

Aşağı EF və ciddi MÇ – tibbi müdaxilə ?

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Azerbaijan, AZ

Bakı Sağlamlıq Mərkəzi

14 oktyabr, 2023



Azerbaijan
Society of
Cardiology



QARDAĞI KARDİOLOGİYƏ
SOCIETY OF CARDIOLOGY

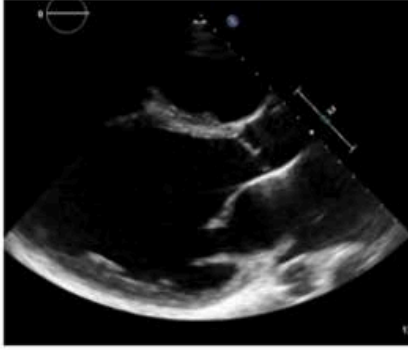
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 Dr. Aysel İSLAMLI

 DR. AYSEL İSLAMLI

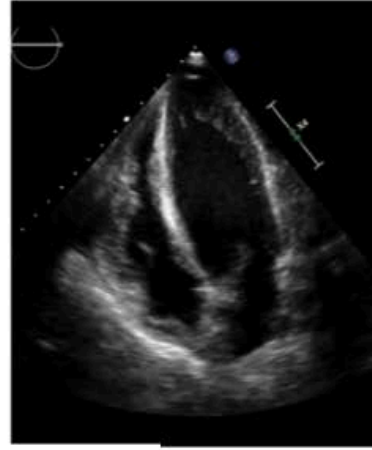
**Dilative
Cardiomyopathy**



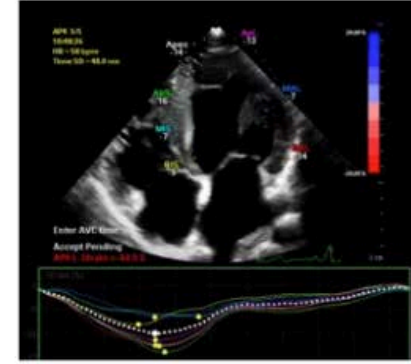
Non-Compaction



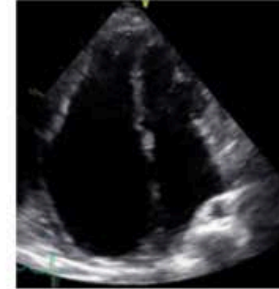
Myocarditis



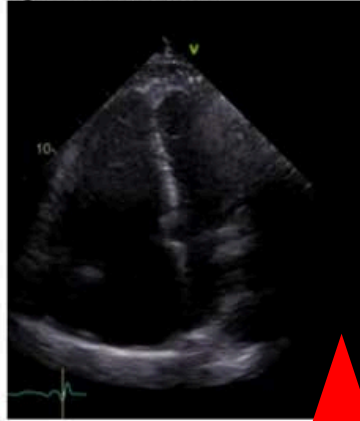
**Hypertrophic
Cardiomyopathy**



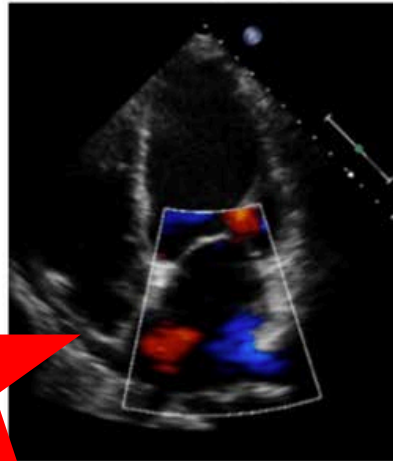
**Restrictive
Cardiomyopathy**



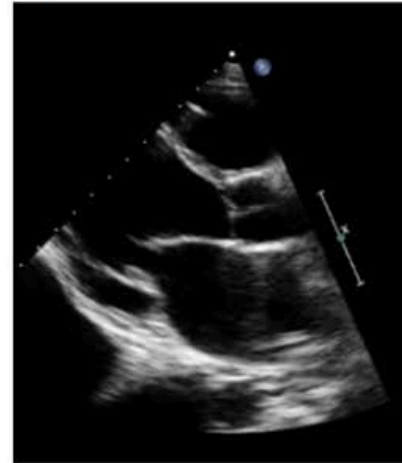
**Right Ventricular
Dysfunction**



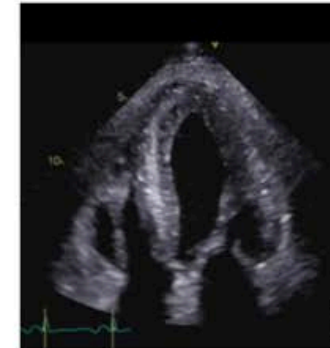
Mitral Regurgitation



„Left atrial Disease“



Amyloidosis



Ürək Çatışmazlığı

İşemik Mitral Çatışmazlıq (Sekonder MÇ)

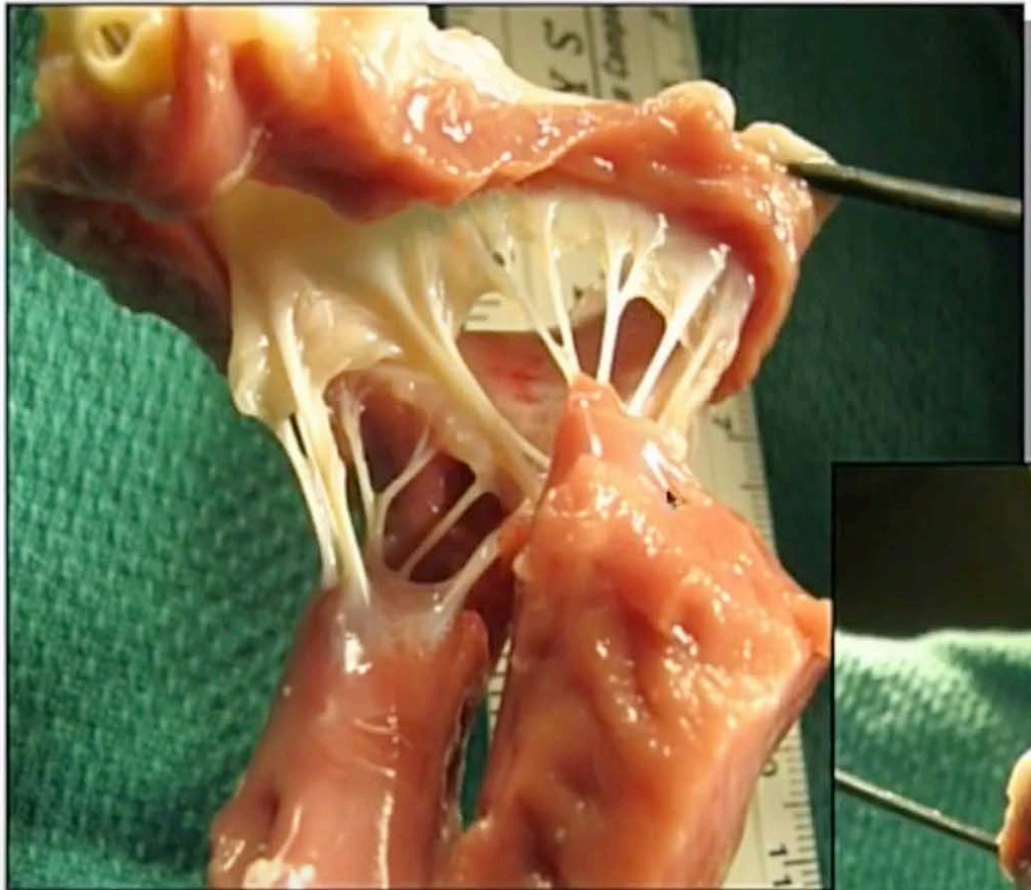
- ➔ İşemik mitral çatışmazlıq “normal mitral qapaq yarpaqlar və kordalarla, əvvəlki Mi nəticəsində yaranan MÇ” - kimi tərif edilə bilər.

Serri K, Bouchard D J Thorac Cardiovasc Sura. 2006;131:565-73.e2.

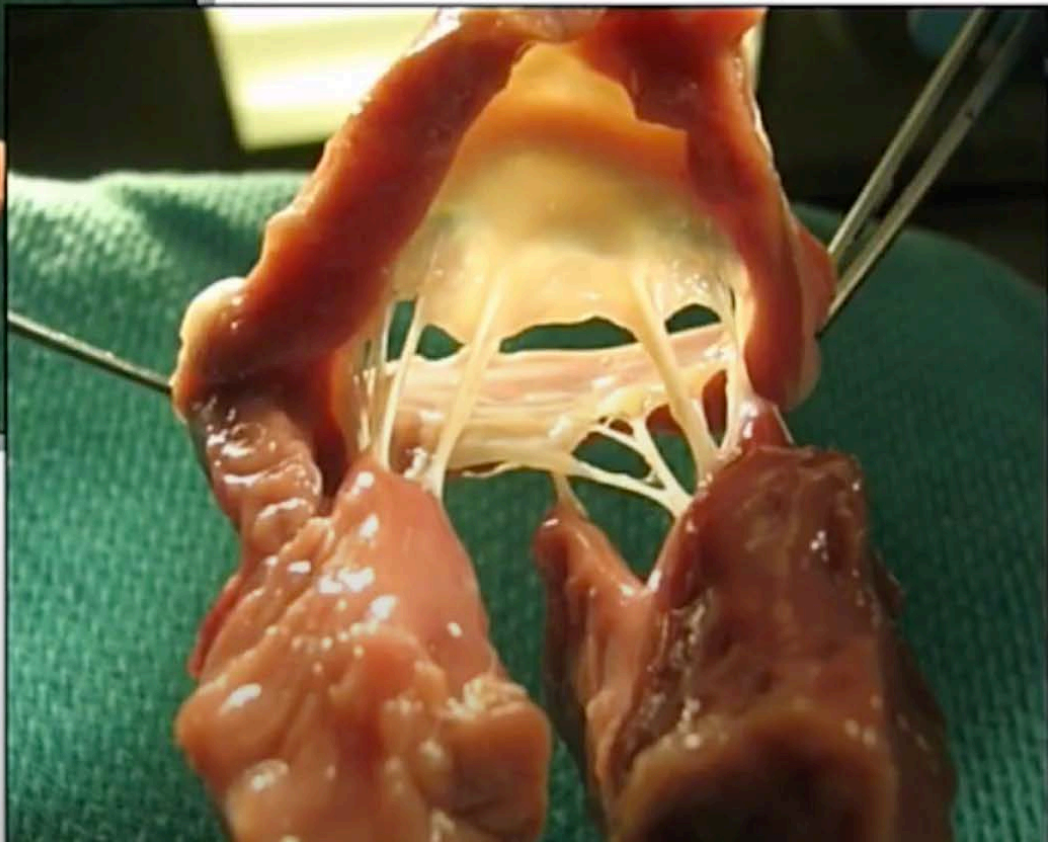
nə edək ?

