

Current Status of TEER in Korea : AMC Experience

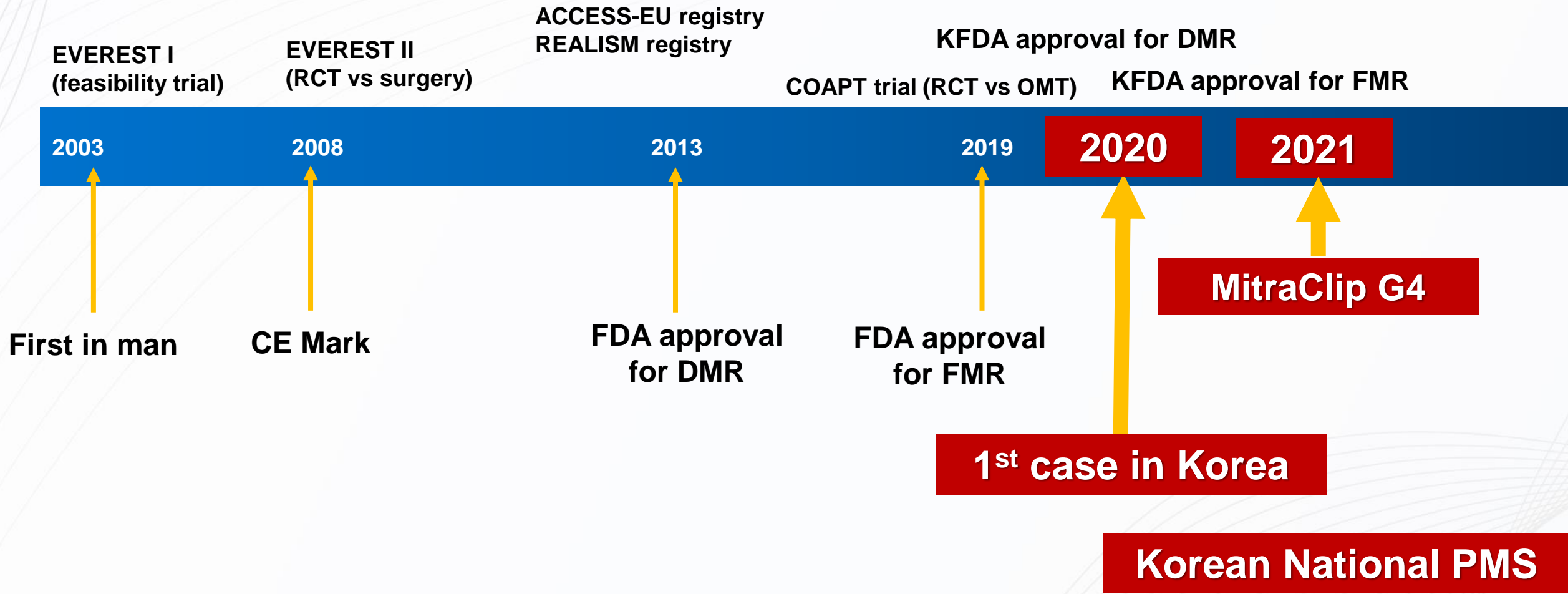
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Disclosure

- I, Do-Yoon Kang, DO NOT have a conflict of interest related to this presentation.

