

AP VALVES & SH 2023

TEER for Functional MR: When and How?

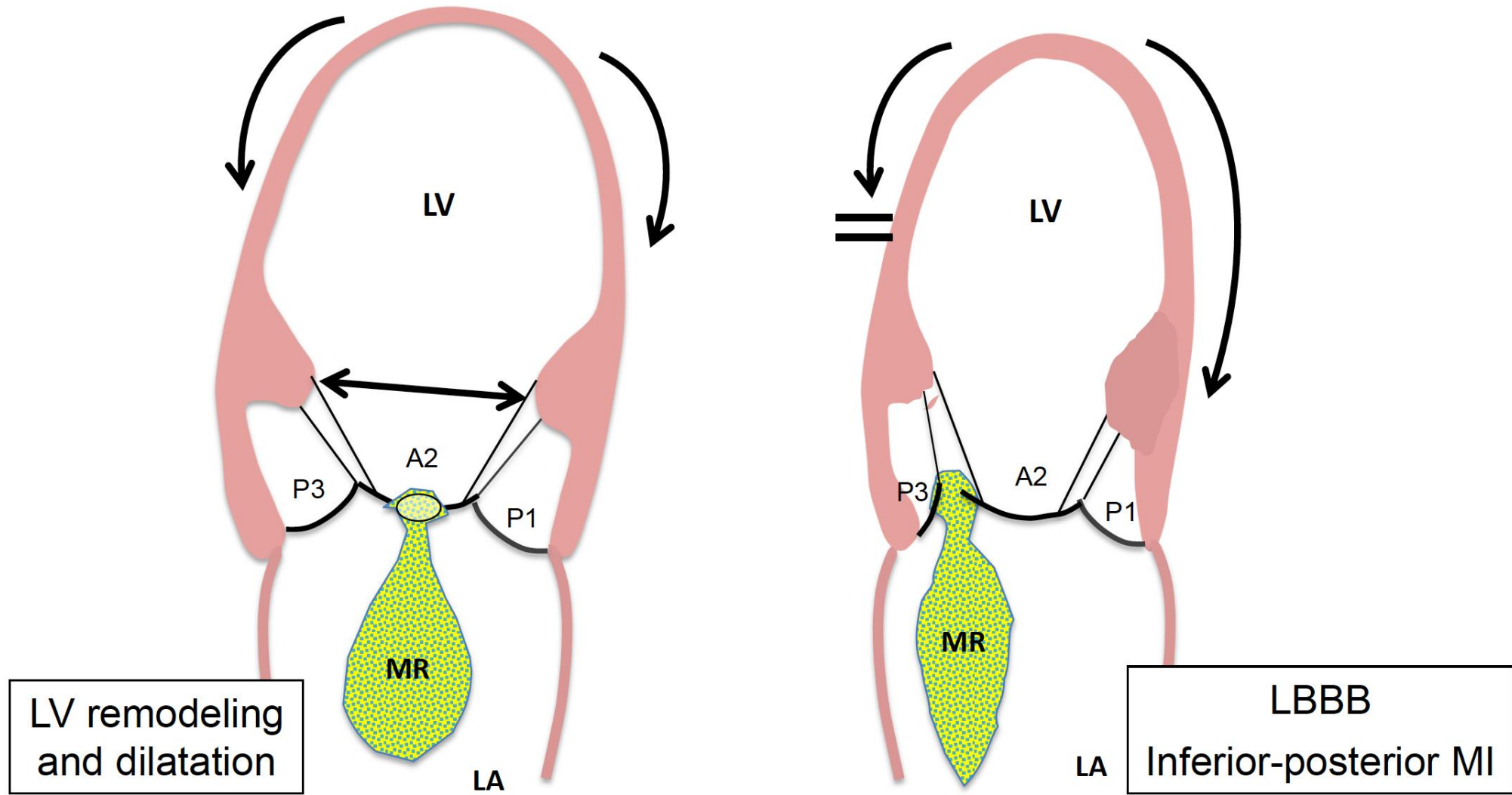
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Disclosure

- None

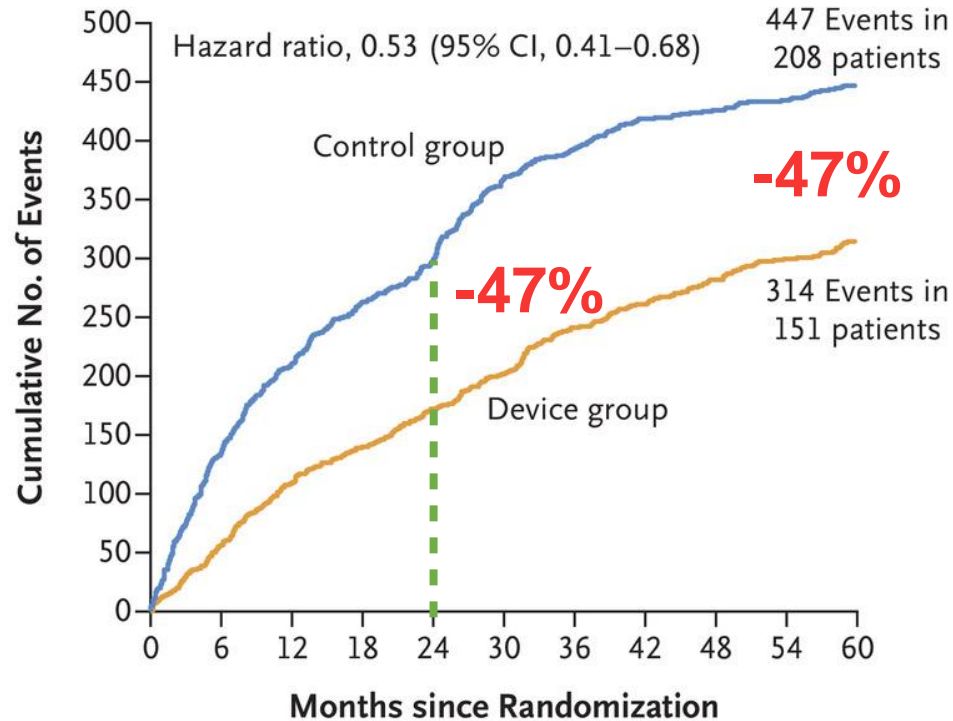
Severe Functional Mitral Regurgitation



5-year outcomes of COAPT trial

TEER for patients with moderate to severe FMR

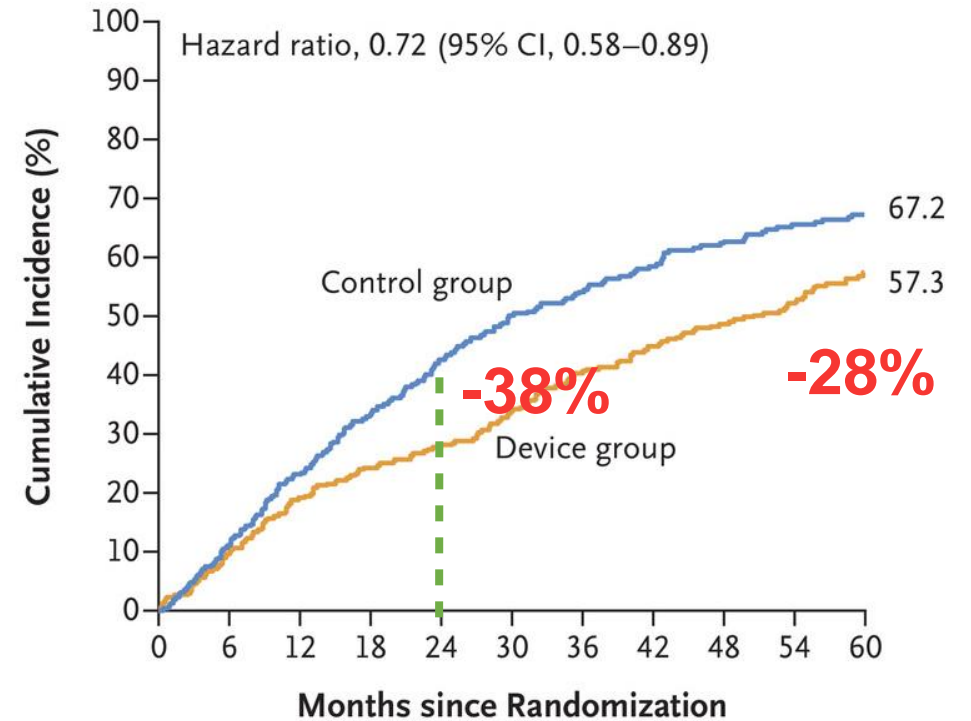
A Hospitalizations for Heart Failure



No. at Risk

Control group	312	272	224	188	156	133	120	106	94	84	59
Device group	302	269	238	219	205	186	167	151	138	124	79

C Death from Any Cause



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2020 ACC/AHA guideline

Step 1. OMT

Reverse remodeling with reduction of MR was achieved in **40%** of patients by Metoprolol.