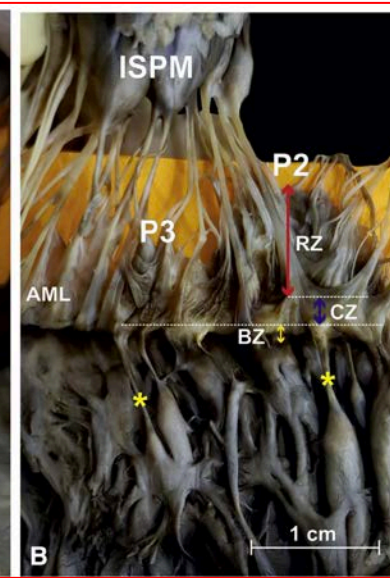
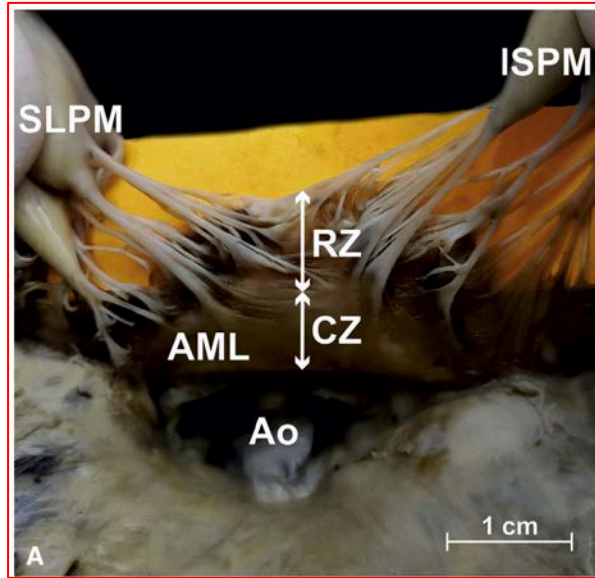
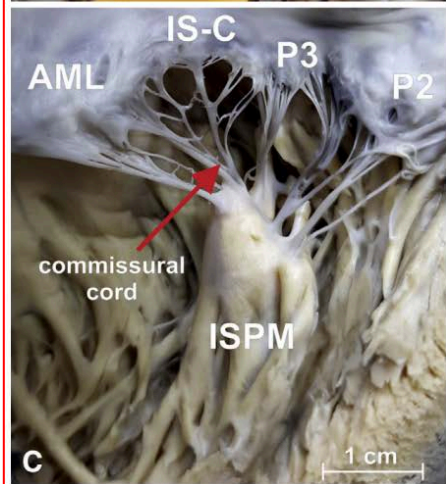
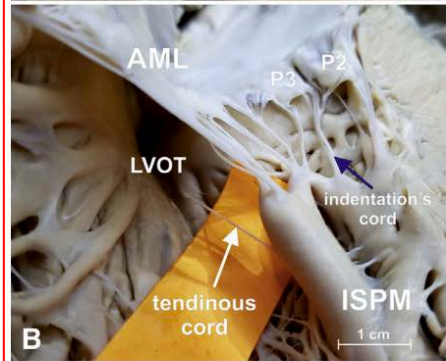
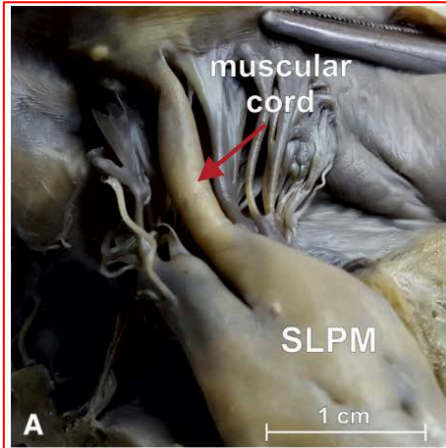
- ➔ MR ignor etmək, rutin CABG etmək ?
- ➔ CABG + mitral təmir etmək ?
- ➔ CABG + mitral replasman etmək ?





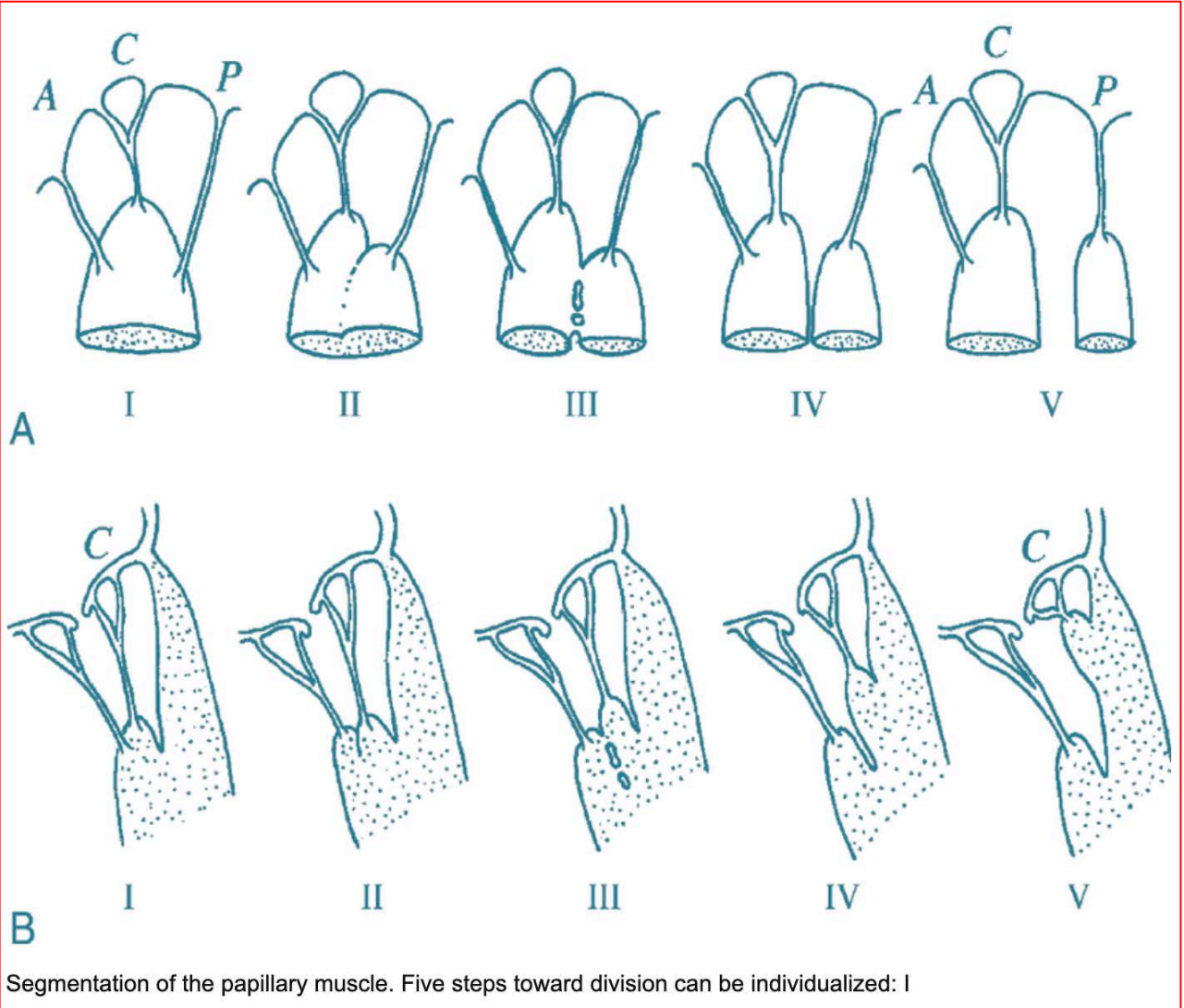
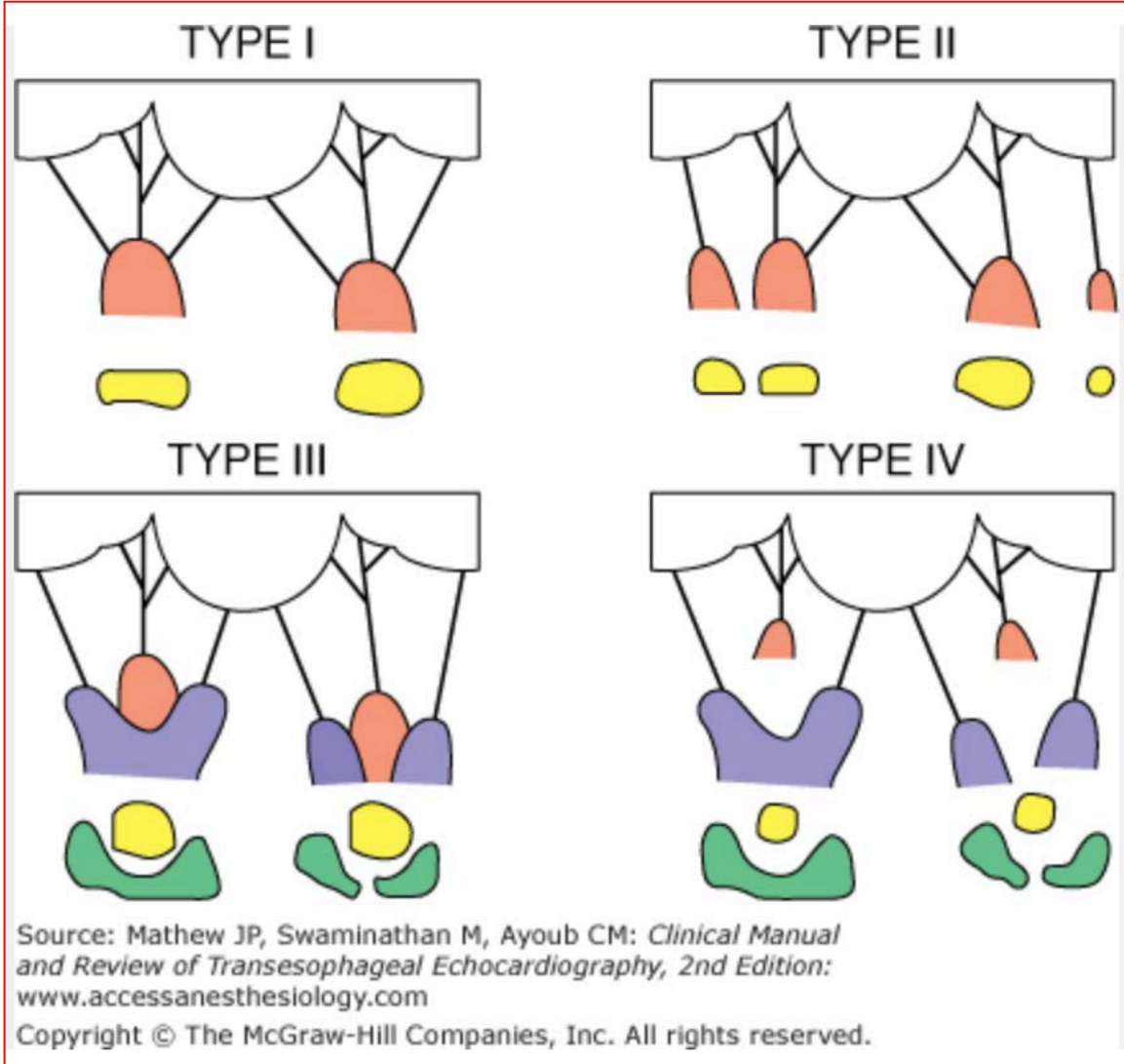
Mitral Qapaq
sadəcə yarpaqcıqlar deyil !



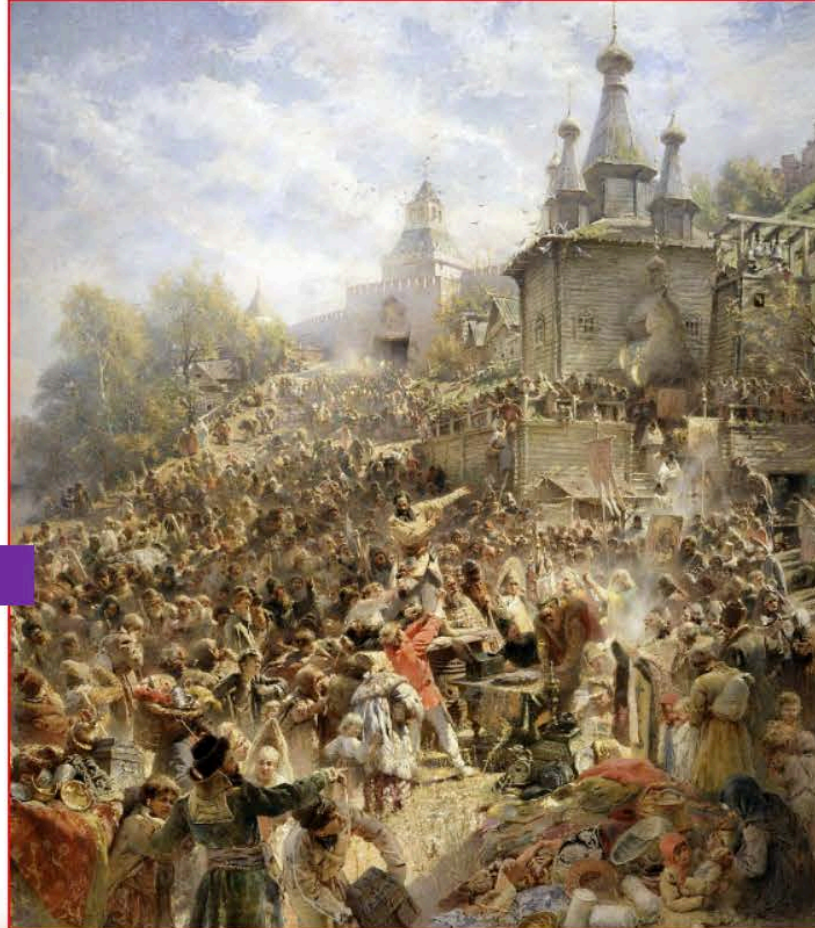


- Rough zone cords: “standard,” true, and most common cords arising from apex of the papillary muscle or its margin and inserted into the leaflet (rough zone);
- Strut cords: the strongest and toughest among rough zone cords, arising from the tip of the papillary muscle group and attached to the central parts of rough zone
- Muscular cords: fleshy and the thickest cords arising from papillary muscles attached to any part of mitral valve leaflets
- Indentation’s cords: inserting to the free edges of the PML to its indentations between scallops, arising from the papillary muscle usually as a single stem but branching out in a manner resembling the struts of a fan before insertion;
- Commissural cords: originating solely from the respective papillary muscle located beneath the commissure and running as a single stem that branches radially (in a fan-shaped fashion);
- Cords to the LVOT: false cords, recognized on the basis of their attachment to the left ventricle septal wall in the LVOT area, arising from the papillary muscle
- Basal cords (or tertiary cords): neither true nor false cords, arising directly from the left ventricle wall or from small trabeculae carneae and inserting to the basal zone on the ventricular surface of the leaflet, close to the hinge line

➔ papillar əzələlər həmişə tək əzələ deyil, bir neçə əlaqəli əzələlərin konqlomeratı şəklində olur.