Status of Mitraclip in Korea



Current Situation in Korea, Aug 2023

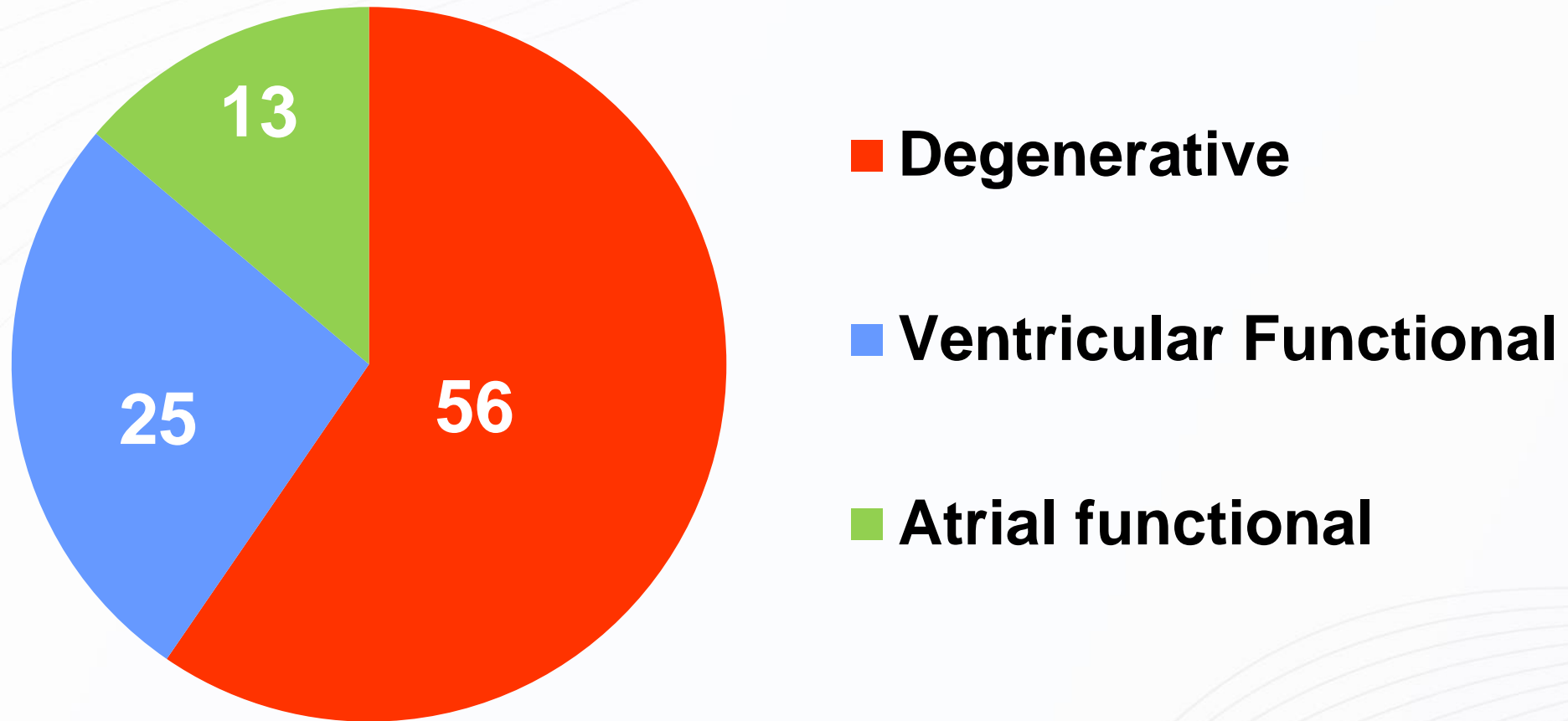


- 9 Centers perform TEER procedure
- Only Mitraclip (Abbott) is available.
- Still not covered by National Health Insurance (Total cost ~ 40,000 USD per patients)

Current Situation in Korea (9 Centers)

	Case No
2020	34
2021	64
2022	91
2023 July	32
Total	221
DMR	61 %
FMR	39 %

TEER indication in Asan Medical Center (n=94)



20 among 25 VFMR patients were with ischemic CMP.