The European Journal of Heart Failure 5 (2003) 679–691

Step 2. Revascularization

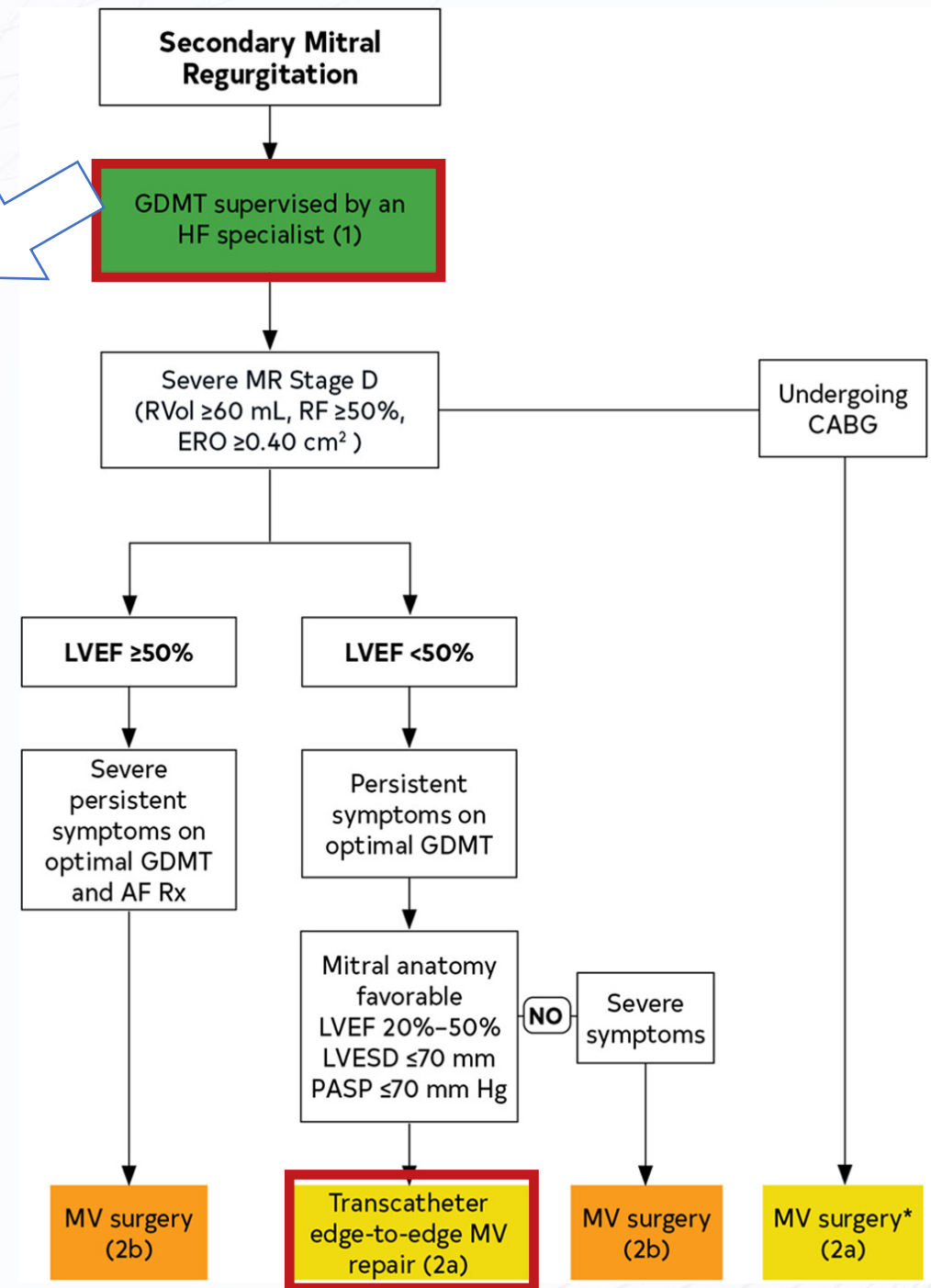
PCI results in FMR improvement in **30%** of IHD patients

Am J Cardiol 2014; 114:1011

Step 3. Device therapy (CRT)

50% of FMR improved after CRT implantation

Circulation. 2011 Aug 23;124(8):912-9



2020 ACC/AHA guideline

Step 1. OMT

Reverse remodeling with reduction of MR was achieved in 40% of patients by Metoprolol.

100

The European Journal of Heart Failure 5 (2003) 679-691

Step 2. Revascularization

PCI results in FMR improvement in 30% of IHD patients

60

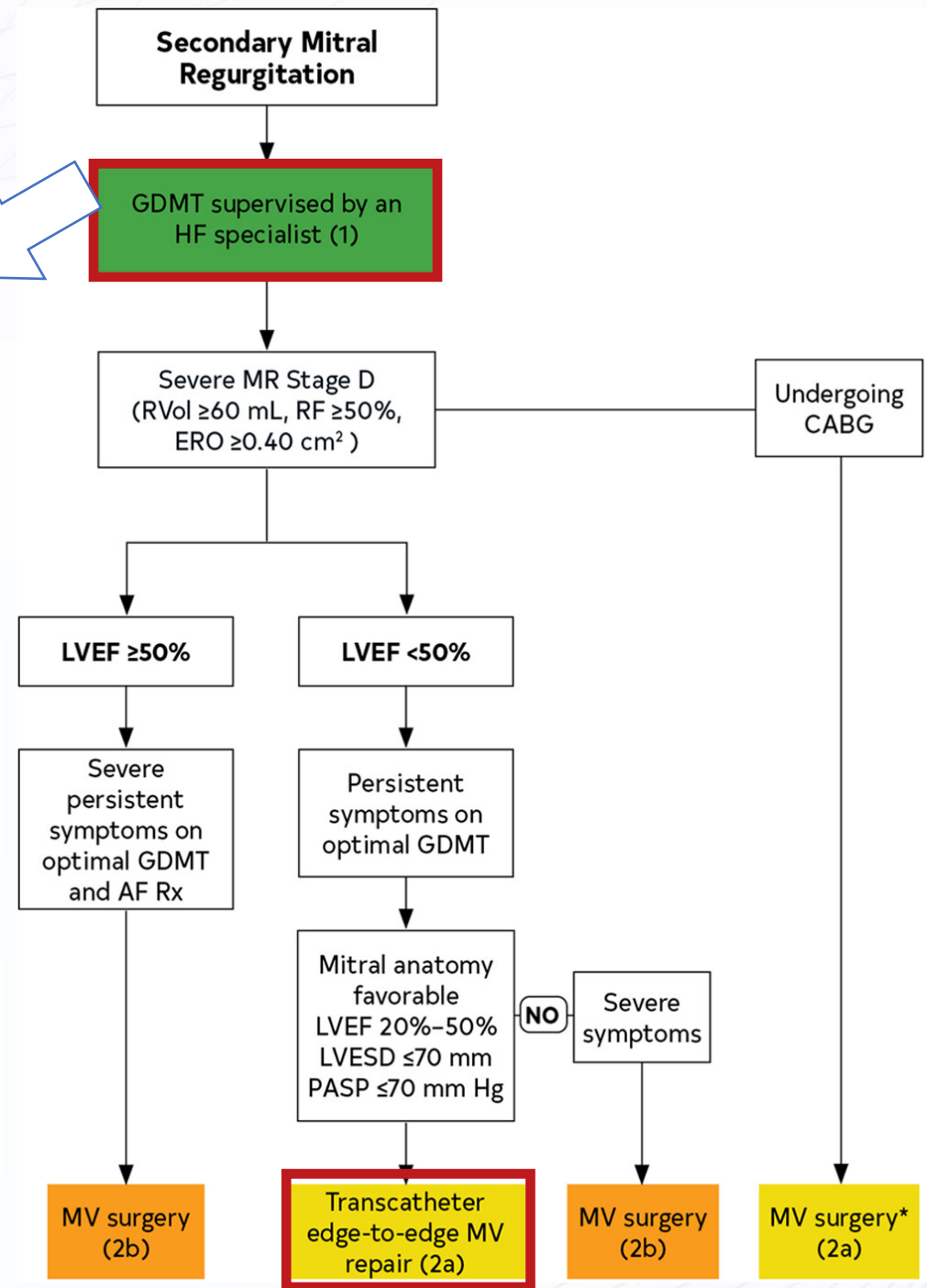
Am J Cardiol 2014; 114:1011

Step 3. Device therapy (CRT)