IMR heterogendir !



koronarların vəziyyəti

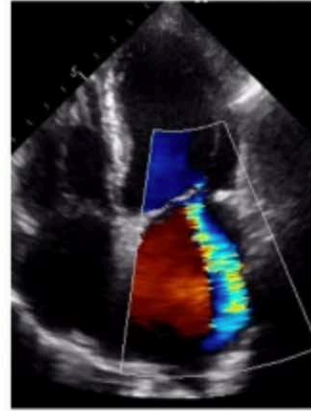
PML – global tethering

viabilite/skar

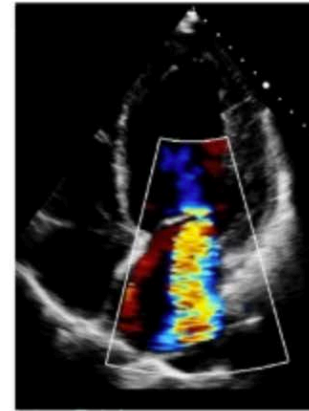
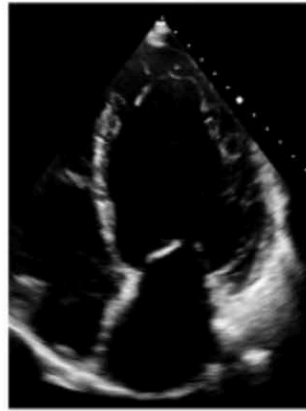
LV remodelinginin dərəcəsi

anular dilatasiya

Atrial SMR



Ventricular SMR



Echocardiography criteria

Normal mitral valve leaflets
Dilated LA ($\geq 58\text{ml}$ ♂ $\geq 52\text{ml}$ ♀)
LVEF $\geq 50\%$ and non-dilated LV

Normal mitral valve leaflets
LVEF $< 50\%$ and/or dilated LV by volume

Underpinning mechanisms

Mitral annular dilatation
Atriogenic leaflet tethering

Apical-lateral papillary muscle displacement
Systolic leaflet tethering

Patient characteristics

Older
Female $>$ male
Atrial fibrillation

Younger
Female \approx male
Ischaemic/non-ischaemic cardiomyopathy

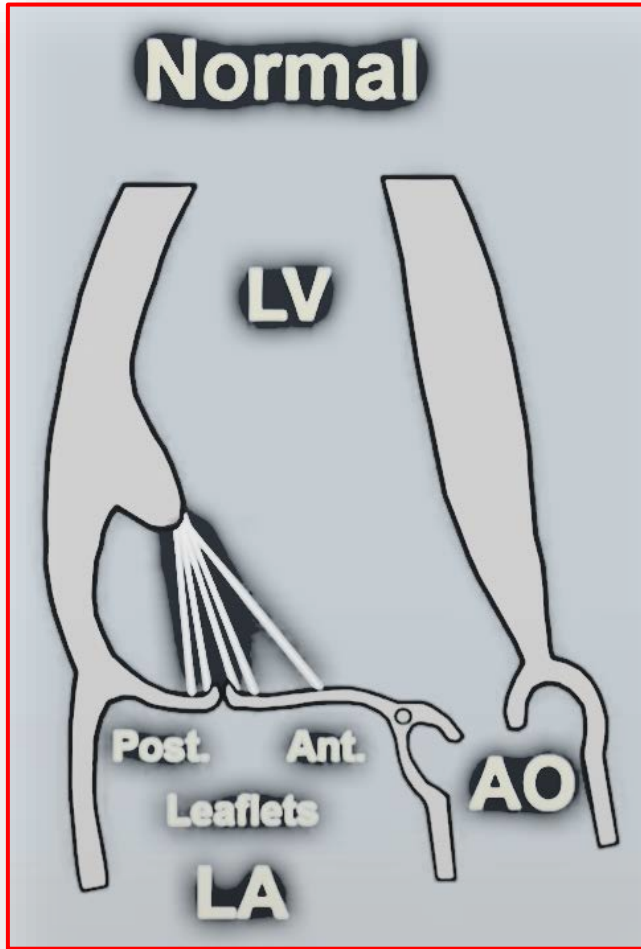
Management

Diuretics
 \pm Rate/rhythm control
? Annuloplasty

Pharmacological therapies
 \pm Cardiac resynchronisation therapy
 \pm Edge-to-edge repair/annuloplasty

***Straw et al. Echo Research & Practice (2023) 10:4
<https://doi.org/10.1186/s44156-023-00015-y>***

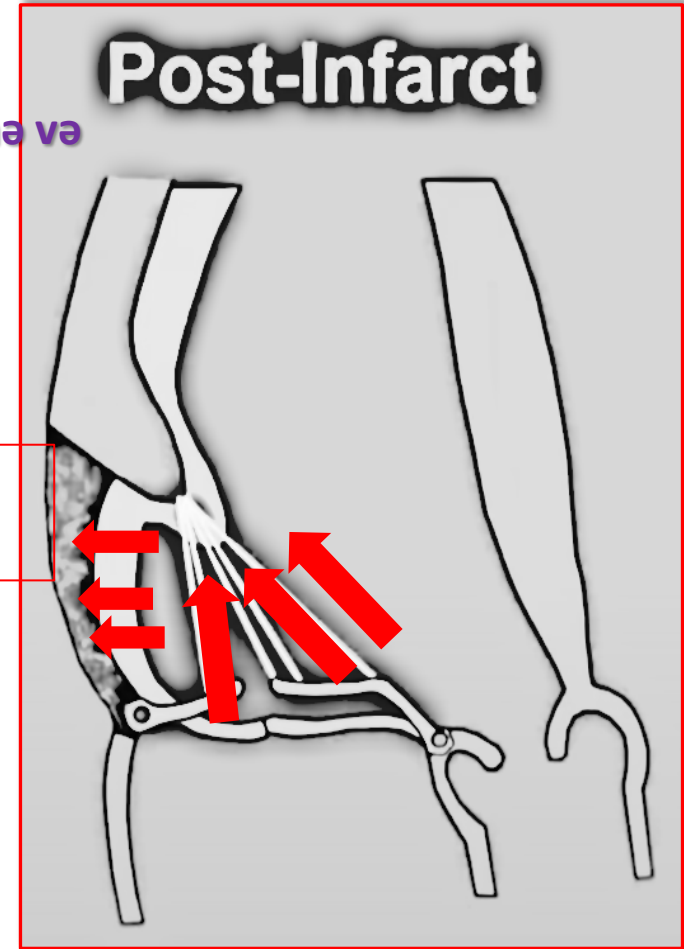
İşemik MR mexanizmi



Postero-medial yerdəyişmə və
leaflet tethering

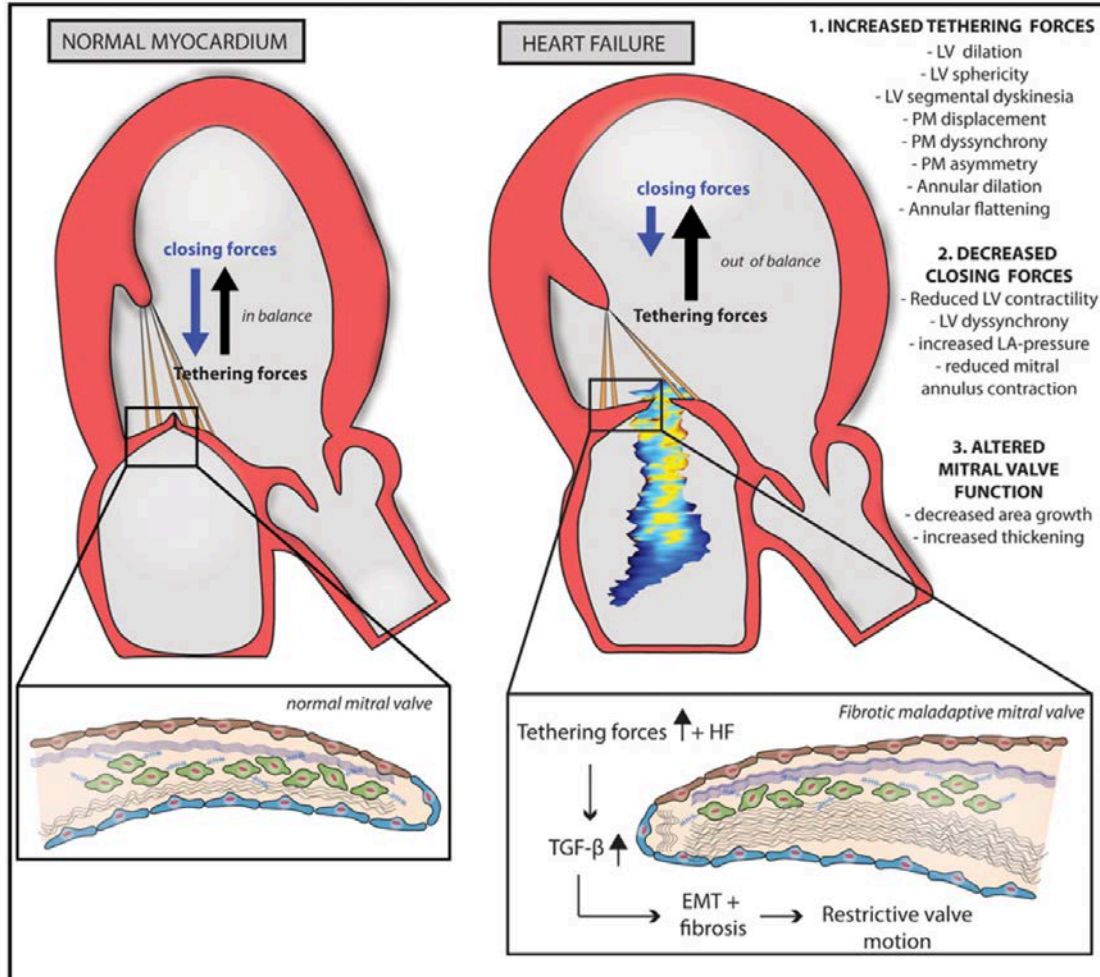


closing force
bağlanma qüvvəsi



IMR mexanizmi

A Pathophysiologic basis of secondary MR

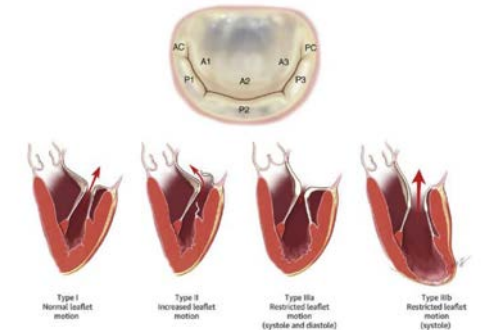


funksional MR təsnifatı –

normal MV leaflet və anular dilatasiya (DKMP) və leaflet restriksiyası (işemik MR)