Clinical Characteristics

	Overall (n=94)	Primary MR (n=56)	Ventricular FMR (n=25)	Atrial FMR (n=13)	P- value
Age, years	77.7±6.6	79.2±6.1	74.0±7.1	78.6±4.8	0.004
Women	56 (59.6%)	33 (58.9%)	16 (64.0%)	7 (53.8%)	0.82
BMI	23.1±3.3	23.2±3.3	22.6±3.4	23.4±2.9	0.70
NYHA III~IV	64 (68.1%)	35 (62.5%)	19 (76.0%)	10 (76.9%)	0.37
Atrial fibrillation	48 (51.1%)	22 (39.3%)	13 (52.0%)	13 (100%)	<0.001
Hypertension	54 (57.4%)	36 (64.3%)	12 (48.0%)	6 (46.2%)	0.26
Diabetes mellitus	17 (18.1%)	6 (10.7%)	9 (36.0%)	2 (15.4%)	0.02
CKD	37 (39.4%)	17 (30.4%)	12 (48.0%)	8 (61.5%)	0.07
Prior Cardiac surgery	8 (8.5%)	2 (3.6%)	4 (16.0%)	2 (15.4%)	0.11
Prior MI	15 (16.0%)	0 (0%)	14 (56.0%)	1 (7.7%)	<0.001
Prior PCI	19 (20.2%)	4 (7.1%)	14 (56.0%)	1 (7.7%)	<0.001

Echocardiographic Characteristics

	Overall (n=94)	Primary MR (n=56)	Ventricular FMR (n=25)	Atrial FMR (n=13)	P- value
LV EF, %	56.5±15.3	64.7±8.3	37.9±12.8	56.8±11.6	<0.001
LV ESD, mm	37.7±10.4	32.4±7.3	49.6±8.8	37.7±4.6	<0.001
LV EDD, mm	56.4±7.6	53.7±7.1	61.6±6.9	57.9±5.5	<0.001
LVESV, mL	61.6±40.6	43.4±21.6	105.5±47.6	55.8±21.9	<0.001
LVEDV, mL	132.9±47.6	119.9±42.8	164.0±51.3	129.5±33.0	<0.001
LA Size, mm	52.3±10.9	49.6±8.0	51.8±5.5	66.1±19.3	<0.001
MV Area, cm ²	5.6±1.9	5.4±1.0	5.5±2.9	6.3±1.3	0.39
3+/4+ TR	35 (37.2%)	16 (28.6%)	8 (32.0%)	11 (84.6%)	<0.001
TR Vmax, m/s	3.2±0.6	3.1±0.6	3.3±0.6	3.3±0.5	0.40

Procedural Characteristics

	Overall (n=94)	Primary MR (n=56)	Ventricular FMR (n=25)	Atrial FMR (n=13)
Number of Clips	1.73±0.50	1.68±0.51	1.79±0.41	1.83±0.58
First Clip in G4 device				
NT	2	2	0	0
NTW	13	10	2	1
XT	12	10	1	1
XTW	45	17	19	9
Second Clip in G4 device				
NT	12	4	7	1
NTW	12	5	7	0
XT	9	6	2	1
XTW	17	10	1	6

Procedural Outcomes

	Overall (n=94)	Primary MR (n=56)	Ventricular FMR (n=25)	Atrial FMR (n=13)
MR grade 3+/4+	12 (12.8%)	7 (12.5%)	3 (12.0%)	2 (15.4%)
Failed TEER	3 (3.2%)	1	1	1
Device-related adverse events				
SLDA		1		
30-Day Clinical Outcomes				
Death			1 (Post-MI Acute MR)	
CVA		2		