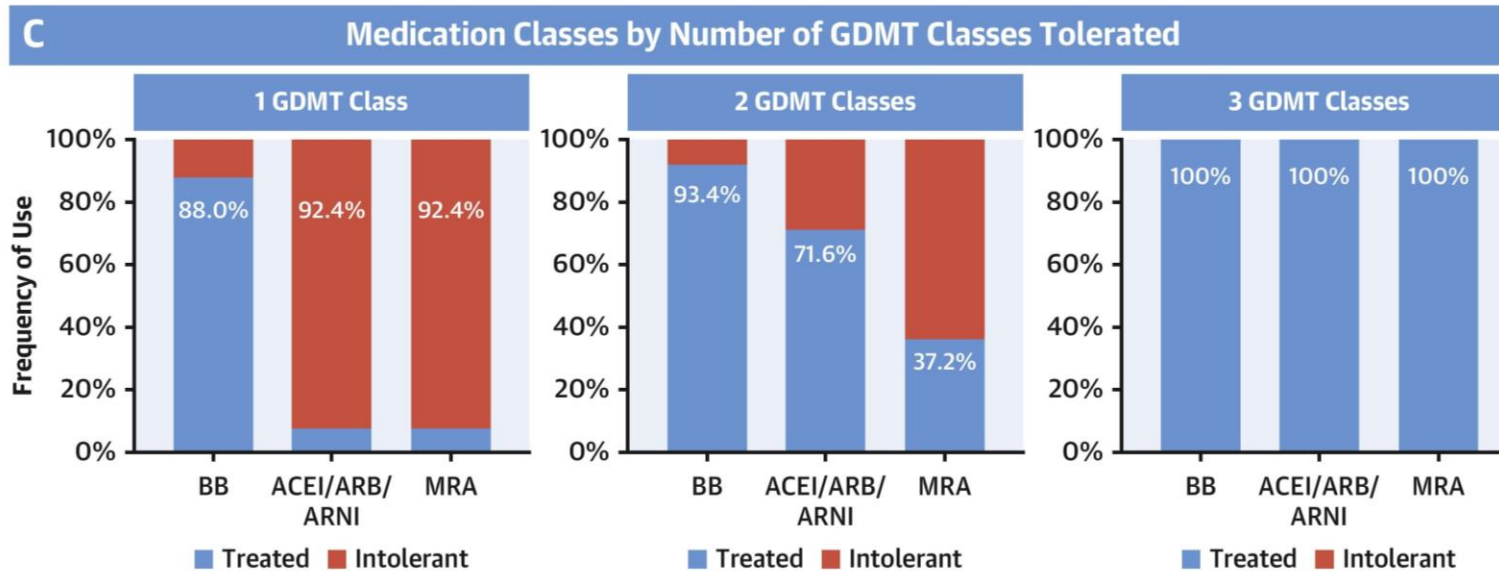
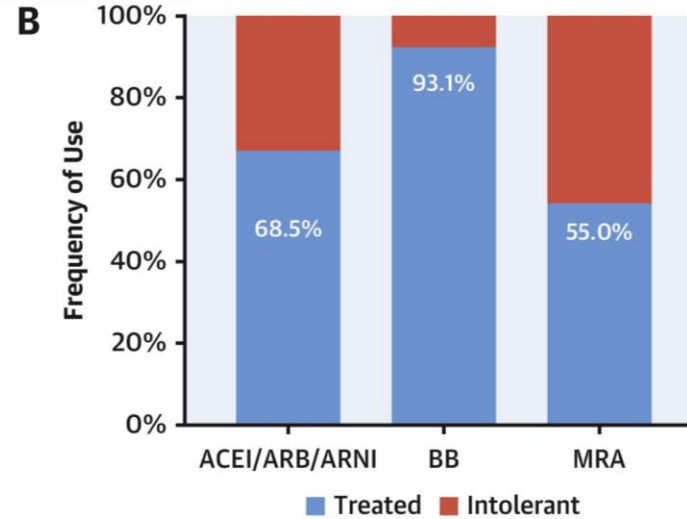
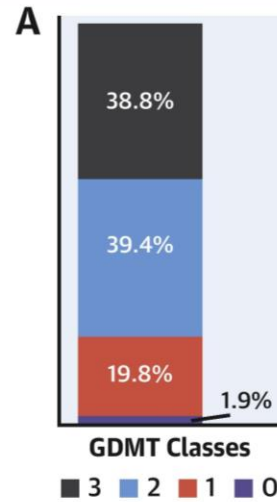
50% of FMR improved for CRT in left bundle branch block

48->46 FMR

(GDMT refractory)

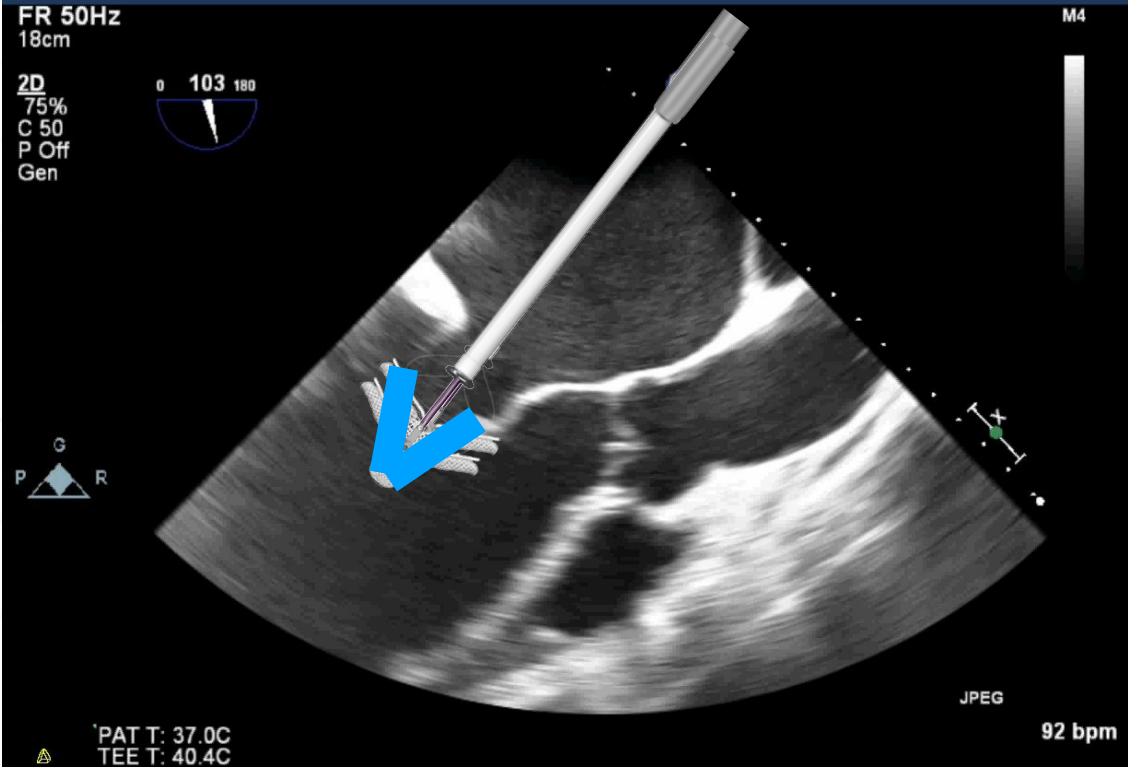


Guideline-Directed Medical Therapy Tolerability in The COAPT Trial

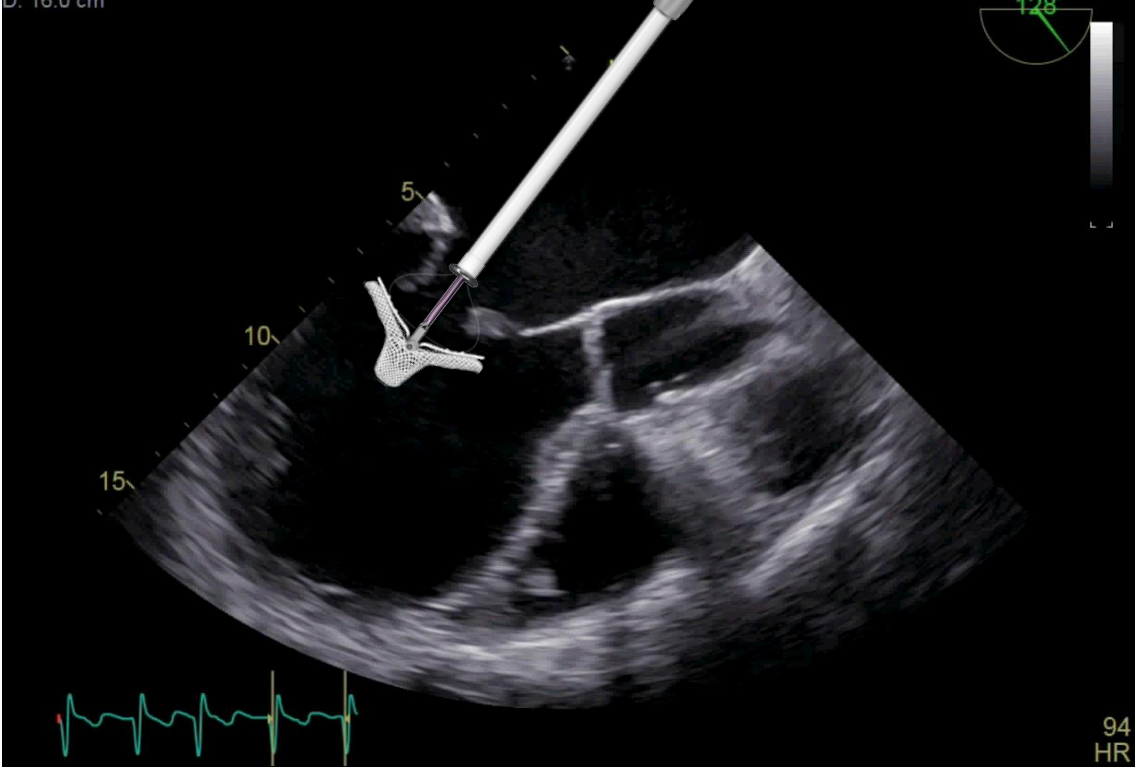


Clinical scenarios: severely restricted PML

61 years gentleman, remained Fc III symptoms while euvoemia



46 years gentleman, remained Fc III symptoms while euvoemia



MR Severity (Core Lab) in COAPT trial

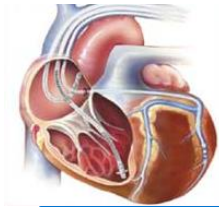
MR grade	≤1+	2+	3+	4+	P _{trend}	≤2+	P-value
<u>Baseline</u>							
MitraClip (n=302)	-	-	49.0%	51.0%	-	-	-
GDMT (n=311)	-	-	55.3%	44.7%	-	-	-
<u>30 days</u>							
MitraClip (n=273)	72.9%	19.8%	5.9%	1.5%	<0.001	92.7%	<0.001
GDMT (n=257)	8.2%	26.1%	37.4%	28.4%		34.2%	
<u>6 months</u>							
MitraClip (n=240)	66.7%	27.1%	4.6%	1.7%	<0.001	93.8%	<0.001
GDMT (n=218)	9.2%	28.9%	42.2%	19.7%		38.1%	
<u>12 months</u>							
MitraClip (n=210)	69.1%	25.7%	4.3%	1.0%	<0.001	94.8%	<0.001
GDMT (n=175)	11.4%	35.4%	34.3%	18.9%		46.9%	
<u>24 months</u>							
MitraClip (n=114)	77.2%	21.9%	0%	0.9%	<0.001	99.1%	<0.001
GDMT (n=76)	15.8%	27.6%	40.8%	15.8%		43.4%	