Mitral valve anatomy and carpentier classification of mitral regurgitation



Normal

Ring dilatasiyası
Perforasiya
Kleft

Excessive

Ring dilatasiyası
Perforasiya
Kleft

Restrictive

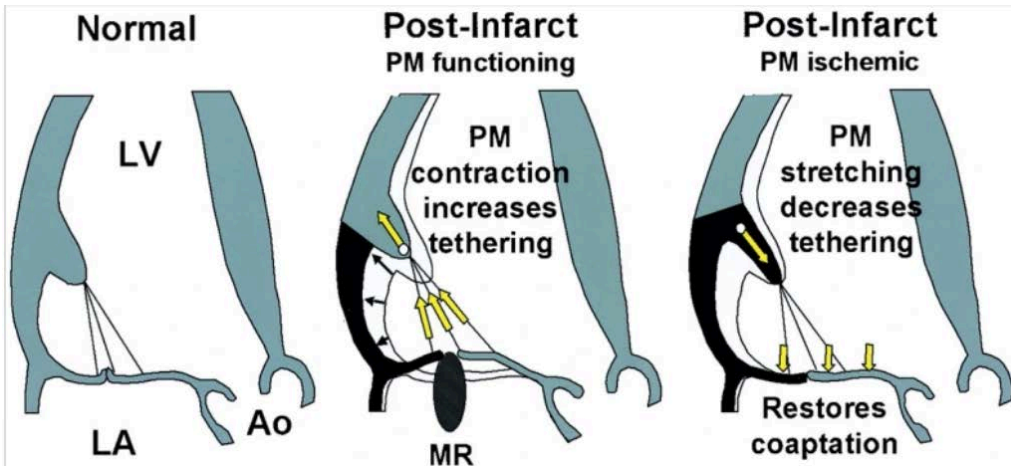
Komissural füzyon
Leaflet və kordaların
qalınlaşma və
kalsifikasiyası

Restrictive

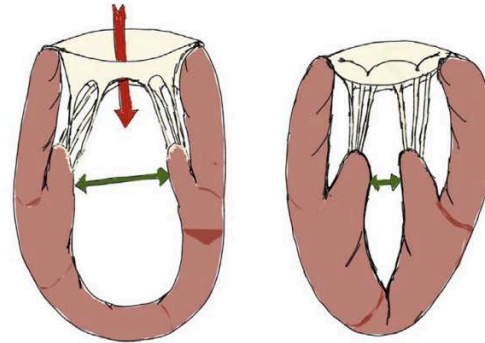
Xroniki işemik

Stone EHJ, 2015

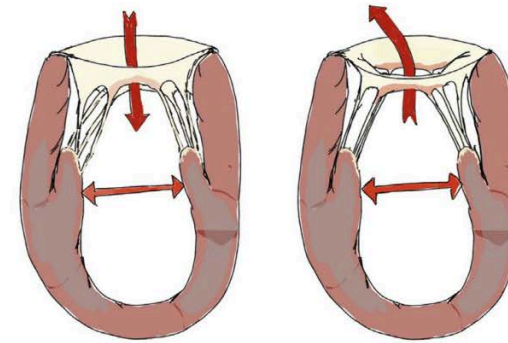
papilyar əzələlərin yaxınlaşması sistolik tethering qüvvələri azaldır və funksional mitral çatışmazlığın təmirində mitral qapağın bağlanması yaxşılaşdırmaq üçün bu amil düşünülməlidir



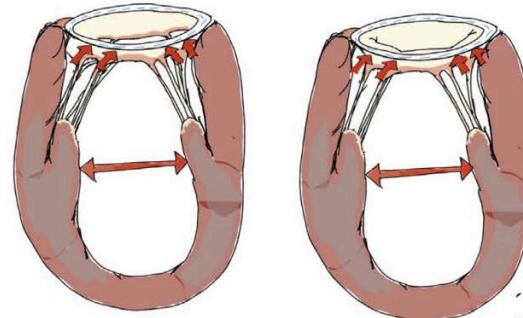
Mitral valve function in a healthy heart with dynamic inter-papillary shortening



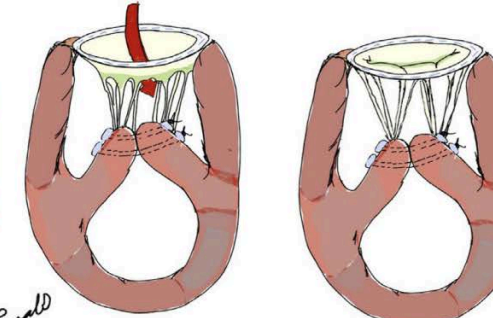
Mitral valve tethering leading to regurgitation in a failing heart with poor inter-papillary shortening



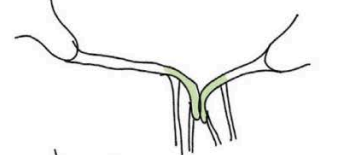
Undersizing annuloplasty in the failing heart with poor inter-papillary shortening worsens leaflet tethering



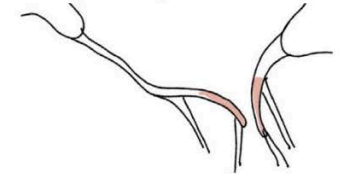
Papillary muscle approximation relieves tethering force on the leaflets in the failing heart



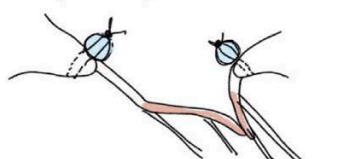
Systolic coaptation - Healthy



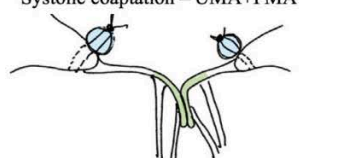
Systolic coaptation - FMR



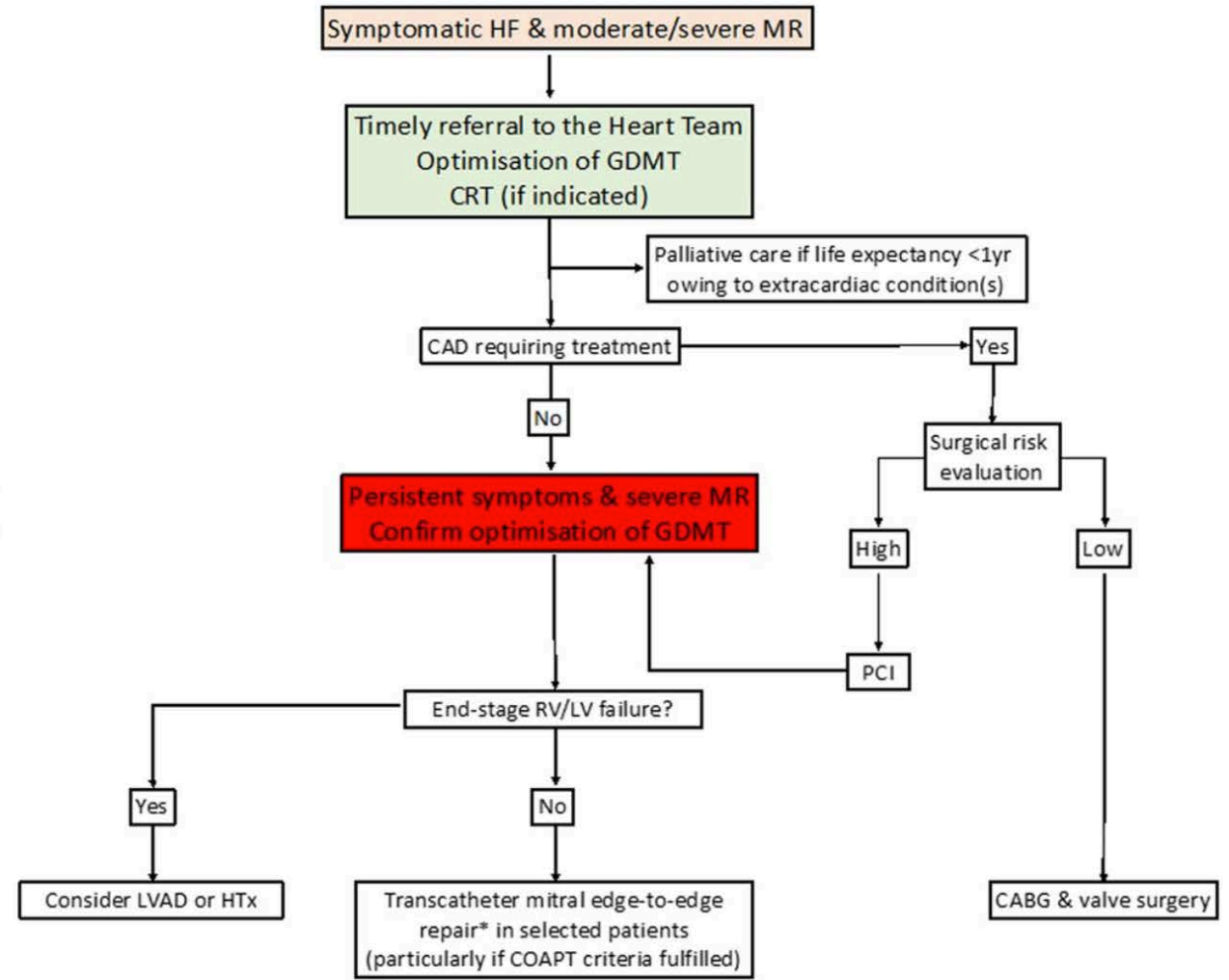
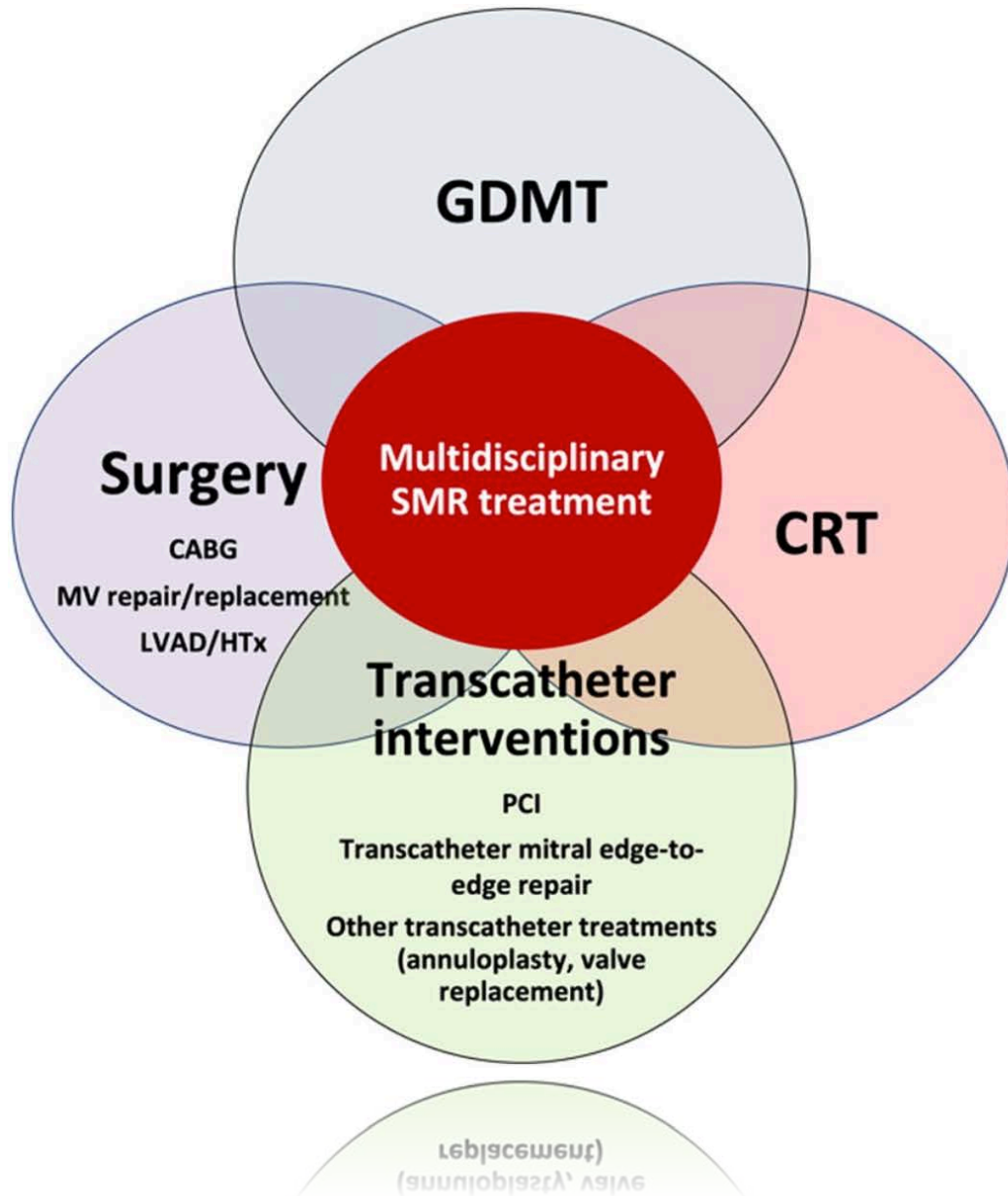
Systolic coaptation - UMA



Systolic coaptation - UMA+PMA







İşemik MR sız rastgələn problem olub

- ➡ uzun-müddətli sağqalımın azalması ilə əlaqədardır,
- ➡ müalicəsi əksik qalmış (undertreated) problemdir
- ➡ **rekurren MR** - post-MR təmiri ilə əlaqədar olub, sız görülmən problemdir.