Immediate Post-TEER Echocardiographic Results

	Overall (n=90)	Primary MR (n=55)	Ventricular FMR (n=23)	Atrial FMR (n=12)	P- value
LV EF, %	52.4±12.7	58.7±7.6	37.4±11.8	52.2±9.2	<0.001
LV ESD, mm	36.0±10.3	31.2±6.6	47.4±10.8	36.6±4.6	<0.001
LV EDD, mm	51.6±7.6	48.8±6.2	57.9±8.3	52.4±4.5	<0.001
LVESV, mL	56.1±36.7	40.2±18.0	97.1±45.0	50.2±20.5	<0.001
LVEDV, mL	110.6±43.9	96.0±31.4	148.9±52.4	104.3±32.5	<0.001
LA Size, mm	48.8±9.8	46.5±8.4	48.3±4.7	59.8±15.1	<0.001
MVA, cm ²	2.4±0.7	2.6±0.7	2.0±0.5	2.5±0.8	0.003
Mean MPG, mmHg	4.5±2.1	4.2±1.9	5.2±2.4	4.5±1.6	0.16
TR Vmax, m/s	3.3±3.4	3.1±2.7	2.9±0.5	5.1±7.2	0.15

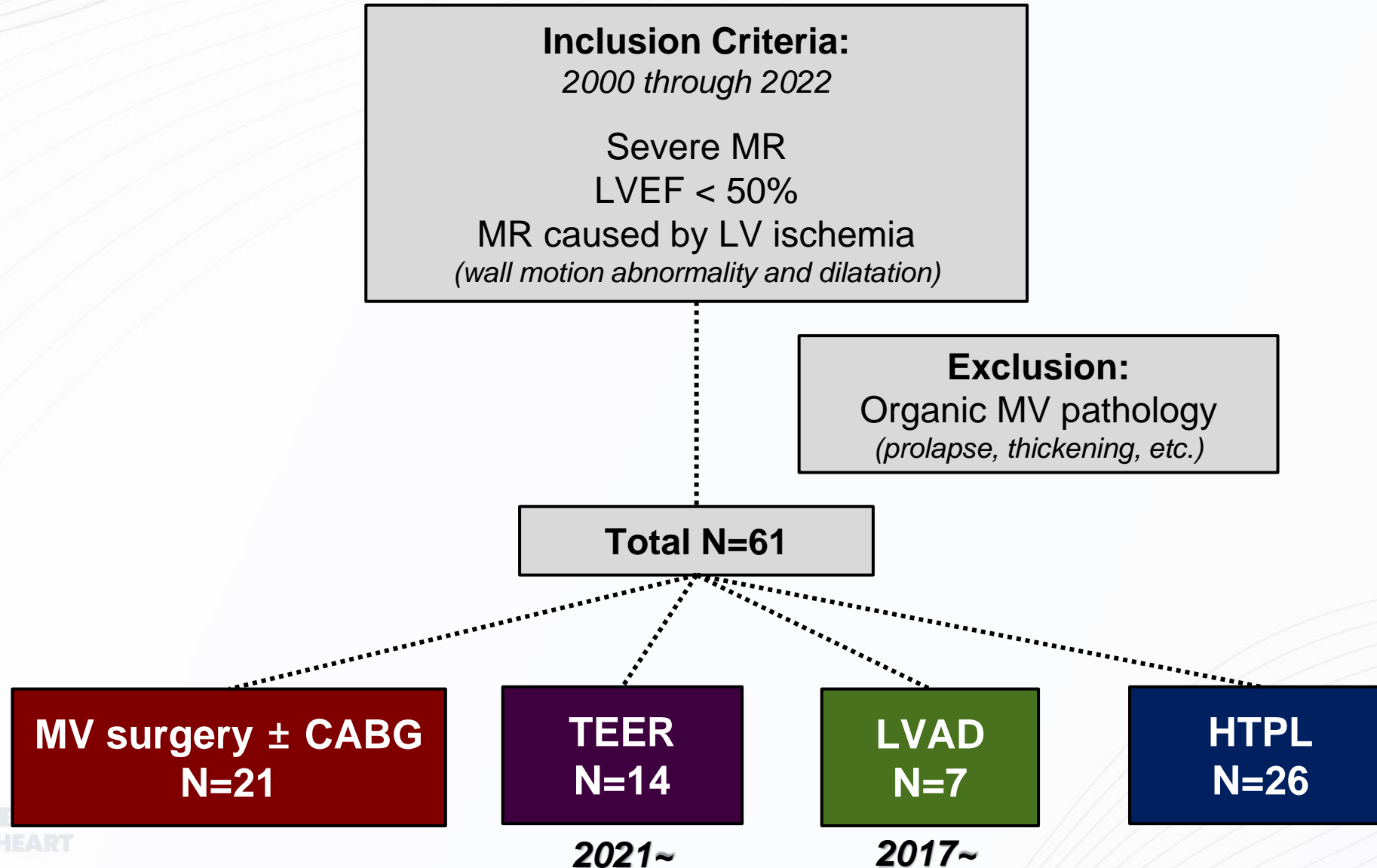
Immediate Post-TEER Echocardiographic Results