n=88

n=83

n=82

CRT and MitraClip for FMR



CARE-HF

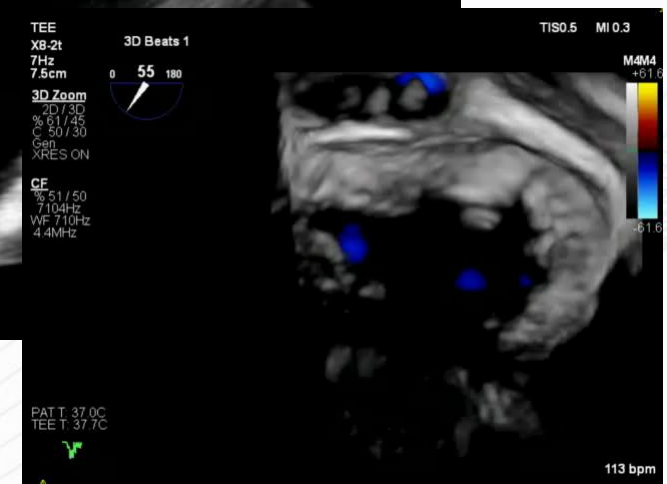
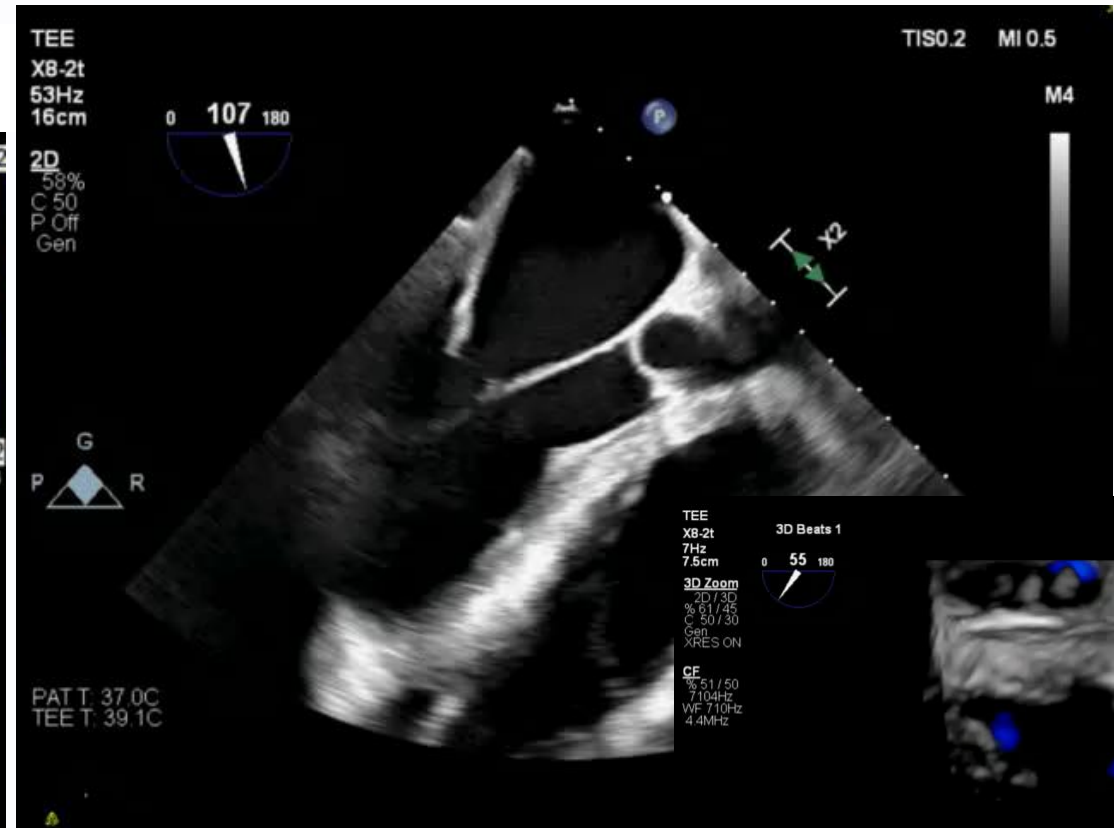
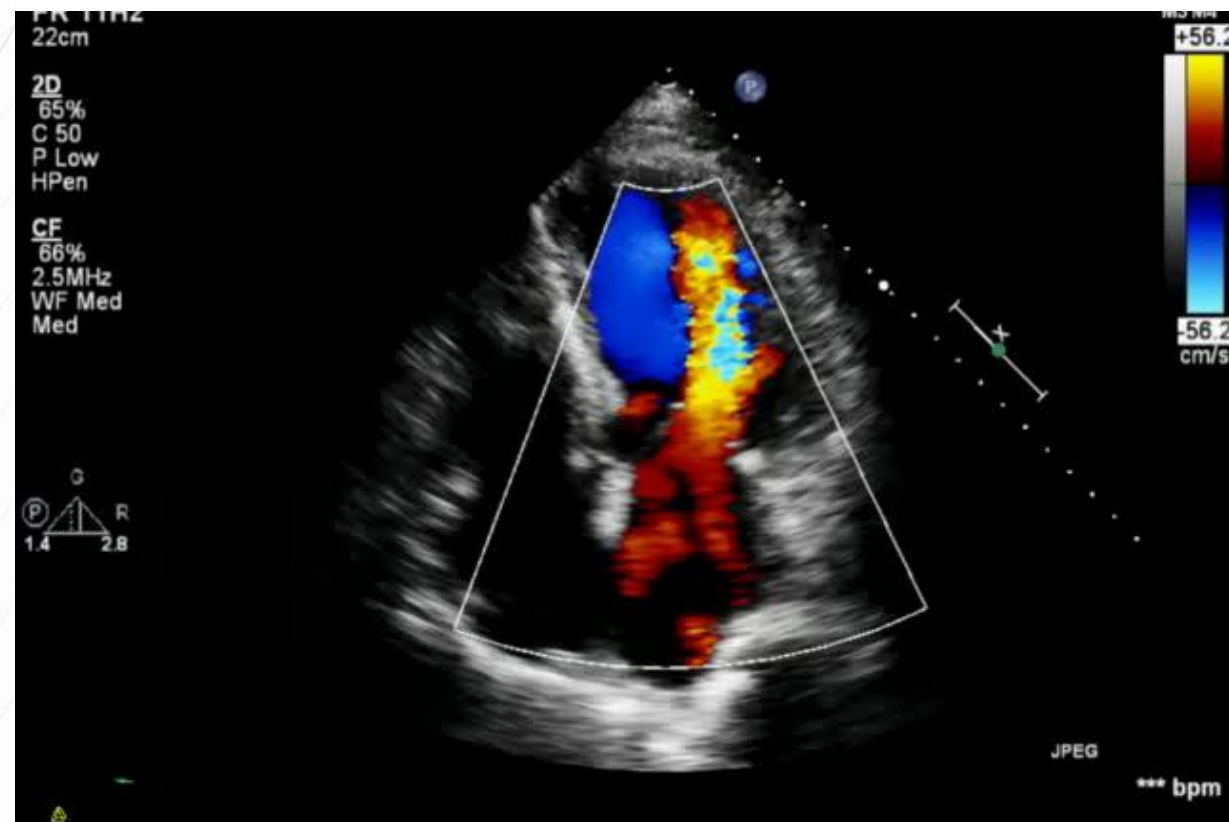