IMR ventrikular problemdir

Farmakolojik yanaşma Sol Ventrikulu yaxşılaşdırır

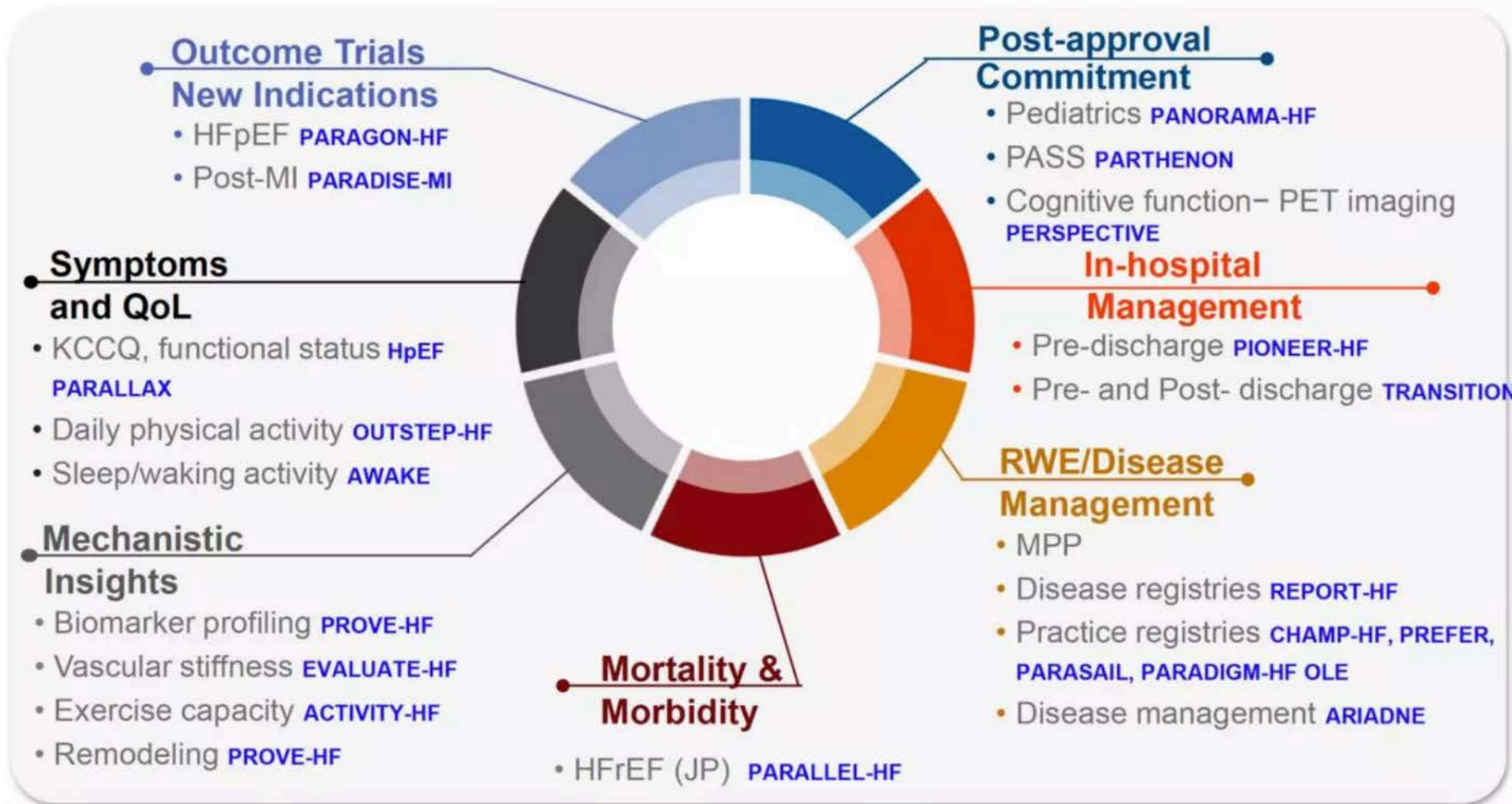
IMR - medikal müalicə

- ACE/ARB/ARNi
- SGLT2i
- b-blokerlər
- diuretiklər
- mineralokortikoid reseptör antaqonistləri



- ✓ Remodelingi düzəltmək
- ✓ Simptomları yaxşılaşdırmaq
- ✓ XÜÇ rehospitalizasiyaları azaltmaq
- ✓ Surveyi yaxşılaşdırmaq

⇒ CRT



Januzzi JL, Prescott MF, Butler J, et al. Association of Change in N-Terminal Pro-B-Type Natriuretic Peptide Following Initiation of Sacubitril-Valsartan Treatment With Cardiac Structure and Function in Patients With Heart Failure With Reduced Ejection Fraction. *JAMA*. Published online September 02, 2019. doi:10.1001/jama.2019.12821

(R)evolution of Heart Failure Treatment



**Digitalis
Diuretics**



ACE-I

β -Blockers

ICDs

Transplantation

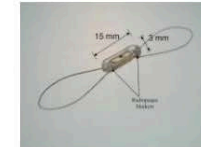


LVAD

CRT, CRT-D

MR-Antagonists

Ivabradine



**Sensing
Devices**

ARNI



2021 ESC/EACTS Guidelines for the management of valvular heart disease: Developed by the Task Force for the management of valvular heart disease of the European Society of Cardiology (ESC) and the European Association for Cardio-

(EACTS) 

(EACTS) 



European Journal of Heart Failure (2022) 24, 746–749
doi:10.1002/ejhf.2497

New ESC/EACTS guideline for the treatment of secondary mitral regurgitation: reflections on the ESC

Christian Frerker^{1,2*}, Nicole Karam³, Rebecca T. Kain⁴, Holger Thiele⁵,
Gregg W. Stone^{6,7}, Hendrik Treede⁸, and Jörg Hausleiter^{9,10}



ESC
European Society
of Cardiology

European Heart Journal (2021) 42, 1254–1269
doi:10.1093/eurheartj/ehab086

SPECIAL ARTICLE

Heart failure and cardiomyopathies

The management of secondary mitral regurgitation in patients with heart failure: a joint position statement from the Heart Failure Association (HFA), European Association of Cardiovascular Imaging (EACVI), European Heart Rhythm Association (EHRA), and European Association of Percutaneous Cardiovascular Interventions (EAPCI) of the ESC



ESC

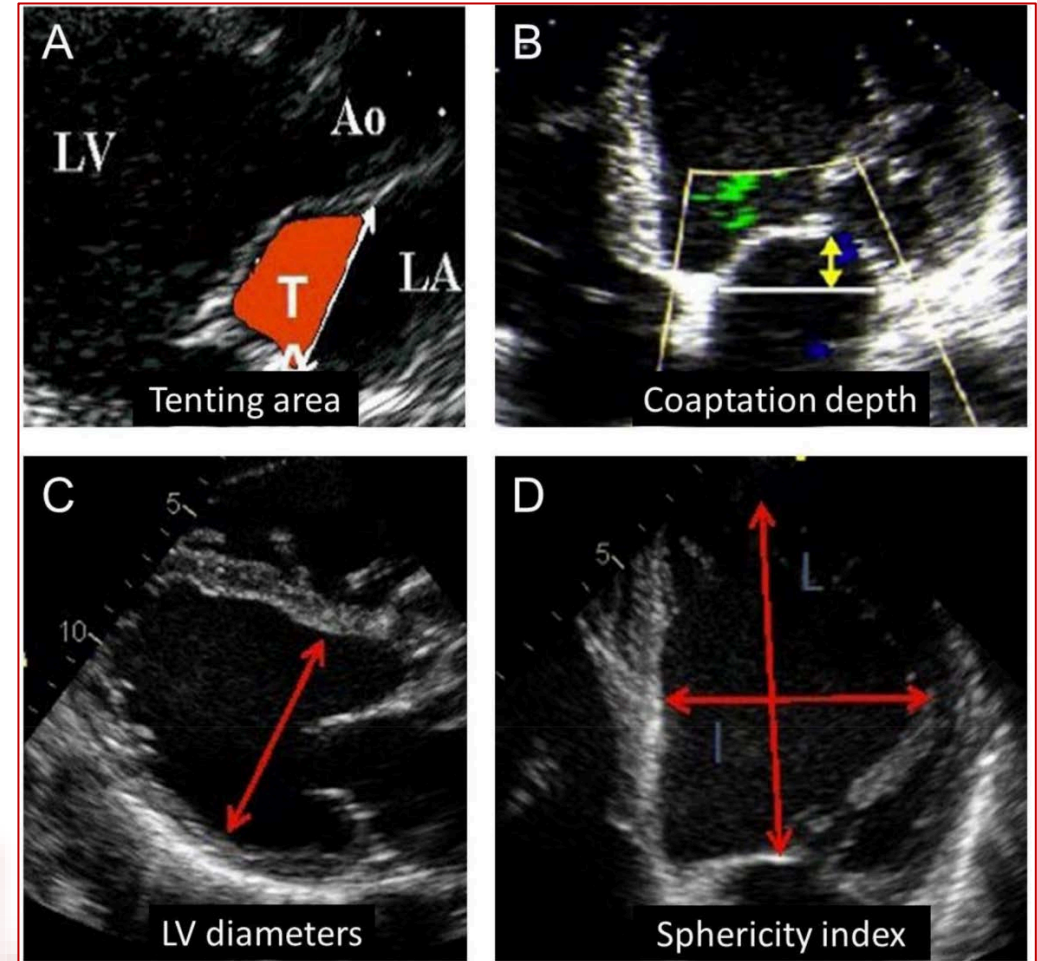
European Society of Cardiology

European Association of Percutaneous Cardiovascular Interventions (EAPCI) of the ESC

Table I Summary of the European and US guideline definitions of severe SMR

	2017 ESC guidelines ¹¹		2017 ASE guidelines ³⁵	2020 AHA/ACC guidelines ³⁴
Semi-quantitative criteria				
Vena contracta (mm)	≥7 (>8 for biplane)		≥7	—
Pulmonary vein	Pulmonary vein systolic flow reversal		Pulmonary vein systolic flow reversal	—
Inflow	E-wave dominant ≥1.5 m/s		—	—
Other	TVI mitral/TVI aortic >1.4		Central large jet > 50% of LA area	—
Quantitative criteria				
	Primary	Secondary		
EROA (mm ²)	≥40	≥20	≥40 (or 30–39 with 3 other severity criteria or elliptical orifice)	≥40
PISA radius	—	—	≥1.0 cm at Nyquist 30–40 cm/s	—
Regurgitant volume (mL)	≥60	≥30	≥60	≥60
Regurgitant fraction (%)	—	—	≥50	≥50

ACC, American College of Cardiology; AHA, American Heart Association; ASE, American Society of Echocardiography; EROA, effective regurgitant orifice area; ESC, European Society of Cardiology; LA, left atrium; PISA, proximal isovelocity surface area; TVI, time velocity integrals.