	Overall (n=90)	Primary MR (n=55)	Ventricular FMR (n=23)	Atrial FMR (n=12)	P- value
Δ LV EF, %	-4.3 \pm 7.9	-6.2 \pm 7.1	-0.2\pm8.5	-3.5 \pm 8.0	0.008
Δ LV ESD, mm	-1.7 \pm 5.0	-1.3 \pm 4.6	-2.9 \pm 6.6	-1.5 \pm 2.6	0.43
Δ LV EDD, mm	-4.8 \pm 4.6	-4.9 \pm 4.3	-4.7 \pm 5.7	-4.6 \pm 3.3	0.97
Δ LVESV, mL	-5.4 \pm 20.4	-3.0 \pm 14.8	-10.5 \pm 31.5	-6.6 \pm 14.7	0.33
Δ LVEDV, mL	-22.3 \pm 30.5	-23.7 \pm 29.8	-18.1 \pm 36.8	-23.3 \pm 18.3	0.76
Δ LA Size, mm	-2.9 \pm 4.9	-2.9 \pm 4.9	-3.7 \pm 3.9	-1.8 \pm 6.1	0.57
Δ TR Vmax, m/s	0.17 \pm 3.4	0.01 \pm 2.7	-0.4 \pm 0.7	1.8 \pm 7.1	0.17

1-Year Clinical Outcomes

	Overall (n=94)	Primary MR (n=56)	Ventricular FMR (n=25)	Atrial FMR (n=13)
All-cause death	4 (4.3%)	2 (3.6%)	2 (8.0%)	
CV Death	2 (2.1%)	1 (1.8%)	1 (4.0%)	
CVA	3 (3.2%)	2 (3.6%)		1 (9.1%)
Rehospitalization of cardiac cause	12 (12.8%)	6 (10.7%)	5 (20.0%)	
Open heart surgery	2 (2.1%)	2 SLDA at day #9 MR progression at day #140		