COAPT

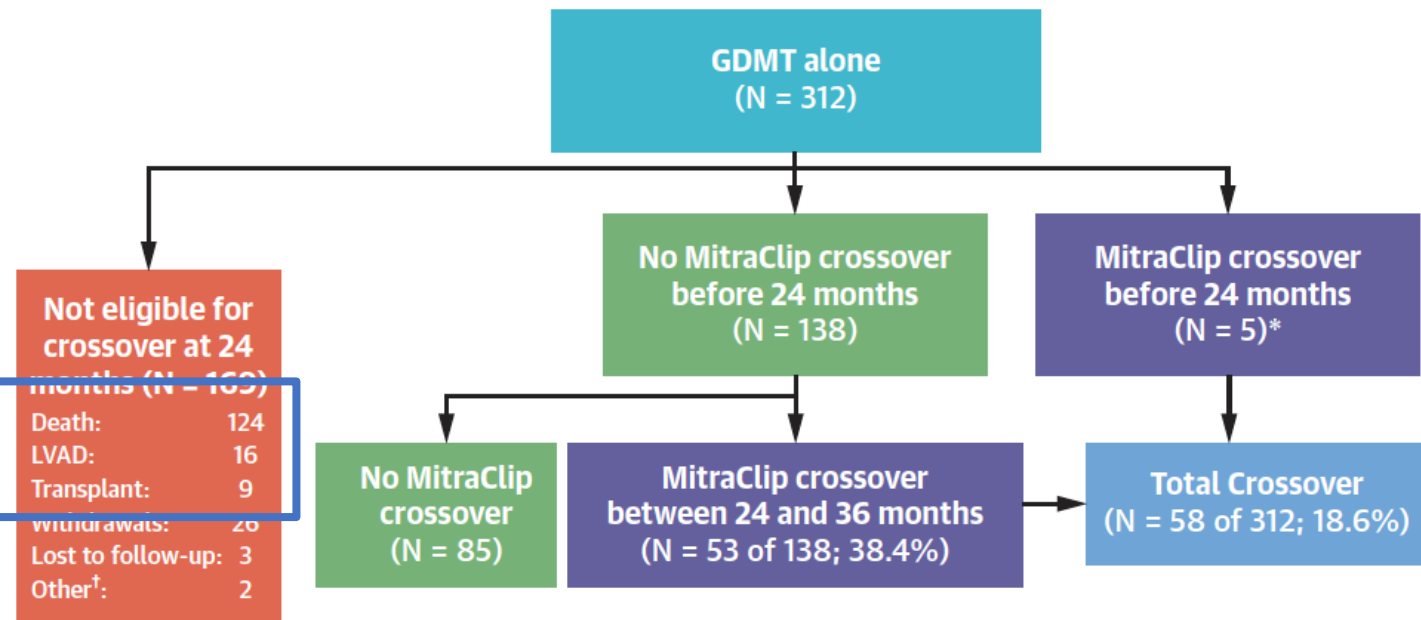
	CRT	MitraClip
Reverse remodeling	+	+
MR reduction	+	+++
Fc improvement	+	+
Survival benefit	+	+
NNT (HF)	6.7	3
NNT (Survival)	10	6
SAEs (%)	13.2	3.4

Non-ischemic HF with LBBB

- 65 years gentleman with deteriorating symptoms after CRT
 - LVEF 30%, PASP=70 mmHg

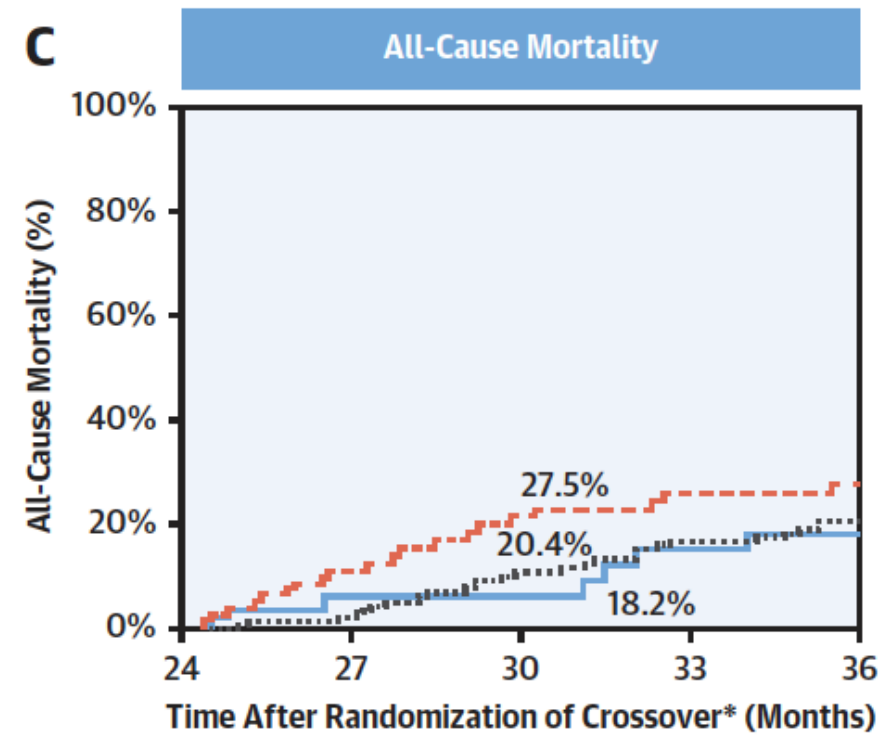


Outcome of GDMT crossover to TEER in COAPT trial



Not eligible for crossover at 24 months (N = 109)

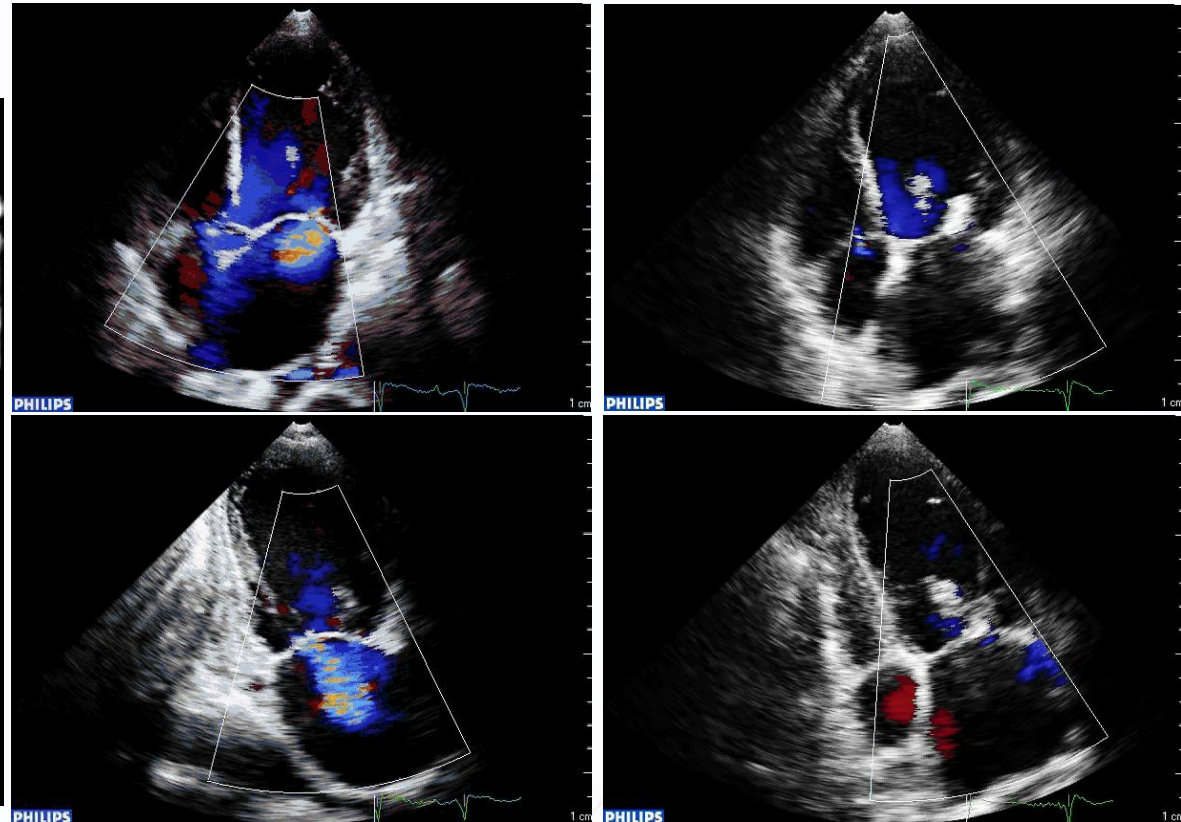
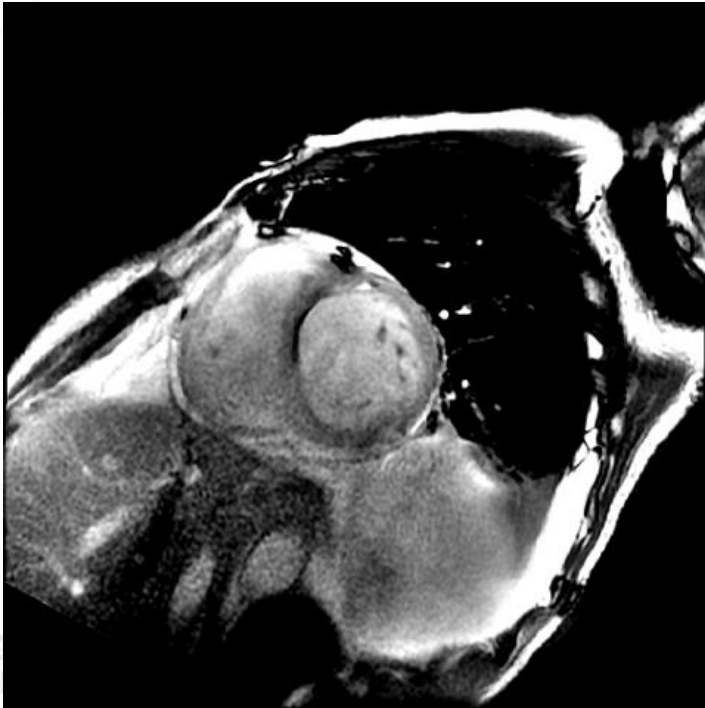
Death:	124
LVAD:	16
Transplant:	9
Withdrawals:	20
Lost to follow-up:	3
Other†:	2