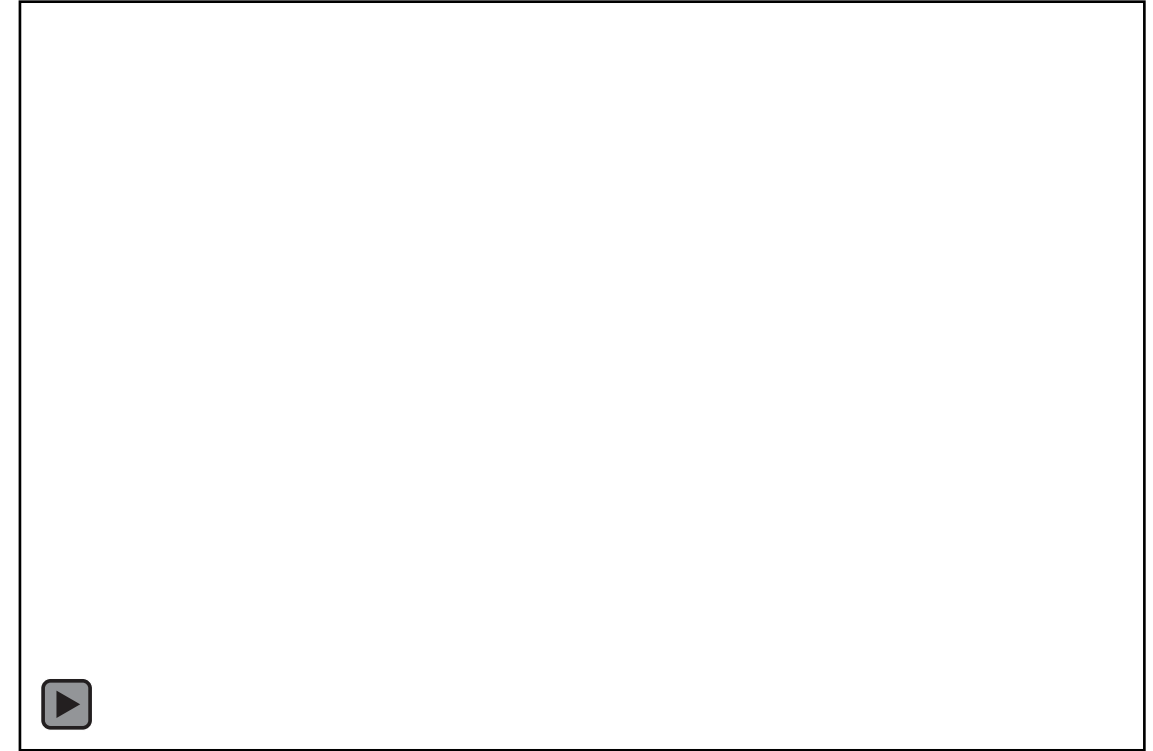
EROA ?



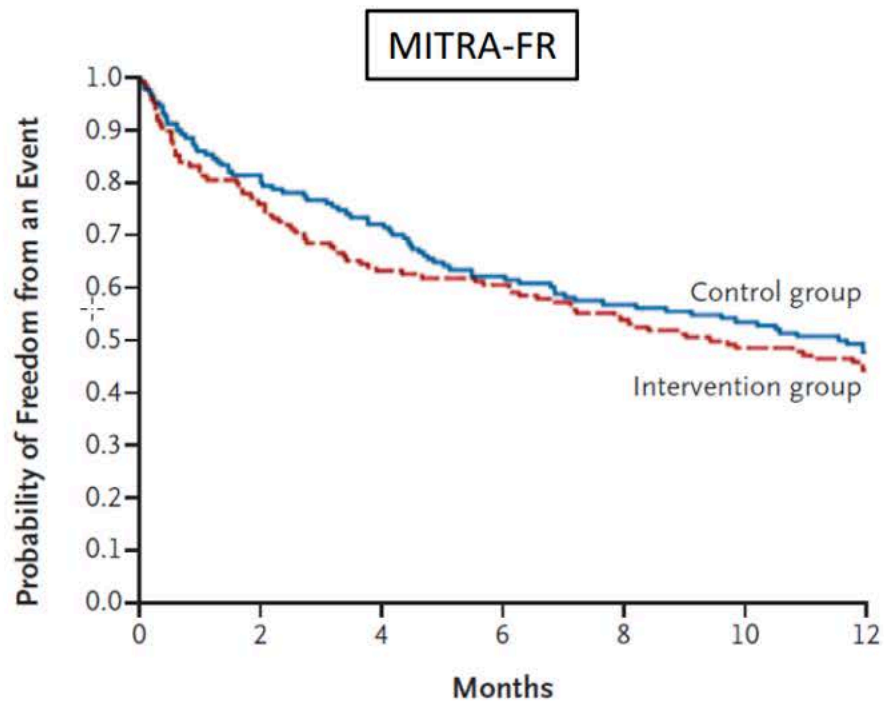
- 1-Ciddi sekonder mitral yetersizliđi
- 2-Optimal medikal tedaviye rağmen semptomatik kalp yetersizliđi (NYHA sınıf II,III,IV)
- 3-SoVEF %20-50
- 4-Sol ventrikül sistol çapı ≤ 70 mm
- 5-Son bir yılda en az bir kez kalp yetersizliđi nedeniyle hospitalizasyon veya natriüretik peptid düzeylerinin artmış olması
- 6-TEER için uygun anatominin bulunması olarak sıralanabilir

İki boyutlu ekokardiyografiye dayalı ciddi mitral yetersizliđi kriterleri

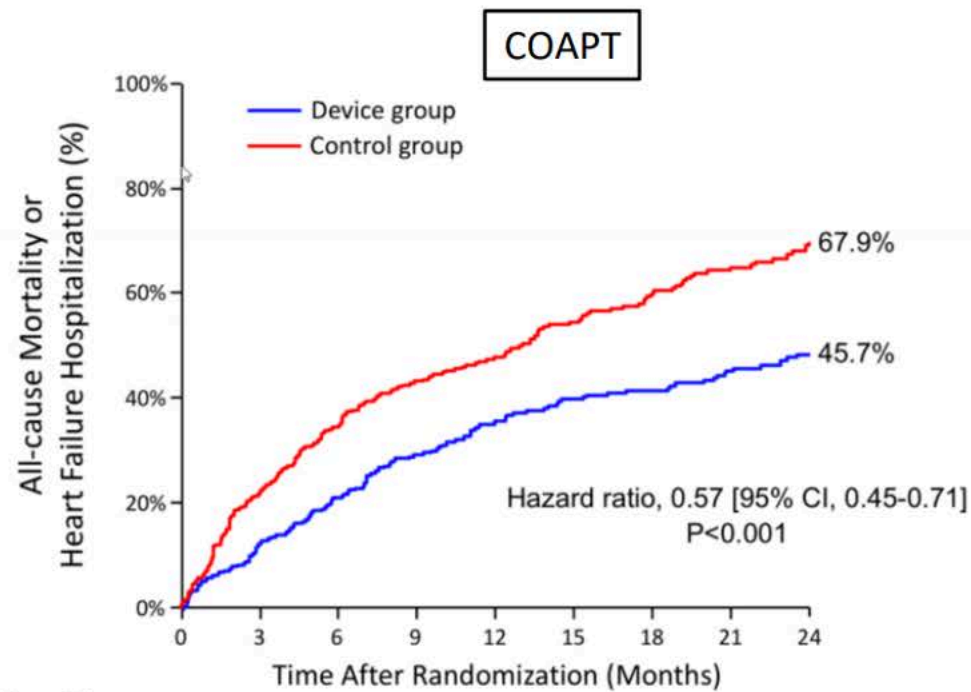
	Primer mitral yetersizliđi	Sekonder Mitral yetersizliđi
Kalitatif		
Mitral kapak morfolojisi	Flail yaprakçık, rüptüre papiller kas, ciddi retraksiyon, geniş perforasyon	Normal yaprakçıklar fakat beraberinde ciddi çadırlaşma, zayıf yaprakçık koaptasyonu
Renkli akım jet alanı	Geniş santral jet (LA'nın > 50%) veya deđişken boyutlu egzantrik duvara vuran jet	Geniş santral jet (LA'nın > 50%) veya deđişken boyutlu egzantrik duvara vuran jet
Akım konverjansı	Geniş, sistol boyunca	Geniş, sistol boyunca
Devamlı dalga Doppler jeti	Holostolik/yođun/triangüler	Holostolik/yođun/triangüler
Semikantitatif		
Vena kontrakta genişliđi (mm)	≥ 7 (Biplan için ≥ 8 mm)	≥ 7 (Biplan için ≥ 8 mm)
Pulmoner ven akımı	Sistolik akımda terse dönüř	Sistolik akımda terse dönüř
Mitral inflow	Dominant E dalgası (>1,2 m/s)	Dominant E dalgası (>1,2 m/s)
TVI mitral/TVI aortik	>1,4	>1,4
Kantitatif		
EROA (2D PISA, mm ²)	≥ 40 mm ²	≥ 40 mm ² (eliptik regurjitan orifis alanı ise ≥ 30 mm ² olabilir)
Rejurjitan volüm (ml/atım)	≥ 60 ml	≥ 60 ml (düşük akım koşulları varsa ≥ 45 ml olabilir)
Rejurjitan fraksiyon (%)	≥ 50 %	≥ 50 %
Yapısal		
Sol ventrikül	Dilate (SoSSÇ ≥ 40 mm)	Dilate
Sol atrium	Dilate (çap ≥ 55 mm veya hacim ≥ 60 ml/m ²)	Dilate



Death or HF hospitalisation



No. at Risk	0	2	4	6	8	10	12
Control group	152	123	109	94	86	80	73
Intervention group	151	114	95	91	81	73	67



No. at Risk:	0	3	6	9	12	15	18	21	24
Device group	302	264	238	215	194	154	145	126	97
Control group	312	244	205	174	153	117	90	75	55

Obadia J.-F. et al. *NEJM* 2018
Stone G. et al. *NEJM* 2018

ORIGINAL RESEARCH ARTICLE

Angiotensin Receptor Neprilysin Inhibitor for Functional Mitral Regurgitation

PRIME Study

B Comparison of included patients in COAPT, MITRA-FR and PRIME-study

	COAPT	MITRA-FR	PRIME
Number of patients	614	304	118
Age , years	72.3 ± 11.2	70.4 ± 10.0	62.6 ± 11.2
Ischemic etiology HF	61%	59%	36%
NYHA-class II/III/IV in %	39% / 52% / 9%	33% / 59% / 8%	88% / 12% / 0%
Baseline ACE-I/ARB/(ARNI) ^o	67%	83%	100%
Baseline Beta-blocker	90%	89%	88%
Baseline MRA	50%	55%	43%
Baseline loop diuretic	89%	99%	88%
LVEF, %	31 ± 9	33 ± 7	34 ± 7
LVEDVi (ml/m ²)	101 ± 34	135 ± 35	116 ± 39
Mean EROA, cm ²	0.41 ± 0.15	0.31 ± 0.10	0.20 ± 0.10
EROA < 0.40 cm ²	59%	84%	94%
EROA > 0.40 cm ²	41%	16%	6%
Follow-up duration trial	2y*	1y	1y
Primary endpoint	Recurrent HF	HF or death	Change in EROA
Annualized mortality rate	19%	23%	0.8%

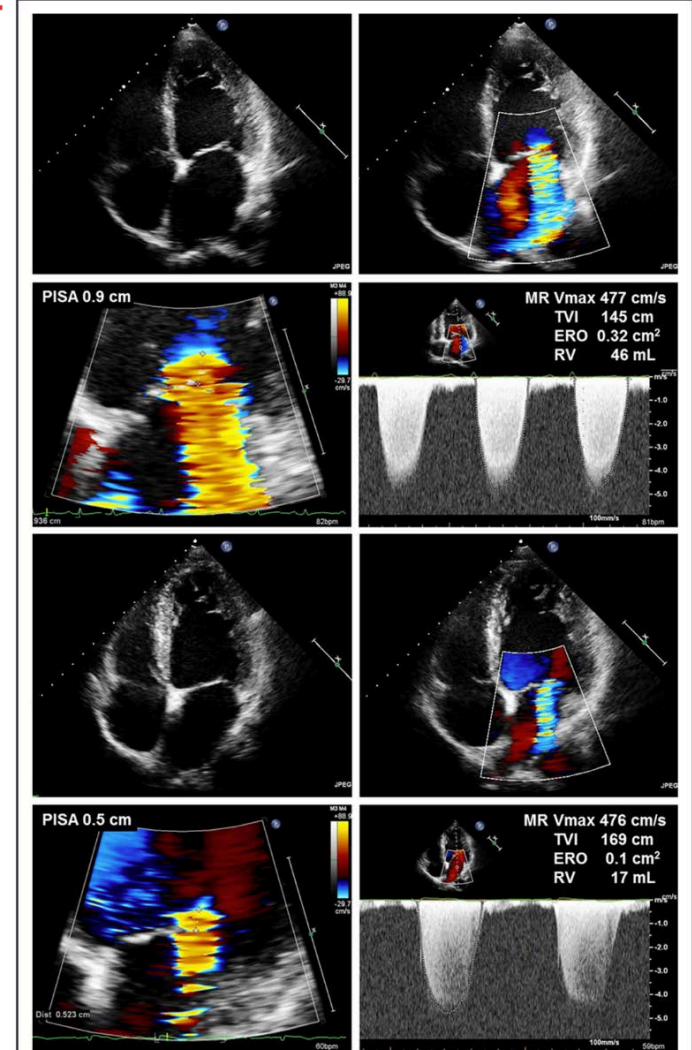


Table 2. Summary of the outcomes of the meta-analysis.

