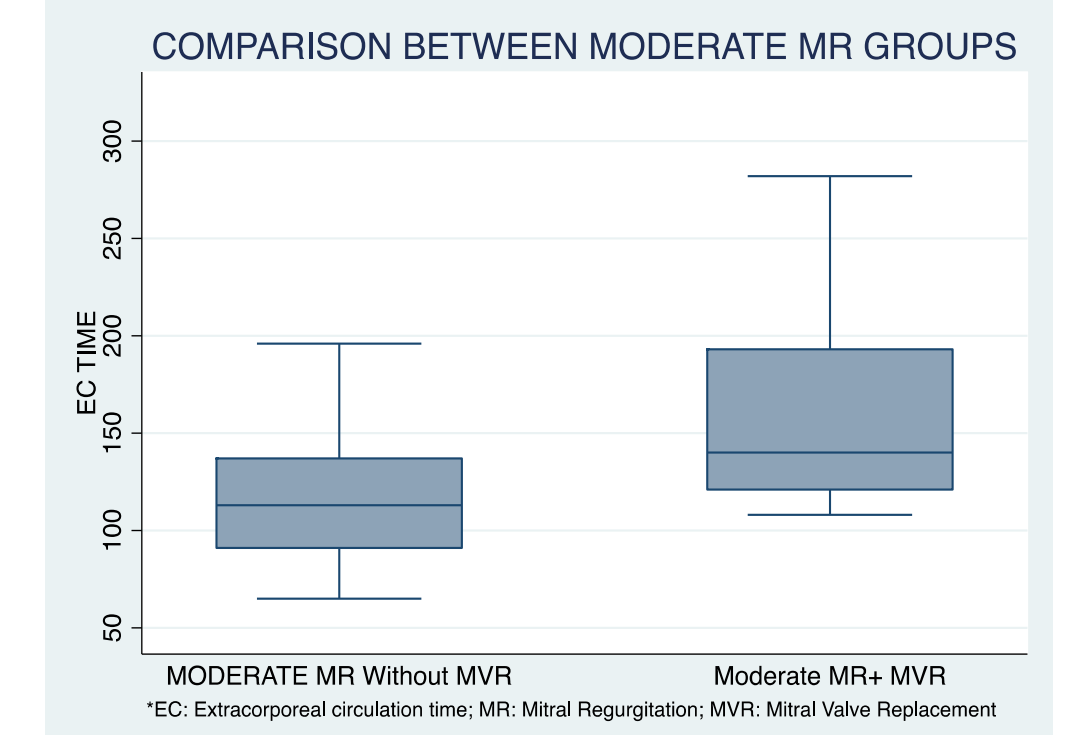
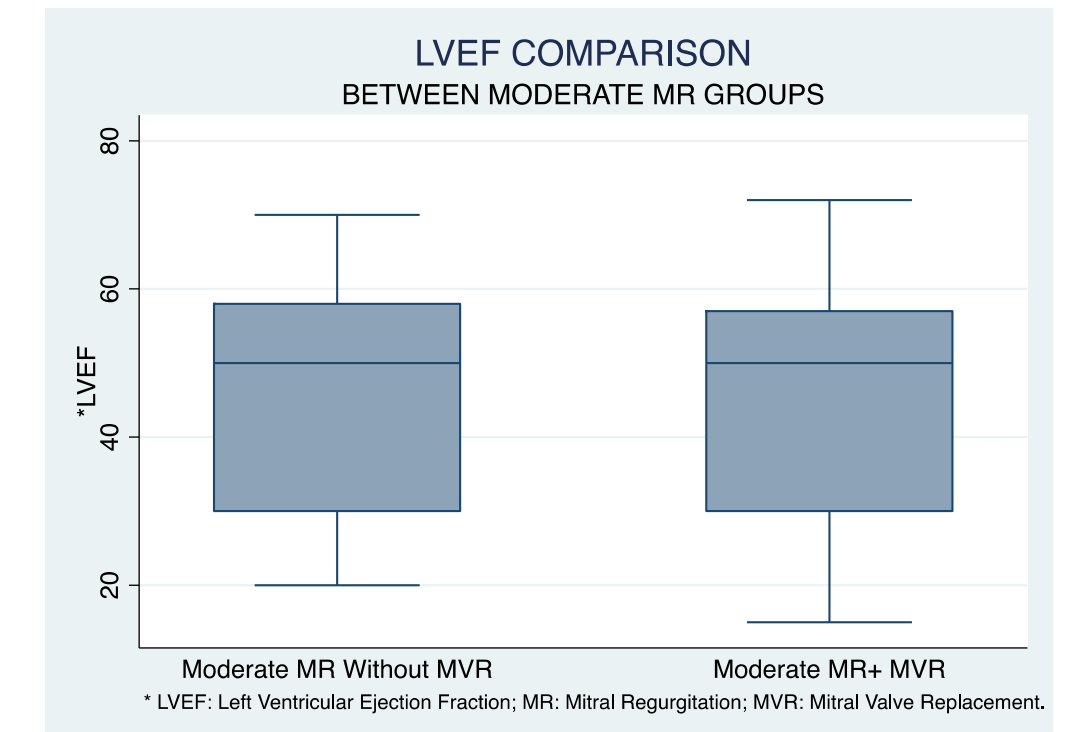
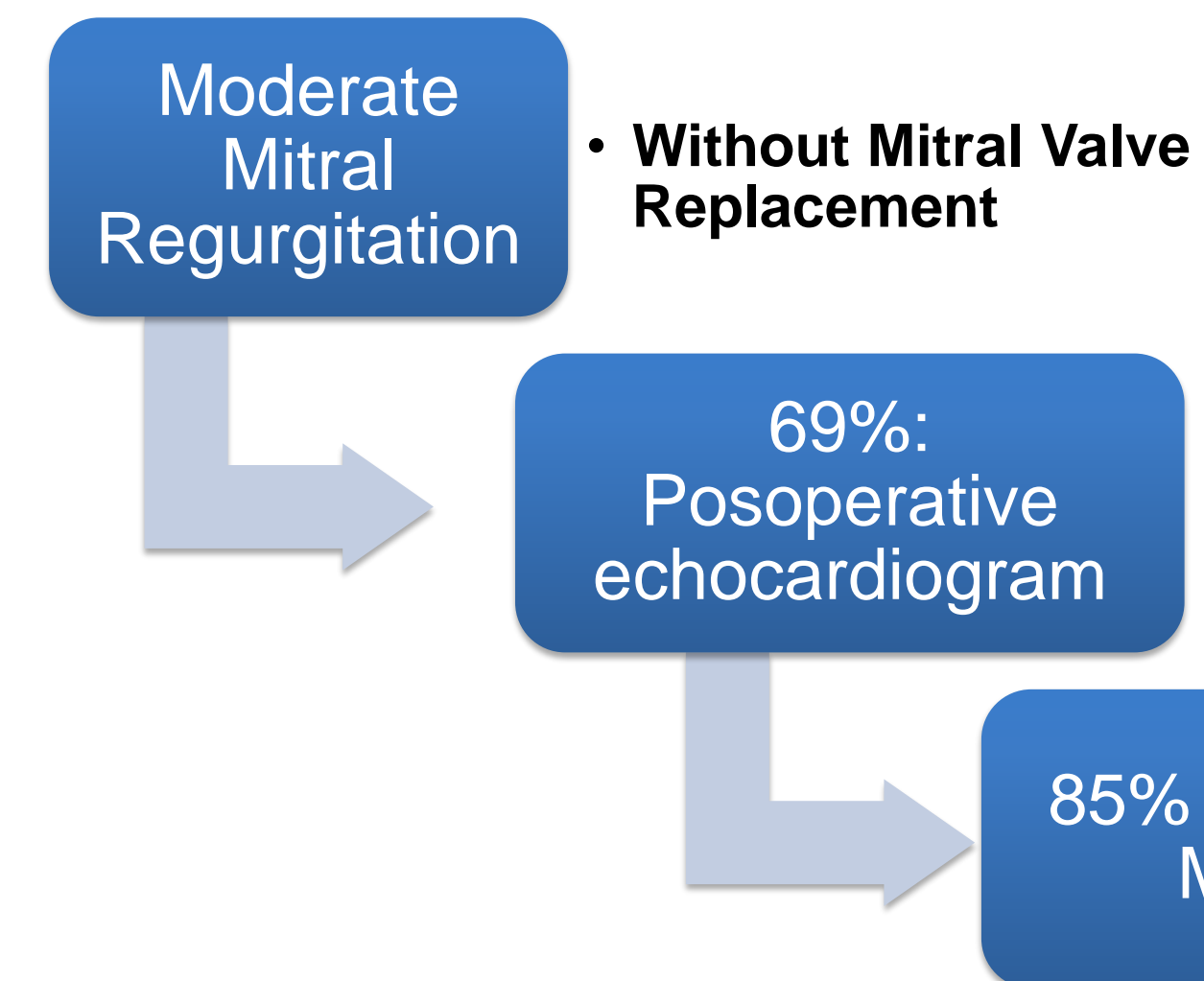
*MR: Mitral Regurgitation; MVR: Mitral Valve Replacement