No. at Risk	24	27	30	33	36
MitraClip + GDMT	188	146	128	114	93
GDMT Only (w/o Crossovers)	86	62	53	49	40
Crossovers	58	39	33	27	24

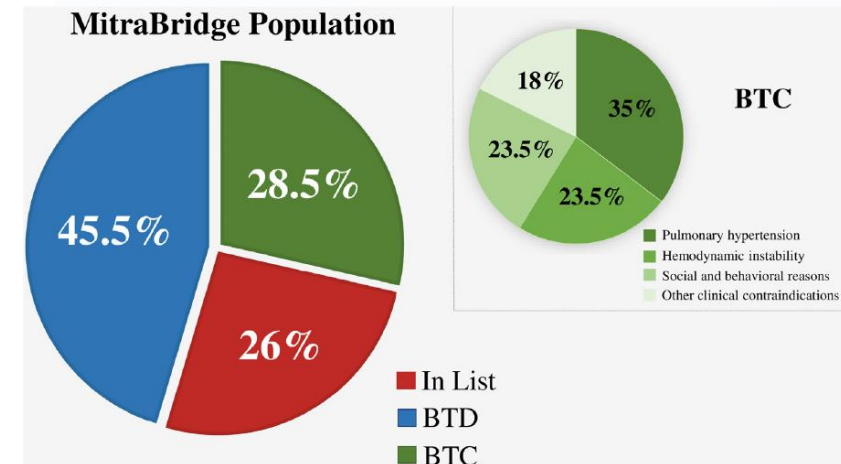
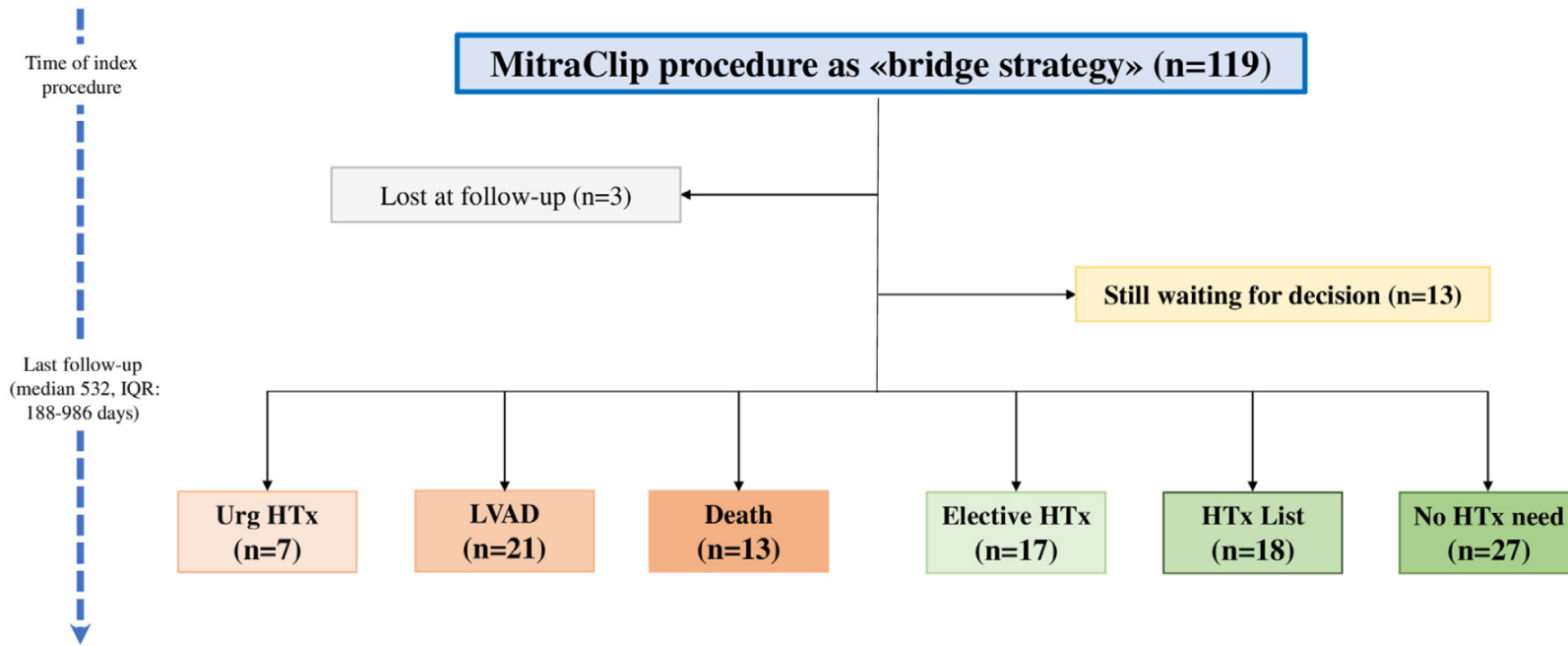
Clinical Scenario: TEER or not?

- Mr. Chung, 68 years
 - previous MI with shock, repeated HF (4 hospitalizations/6 month), LVEF 12% (MRI LVEF 9%)



MitraClip in secondary MR as a bridge to heart transplantation

119 patients, median 58 years, with moderate-to-severe or severe FMR and advanced HF, median **LVEF 26%**

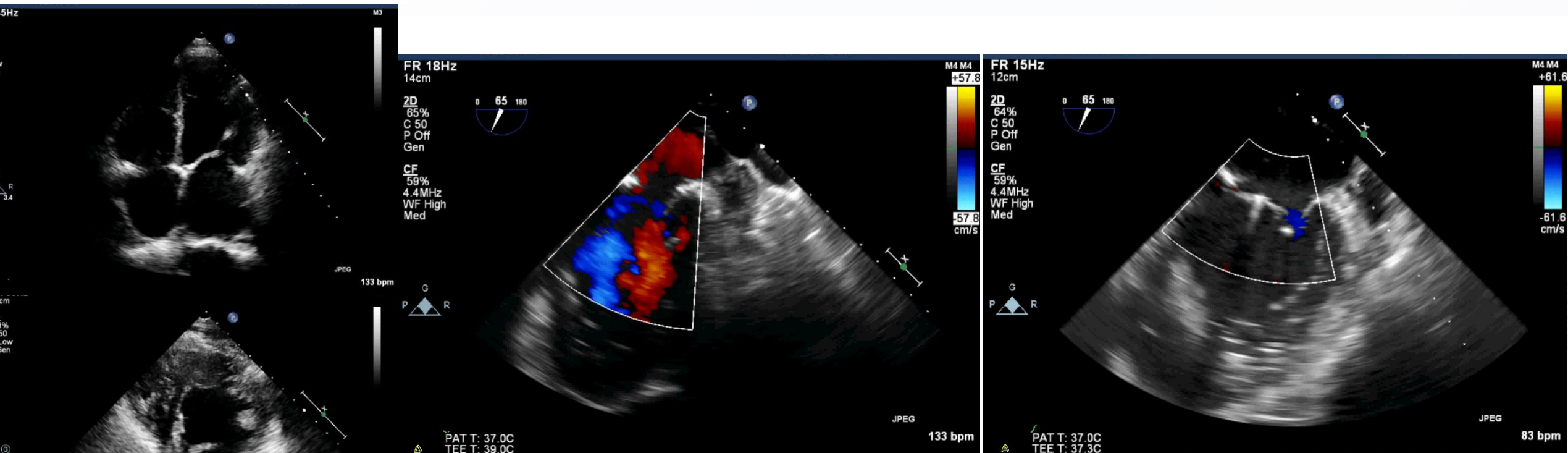


Procedural success **87.5%**,
 30-day survival 100%,
 23.5% off HTx list

Baseline groups	Urg HTx (n=7)	LVAD (n=21)	Death (n=13)	Elective HTx (n=17)	HTx List (n=18)	No HTx need (n=27)
In List (%)	5 (16)	0 (0)	2 (6.5)	8 (26)	10 (32)	5 (16)
BTD (%)	1 (2)	16 (29.5)	8 (15)	5 (9)	4 (7.5)	12 (22)
BTC (%)	1 (3)	5 (15)	3 (9)	4 (12)	4 (12)	10 (29.5)