Tx of Ischemic HF with Severe MR Asan Medical Center

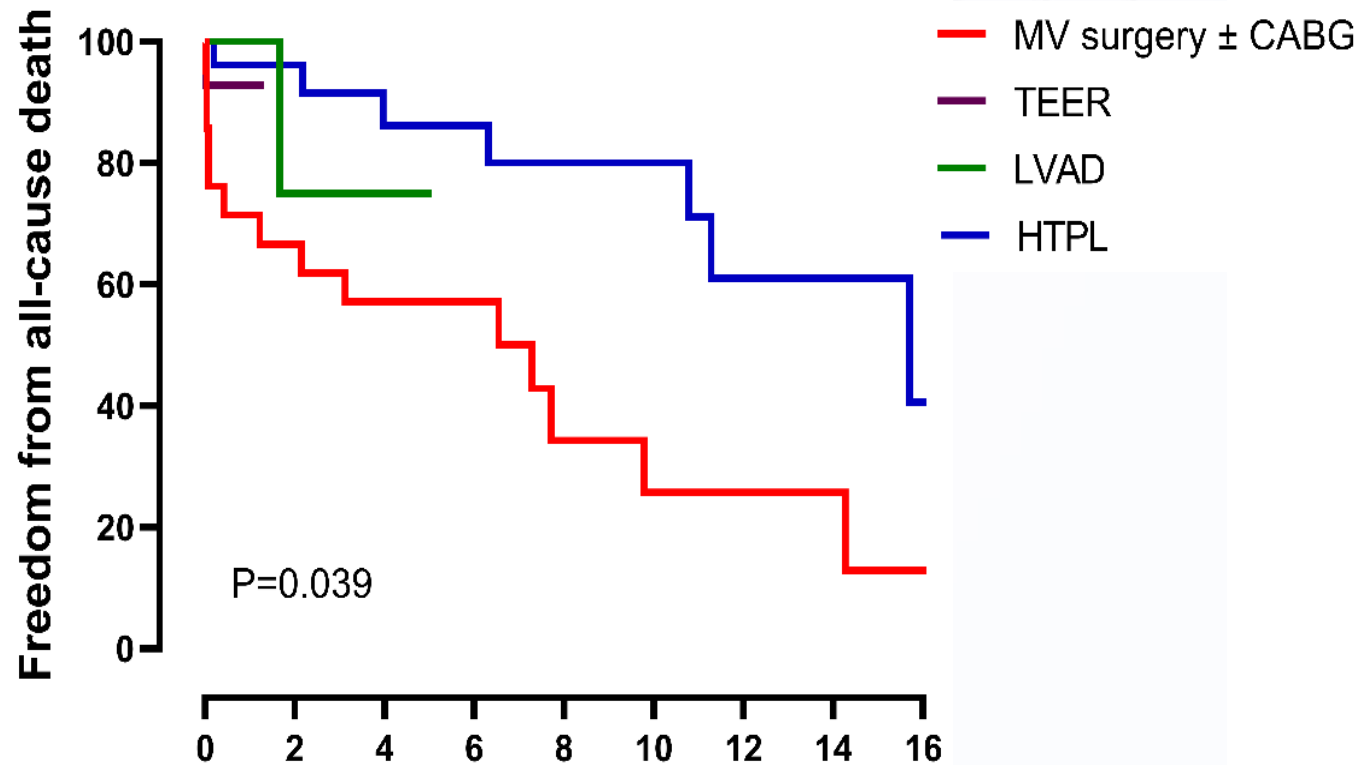


Tx of Ischemic HF with Severe MR Asan Medical Center

Variables	MV surgery ± CABG (N = 21)	TEER (N = 14)	LVAD (N = 7)	HTPL (N = 26)	P-value
Age, yr	63.0 ± 11.0	75.0 ± 5.4	63.57 ± 4.76	58.4 ± 5.8	<0.001
Preoperative CABG	1 (4.8)	4 (28.6)	1(14.3)	4 (15.4)	0.28
Preoperative PCI	6 (28.6)	11 (78.6)	5 (71.4)	16 (61.5)	0.016
NYHA class, III or IV	15 (71.5)	8 (57.1)	4 (57.4)	24 (92.3)	0.072
Preoperative Critical status					
Preoperative ECMO	1 (4.8)	0 (0)	1 (14.3)	0 (0)	0.2
Preoperative Inotropic use	4 (19.1)	0 (0)	3 (42.9)	14 (53.9)	0.0023
Echocardiographic data					
LV ejection fraction, %	33.0 ± 7.9	39.4 ± 10.2	23.0 ± 5.7	22.9 ± 5.5	<0.001
LV end-diastolic volume, mm ²	65.4 ± 6.7	61.0 ± 6.5	67.6 ± 10.6	74.1 ± 7.4	<0.001

Variables	MV surgery ± CABG (N = 21)	TEER (N = 14)	LVAD (N = 7)	HTPL (N = 26)	P-value
Early mortality	4 (19.1)	1 (7.1)	0 (0)	0 (0)	0.07
Late outcomes					
Mortality	14 (66.7)	1 (7.1)	1 (14.3)	8 (30.8)	0.0014
CHF readmission	5 (23.8)	1 (7.1)	0 (0)	2 (7.7)	0.21
MI readmission	0 (0)	0 (0)	0 (0)	1 (3.9)	0.65
Stroke	0 (0)	0 (0)	2 (28.6)	0 (0)	<0.001
MACCE	17 (81.0)	2 (14.3)	2 (28.6)	9 (34.6)	<0.001