TABLE 2. COMPARISON RESULTS BETWEEN MODERATE MR GROUPS

	Total		Moderate MR No MVR		Moderate MR MVR		p-value	95% CI
	n	%	n	%	n	%		
N	38	100%	29	76%	9	14%		
Mortality	5	13%	3	10%	2	22%	0.363	0.095-0.378
Hospitalization time (days-median)	30		30		32		0.547	26.44-33.81
ICU time (hours-median)	47		45		53		0.044	28.94-64.42
EC time (minutes-median)	130		117		173		0.0347	113-148
MV time (hours-median)	36		32		30		0.047	19.59-20.83
Pneumonia	8	20%	3	10%	5	56%	0.004	0.075-0.164

*MR: Mitral Regurgitation; MVR: Mitral Valve Replacement; ICU: Intensive Care Unit; MV: Mechanical Ventilation; EC: Extracorporeal circulation.

During the mean follow-up period, the Moderate MR No MVR group improved to Mild MR



Conclusions

- The patients with Moderate Mitral Regurgitation and Mitral Valve Replacement had a higher mortality and adverse events, including more than patients with Severe Mitral Regurgitation.
- In the follow-up, most of the patients with Moderate Mitral Regurgitation No Mitral Valve Replacement have improved the Mitral Regurgitation.

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