Clinical Scenario: Severe MR with Cardiogenic shock

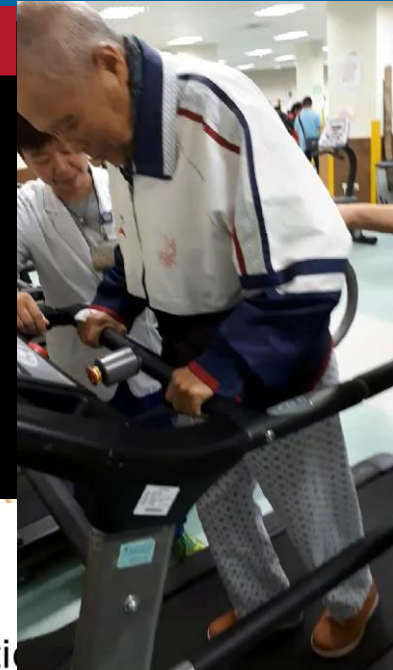
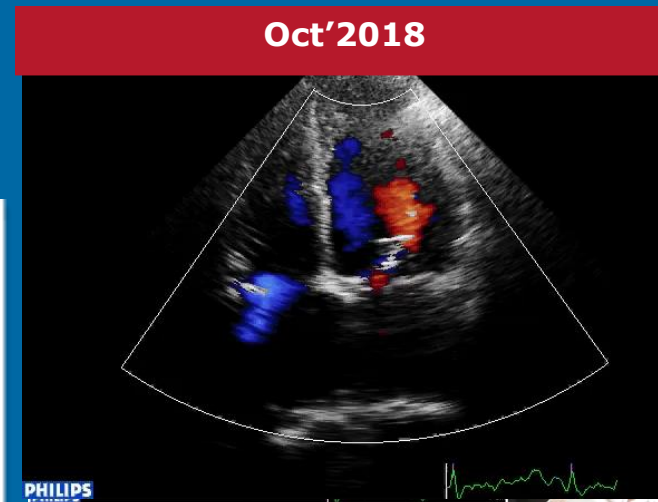
- Mr. Lee, 78 years
 - DM, CABG, cardiogenic shock, LVEF=15%, Cr=7.9, Ammonia=330, On ECMO+IABP





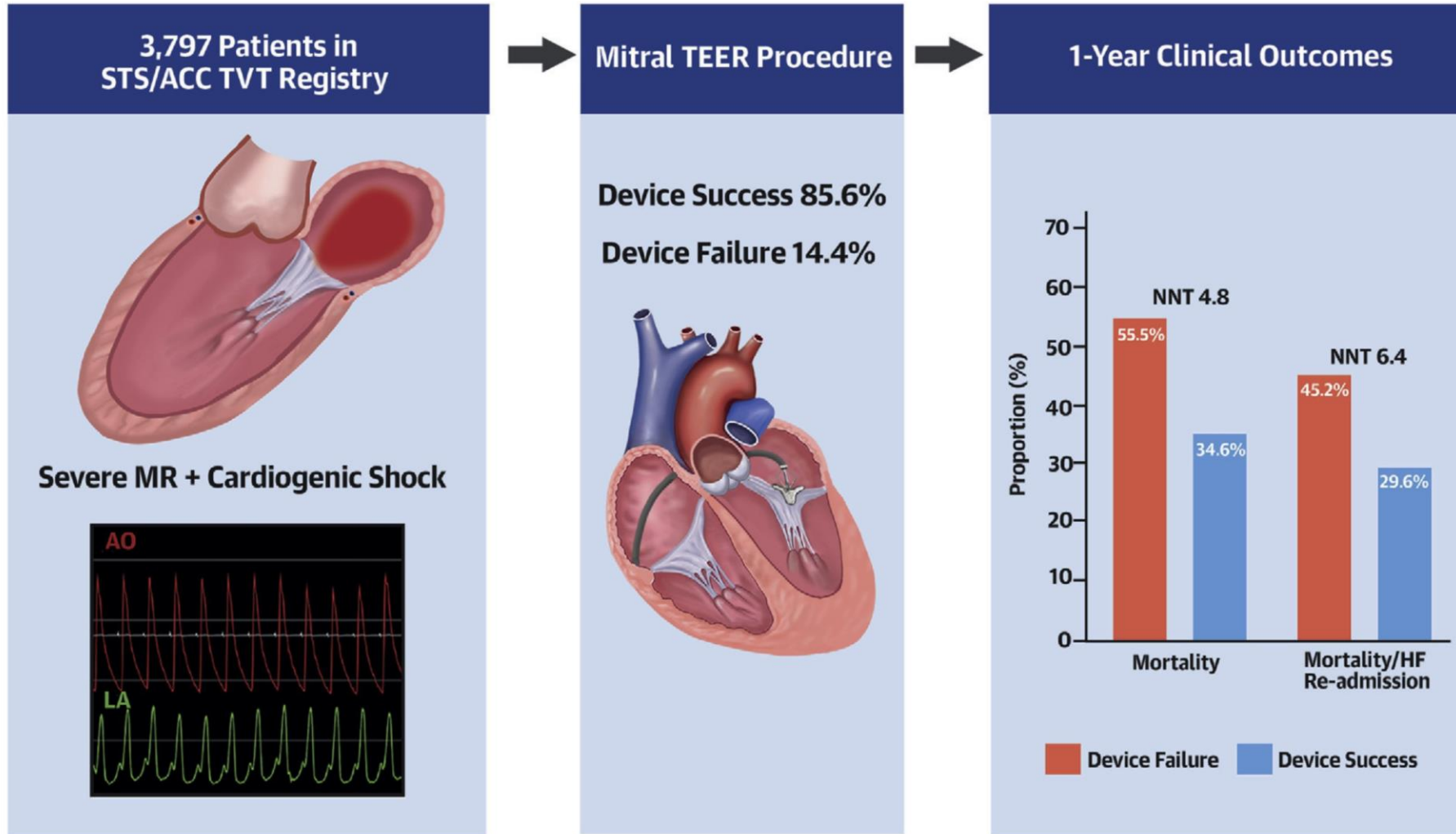
Clipping Severe Functional Mitral Regurgitation in A Failing Heart Under Extracorporeal Membrane Oxygenation (ECMO) Support

Patient eventually died in June 2021



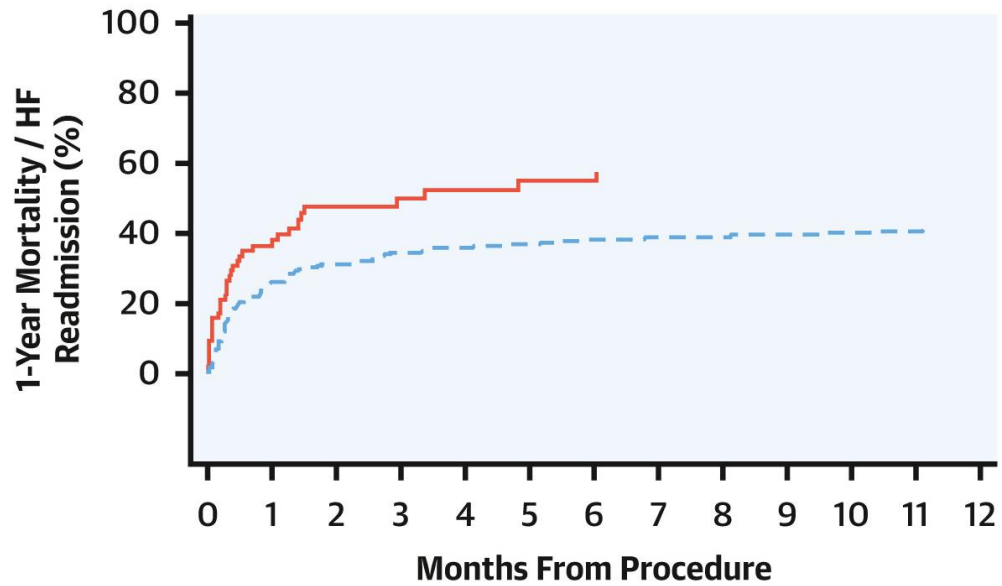
- Mild MR left
- in Fc II
- function well on rehabilitation
- on TIW H/D

Mitral TEER in Patients With Severe Mitral Regurgitation and Cardiogenic Shock



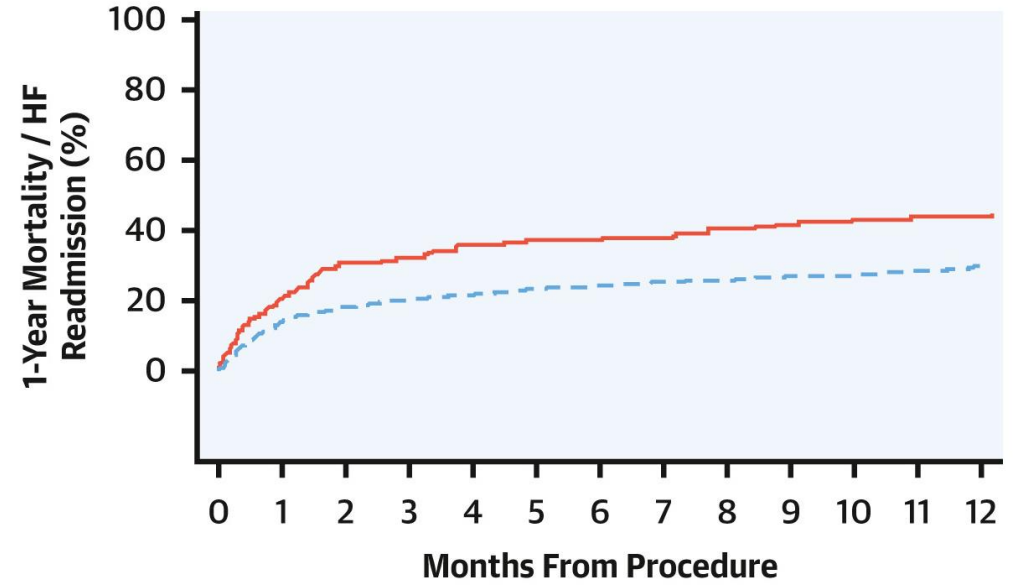
Mortality and HF hospitalization in Patients With Severe MR and Cardiogenic Shock after TEER