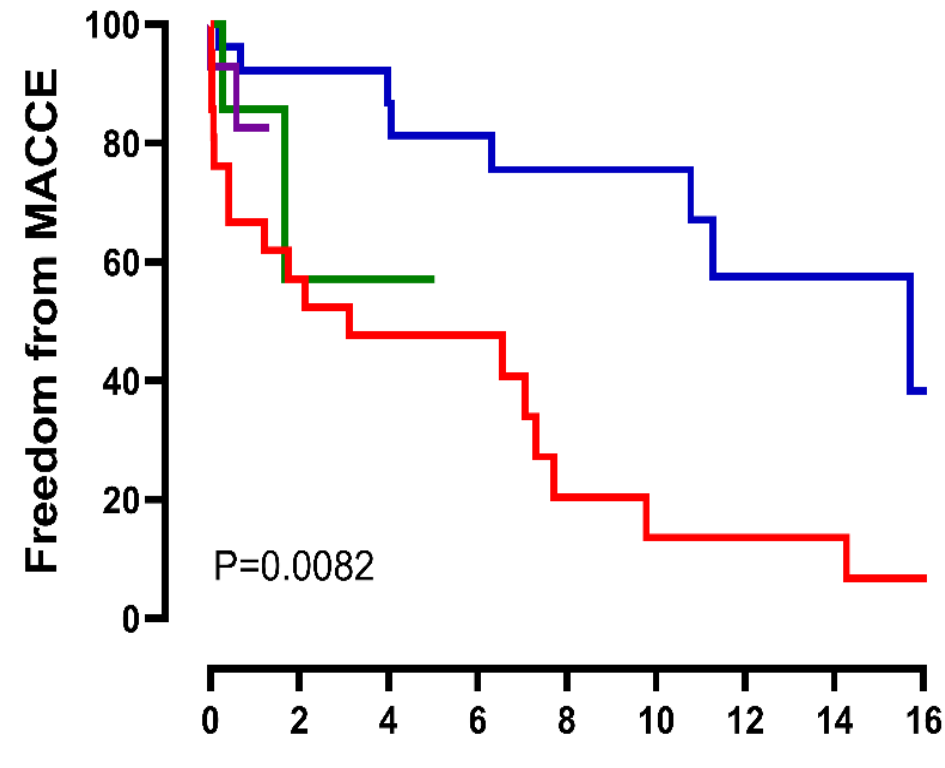
Overall Survival



No. at risk

	0	2	4	6	8	10	12	14	16
MV surgery ± CABG	21	15	13	13	5	4	4	4	2
TEER	14	14	14	14	14	14	14	14	14
LVAD	7	4	4	4	4	4	4	4	4
HTPL	26	26	17	17	14	14	7	7	3

Freedom from MACCE



No. at risk

	0	2	4	6	8	10	12	14	16
MV surgery ± CABG	21	13	12	5	4	3	4	2	2
TEER	14	9	9	9	9	9	9	9	9
LVAD	7	3	3	3	3	3	3	3	3
HTPL	26	24	17	14	14	14	7	7	3

Revascularization deemed beneficial?

Yes

No

CABG + MV surg

PCI + TEER

Depending on anatomical suitability

Disproportionate MR ??

Yes

No

TEER

LVAD

MV surgery

HTPL

Summary : AMC Experience of TEER

- Patients underwent TEER had distinct clinical and echocardiographic characteristics by the etiology of MR.
- TEER showed favorable echocardiographic and clinical benefit for high-risk patients.
- TEER showed a role as an alternative treatment strategy for patients with ischemic cardiomyopathy and severe MR.

Thank you for your attention !