	Long-term mortality	Hospital mortality	Reoperation	Readmission	Composite endpoint
MitraClip (N=454) vs optimal medical therapy (N=464)	0.77 (0.40-1.49) P=0.44	3.35 (0.25-44.7) P=0.36	0.40 (0.22-0.72) P=0.003	0.35 (0.04-3.06) P=0.34	0.39 (0.09-1.73) P=0.21
CABG associated with mitral valve procedure (N=301) vs CABG alone (N=314)	1.10 (0.67-1.79) P=0.71	0.84 (0.31-2.24) P=0.73	2.96 (0.64-13.63) P=0.16	0.53 (0.05-5.07) P=0.58	0.72 (0.33-1.56) P=0.40
Mitral valve replacement (N=553) vs mitral valve repair (N=556)	1.12 (0.85-1.48) P=0.43	1.91 (1.18-3.12) P=0.009	0.60 (0.36-1.00) P=0.05	0.45 (0.23-0.87) P=0.02	0.95 (0.74-1.21) P=0.68
Restrictive annuloplasty with subvalvular repair (N=103) vs restrictive annuloplasty alone (N=103)	0.78 (0.35-1.73) P=0.55	0.70 (0.21-2.28) P=0.55	0.39 (0.09-1.61) P=0.19	0.50 (0.24-1.02) P=0.06	0.30 (0.12-0.74) P=0.009

Treatment options for ischemic mitral regurgitation

- medical therapy
- percutaneous repair (MitraClip)
- CABG
- CABG + mitral valve replacement
- CABG + mitral valve repair
 - annular
 - annular + subvalvular

meta-analysis of high-quality evidences
12 studies (8 RCTs and 4 PSMs)
2848 patients

	Long-term mortality	Hospital mortality	Reoperation	Readmission	Composite endpoint
MitraClip (N=454) vs optimal medical therapy (N=464)	=	=	Mitraclip better	=	=
CABG associated with mitral valve procedure (N=301) vs CABG alone (N=314)	=	=	=	=	=
Mitral valve replacement (N=553) vs mitral valve repair (N=556)	=	Repair better	Replacement better	Replacement better	=
Restrictive annuloplasty with subvalvular repair (N=103) vs restrictive annuloplasty alone (N=103)	=	=	=	Subvalvular repair better	Subvalvular repair better

**Mitral valve repair has better short-term outcomes than replacement.
The adjunct of subvalvular procedures reduces the risk of major postoperative adverse events.**

GDMT With ARNI Linked to Less MR, May Obviate Need for Interventions

Before TEER or surgery, patients with MR should be optimized on GDMT with sacubitril/valsartan for at least 6 months, say experts.

by [Michael O’Riordan](#) | OCTOBER 04, 2022

The investigator-initiated analysis, which was published October 2, 2022, in *Circulation* to coincide with a late-breaking presentation at the Heart Failure Society of America (HFSA) 2022 meeting in Washington, DC, provides insights into the type of improvements that physicians might expect in terms of MR severity when switching patients from usual care with ACE inhibitor or ARB to the angiotensin receptor-neprilysin inhibitor (ARNI), said Januzzi.

Gregg Fonarow, MD (University of California, Los Angeles), who wasn't involved in PROVE-HF, said the new analysis is an important contribution as it looks at treatments that weren't standard during COAPT, which showed the effectiveness of TEER with MitraClip (Abbott) in patients with functional MR. In that study, just 2.9% of patients randomized to medical therapy were treated with an ARNI; in MITRA-FR, which failed to show any advantage with TEER over GDMT, the percentage of ARNI use was slightly higher at 12.1%.

The main PROVE-HF study, published in 2019, showed that sacubitril/valsartan was associated with significant reverse remodeling, but investigators had not yet analyzed the association with MR severity.

“ Without a course—a minimum 6-month course of sacubitril/valsartan—it would be premature to decide that someone should go directly to a valve procedure.

James Januzzi Jr

Sakubitril/valsartan ilə müalicədən altı ay sonra orta-ağır MR olan xəstələrin faizi 8,2%-ə qədər azaldı ki, bu da 44,7% nisbi azalma idi. Bu yaxşılaşma 12 aya qədər davam etdi. Tədqiqatçılar həmçinin sakubitril/valsartan ilə müalicəyə cavab verən, MR şiddətinin 2+-dən aşağı azalması kimi müəyyən edilən orta və ağır MR olanların ilkin və exokardioqrafik xüsusiyyətlərini qiymətləndirdilər. Januzzi, cavab verməyənləri əvvəlcədən müəyyən etməklə, onların daha tez mitral qapaq müdaxiləsinə göndərilə biləcəyini söylədi.

He added that if patients were treated with a sodium-glucose cotransporter2 (SGLT2) inhibitor as part of GDMT, a drug class also not standard at the time of the randomized TEER trials that is now considered part of the **four pillars of HF therapy** (alongside an ARNI, beta-blocker, and mineralocorticoid receptor antagonist), the proportion who saw an improvement in MR may have increased even more.

PROVE-HF sınağı, ARNİnin mədəciklərin remodelingini yaxşılaşdırmaqda və MR-nin şiddətini azaltmaqda GDMT-nin effektivliyini söylədi. PROVE-HF-də xəstələr orta hesabla 50 ay ərzində tibbi terapiya ilə müalicə olunublar.

•*Januzzi JJ, Omar AMS, Liu Y, et al. Association between sacubitril/valsartan and mitral regurgitation severity in heart failure with reduced ejection fraction: the PROVE-HF study. Circulation 2022.*

A Clinical Evaluation of the Safety and Effectiveness of the MitraClip System in the Treatment of Clinically Significant Functional Mitral Regurgitation (Reshape-HF2)

> [Eur Heart J Cardiovasc Imaging](#). 2022 Jun 1;23(6):755-764. doi: 10.1093/ehjci/jeac068.

Guideline directed medical therapy and reduction of secondary mitral regurgitation

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Affiliations + expand

PMID: 35466372 DOI: [10.1093/ehjci/jeac068](https://doi.org/10.1093/ehjci/jeac068)

Should SGLT2i be used prior to transcatheter edge-to-edge repair for secondary mitral regurgitation?

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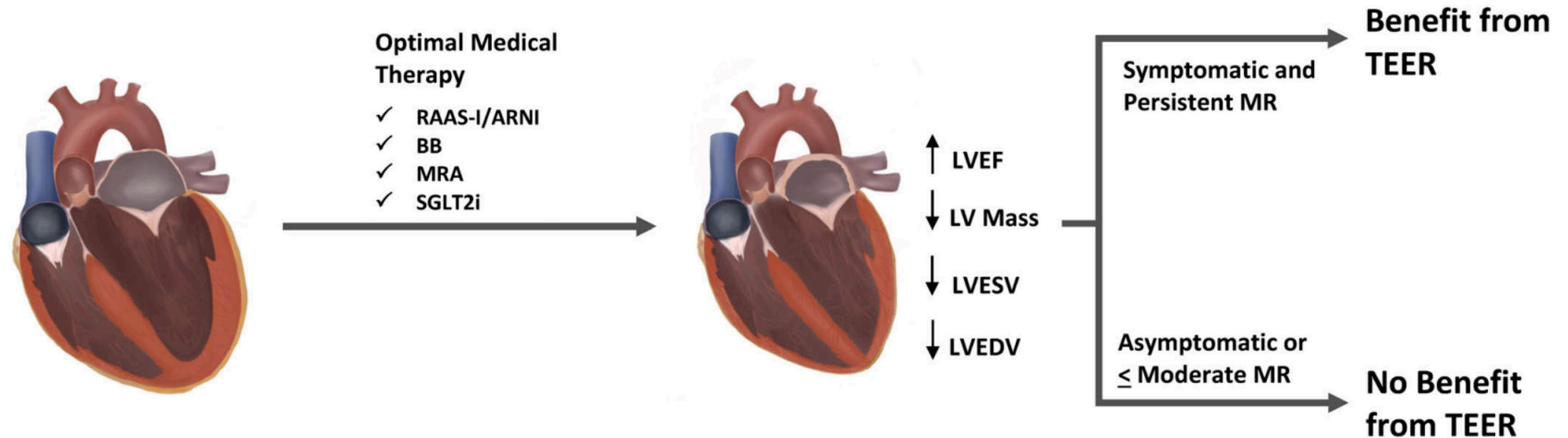
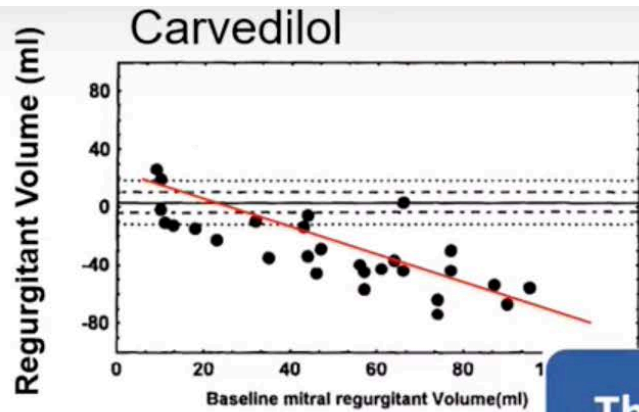


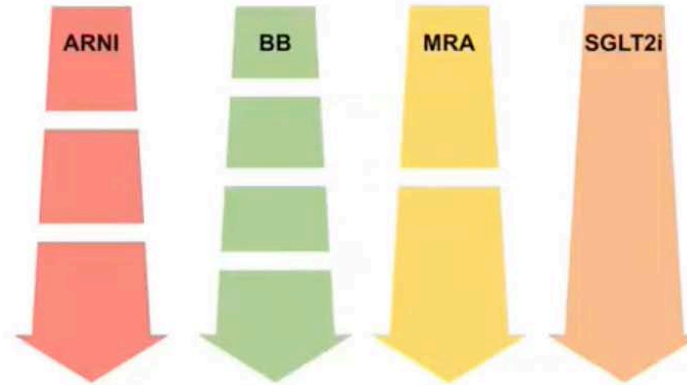
FIGURE 1 Effect of optimal medical therapy prior to transcatheter mitral valve repair. Optimal medical therapy with agents proven to reverse cardiac remodeling is necessary in order to achieve benefit from mitral valve TEER. Once optimized, only those who remain symptomatic with > moderate MR will benefit from intervention. ARNI, angiotensin receptor-neprilysin inhibitor; BB, beta-blocker; LV, left ventricular; LVEDV, left ventricular end diastolic volume; LVEF, left ventricular ejection fraction; LVESV, left ventricular end systolic volume; MR, mitral regurgitation (secondary); MRA, mineralocorticoid receptor antagonist; RAAS-I, renin-angiotensin-aldosterone system inhibitor; SGLT2i, sodium-glucose cotransporter-2 inhibitor; TEER, transcatheter edge-to-edge-repair (mitral valve)



Carvedilol
Capomalla et al 2000

Ertugliflozin for Functional Mitral Regurgitation (EFFORT)