Mechanical Circulatory Support



Procedure	0	1	2	3	4	5	6	7	8	9	10	11	12
— Device Failure	75	38	26	21	20	18	18	17	17	17	17	10	8
- - - Device Success	348	215	161	140	133	130	126	124	121	120	118	110	89

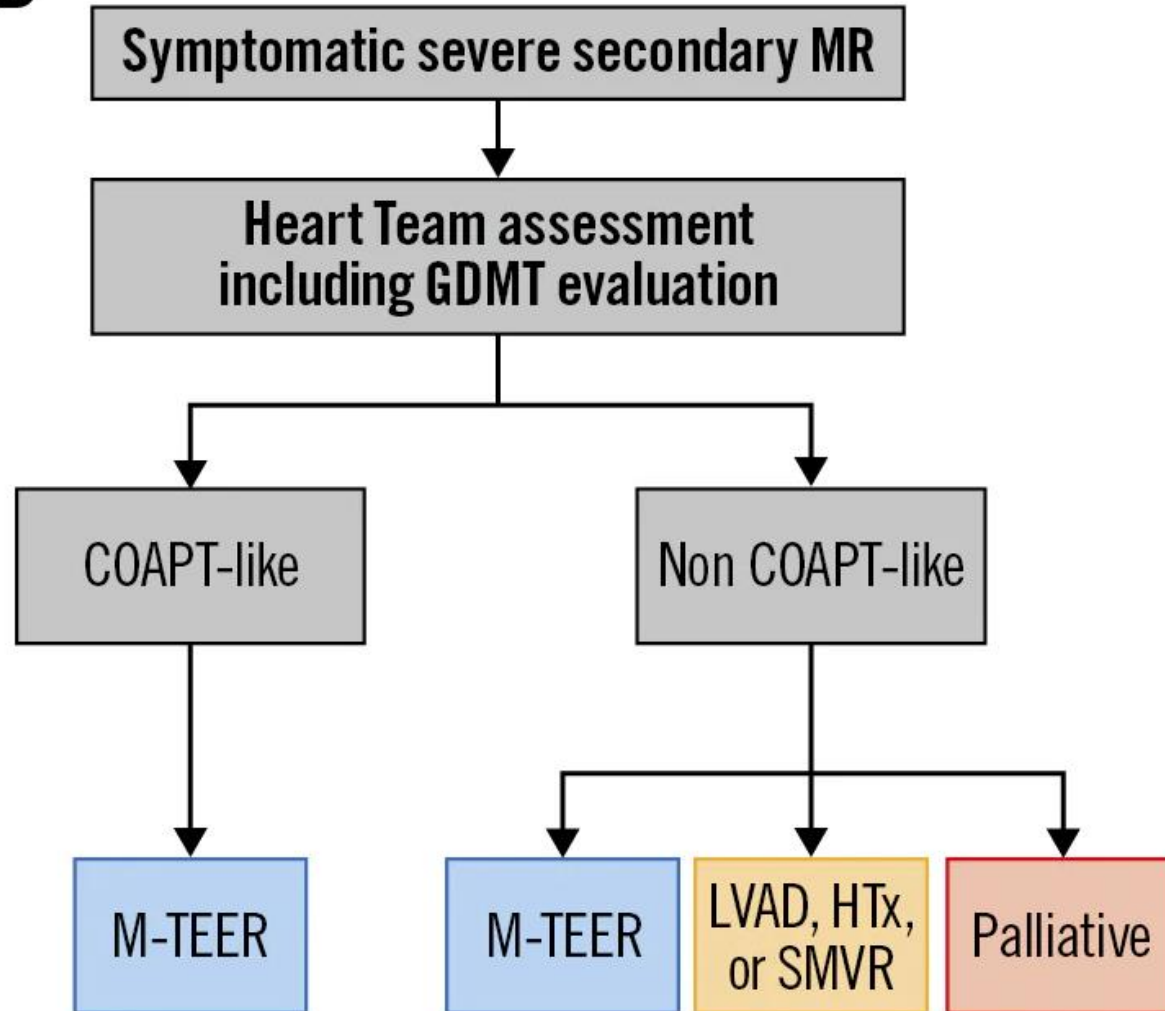
Inotrope Use



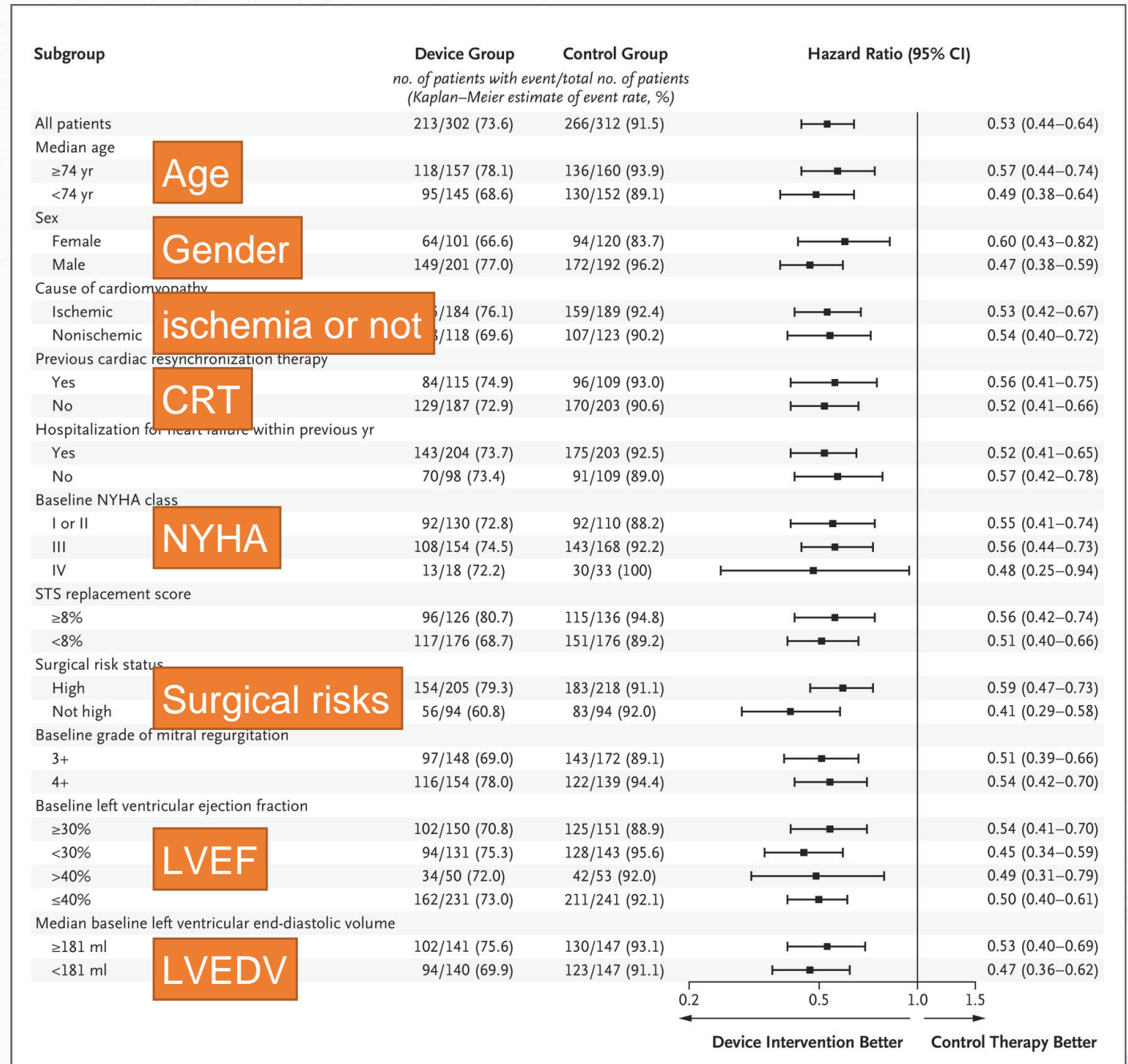
Procedure	0	1	2	3	4	5	6	7	8	9	10	11	12
— Device Failure	336	209	136	122	109	102	100	97	90	87	82	69	52
- - - Device Success	2,081	1,490	1,118	1,017	969	934	910	888	872	847	834	762	596

TEER for FMR

B



Subgroup Analyses for the 5-Year Death or First HHF in COAPT



Conclusion

- In selected pts with HF and 3+/4+ FMR who remain symptomatic despite GDMT, TEER may improve 5 year survival and freedom from HFH.
- Benefits have been seen in all COAPT subgroups.
- For patients with severe FMR and advanced HF, unstable hemodynamics or hostile mitral anatomy, TEER still can be the salvage therapy.
- Early treatment is better, but it's never too late to have a clip.