The Four Pillars of Heart Failure



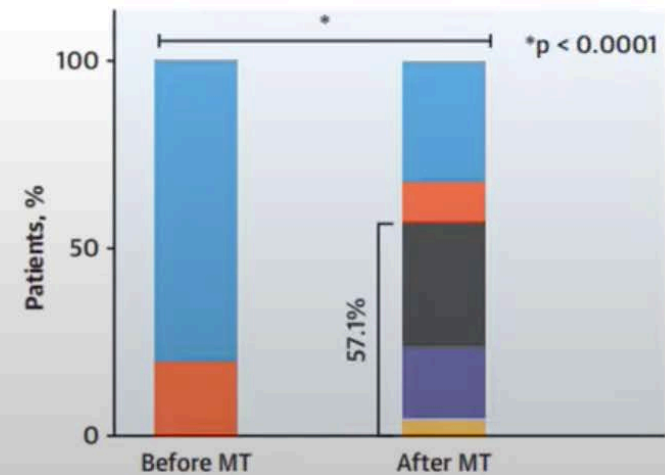
Circulation

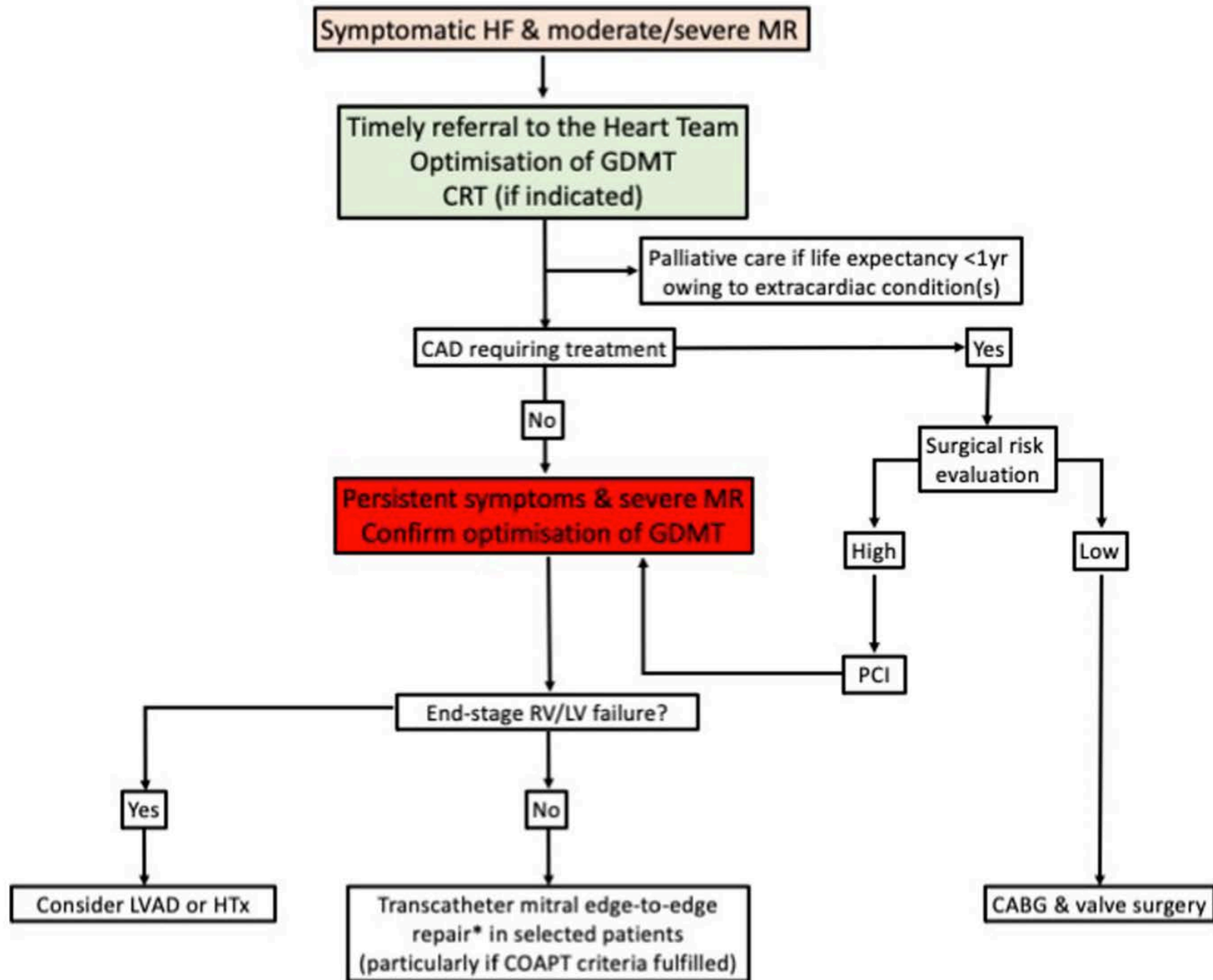
ORIGINAL RESEARCH ARTICLE

Angiotensin Receptor Neprilysin Inhibitor for Functional Mitral Regurgitation

PRIME Study

RESULTS: The decrease in effective regurgitant orifice area was significantly greater in the sacubitril/valsartan group than in the valsartan group (-0.058 ± 0.095 versus -0.018 ± 0.105 cm^2 ; $P=0.032$) in an intention-to-treat analysis including 117 (99%) patients. Regurgitant volume was also significantly decreased in the sacubitril/valsartan group in comparison



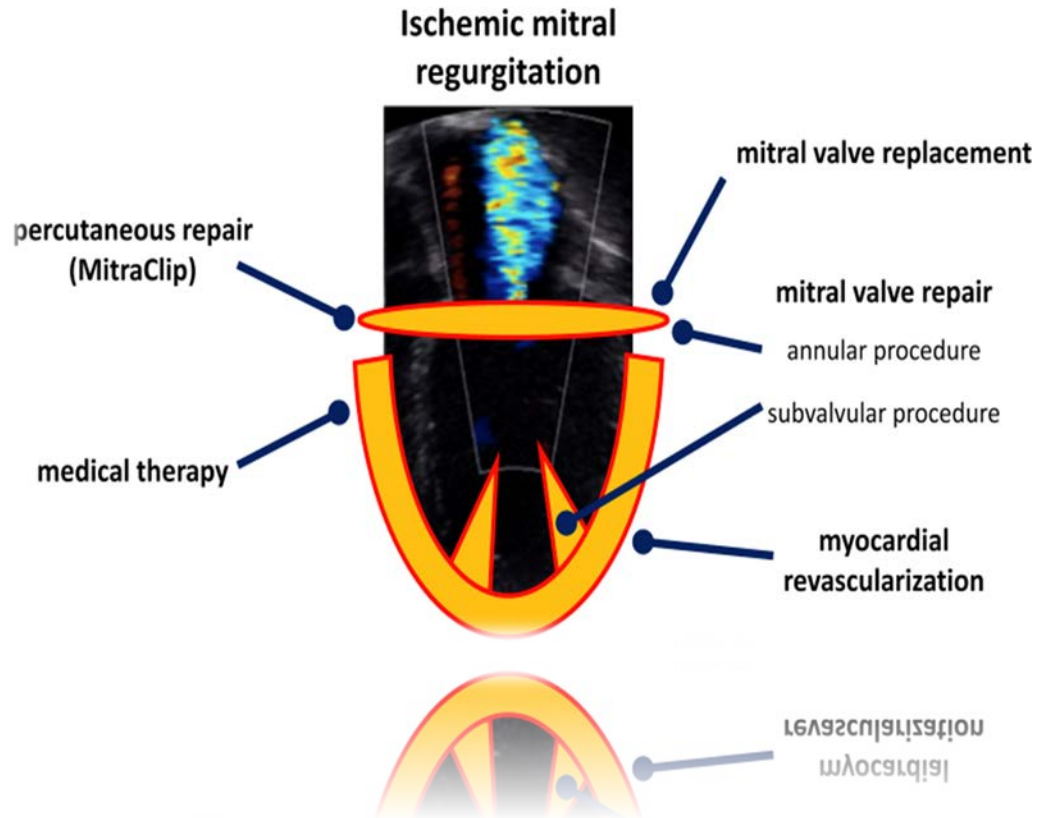


Recommendations on indications for mitral valve intervention in chronic severe secondary mitral regurgitation

Recommendations	Class	Level
Valve surgery/intervention is recommended only in patients with severe SMR who remain symptomatic despite GDMT (including CRT if indicated) and has to be decided by a structured collaborative Heart Team.	I	B
<i>Patients with concomitant coronary artery or other cardiac disease requiring treatment</i>		
Valve surgery is recommended in patients undergoing CABG or other cardiac surgery.	I	B
In symptomatic patients, who are judged not appropriate for surgery by the Heart Team on the basis of their individual characteristics, PCI (and/or TAVI) possibly followed by TEER (in case of persisting severe SMR) should be considered.	IIa	C

Recommendations on indications for mitral valve intervention in chronic severe secondary mitral regurgitation

Recommendations	Class	Level
<i>Patients without concomitant coronary artery or other cardiac disease requiring treatment</i>		
TEER should be considered in selected symptomatic patients, not eligible for surgery and fulfilling criteria suggesting an increased chance of responding to the treatment.	IIa	B
Valve surgery may be considered in symptomatic patients judged appropriate for surgery by the Heart Team.	IIb	C
In high-risk symptomatic patients not eligible for surgery and not fulfilling the criteria suggesting an increased chance of responding to TEER, the Heart Team may consider in selected cases a TEER procedure or other transcatheter valve therapy if applicable, after careful evaluation for ventricular assist device or heart transplant.	IIb	C



➡ Orta və ağır işemik mitral regurgitasiya (IMR) üçün optimal müalicə seçimi kardiologiya və ürək cərrahiyyəsi camiasında problem olaraq qalır.

➡ Əsasən də irəli LV disfunksiyası olan xəstələr üçün.

➡ Şimali Amerika və Avropada orta və ağır İMR olan xəstələrin əksəriyyəti əsasən kardiomiopatiyanın müalicəsinə yönəldilir – rəhbər tövsiyələrə əsaslanan tibbi terapiya (GDMT) və resinxronizasiya (CRT) istifadə edərək.

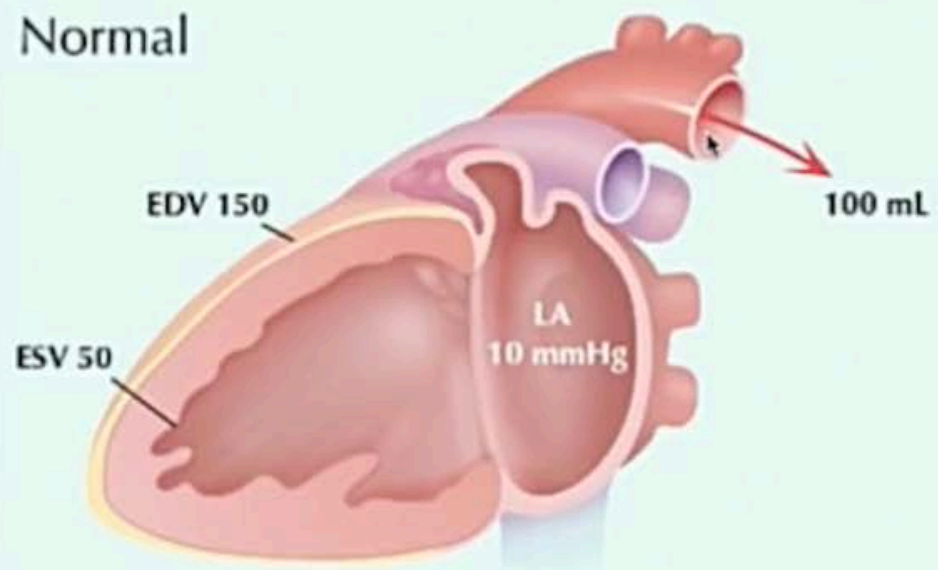
➡ Mitral qapaq cərrahiyyəsinin əhəmiyyətli bir klinik faydası uzun dövəmdə olmamışdır.

➡ GDMT qəbul edənlərlə müqayisədə cərrahiyyə əməliyyatı keçirən xəstələr üçün sağ qalım üstünlüyü qeyd edilmir.

evə mesaj

- ➡ İşemik mitral çatışmazlıq gözardı edilməməlidir
- ➡ Papillar əzələ difunksiyası terminindən imtina edilməlidir
- ➡ CABG və mitral cərrahi girişim edilməyibsə, perkutan mitral qapaq müdaxiləsi planlanan pasientlərə 6 aylıq GDMT verilməlidir, sonra perkutan müdaxilə düşünüləməlidir
- ➡ Ventrikul performansı yaxşı olmayan və ciddi mitral çatışmazlıq xəstələrində GDMT mütləq şəkildə uygulanmalıdır.
- ➡ Multidisiplinər yaxınlaşma vacibdir (ESC guidelines Class IC)

Normal



Acute MR

