Xronik koronar Sindrom müalicəsində son dayanacaq

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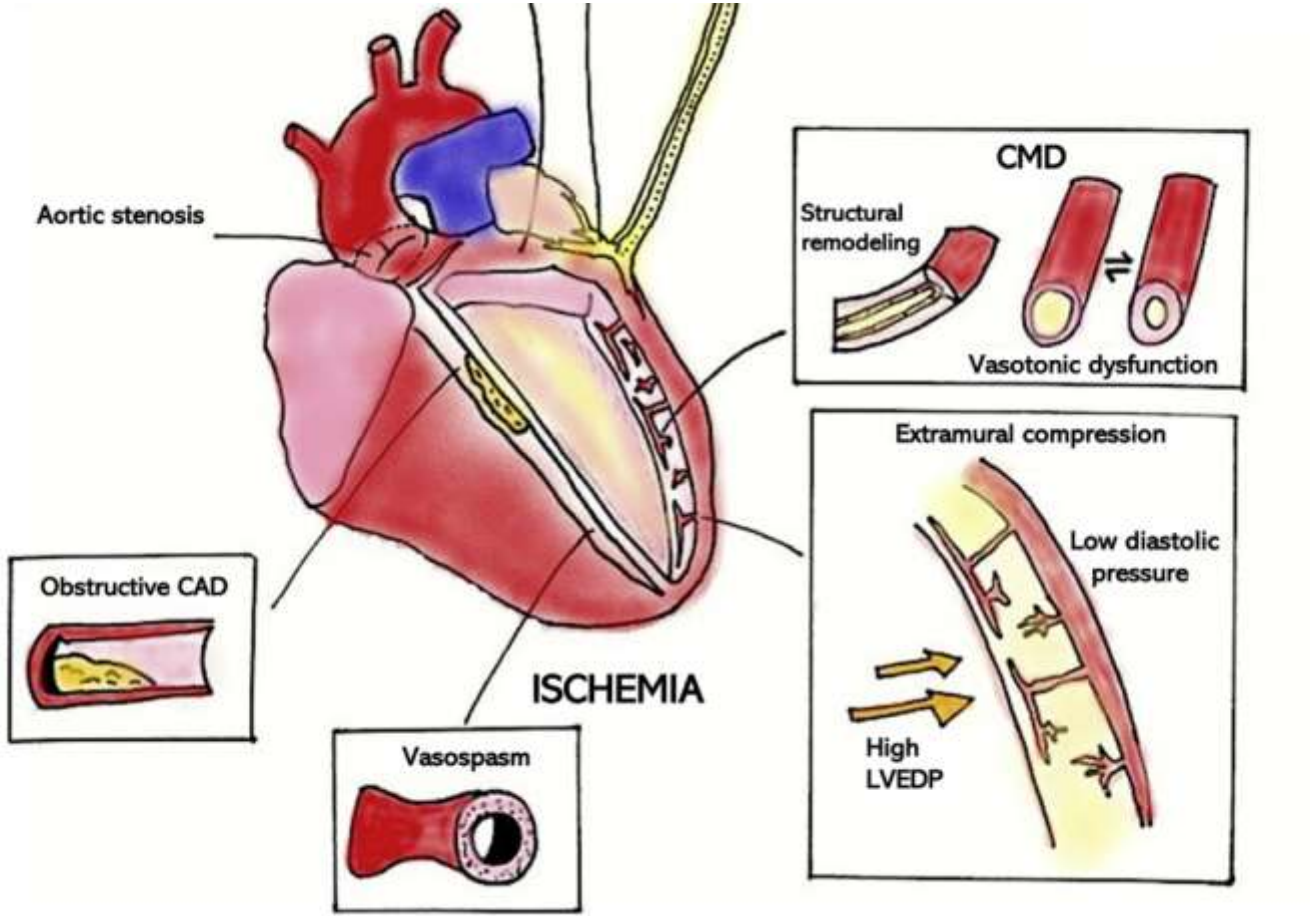
MD, PhD, FESC, FSCAİ
UNİVERSAL HOSPİTAL

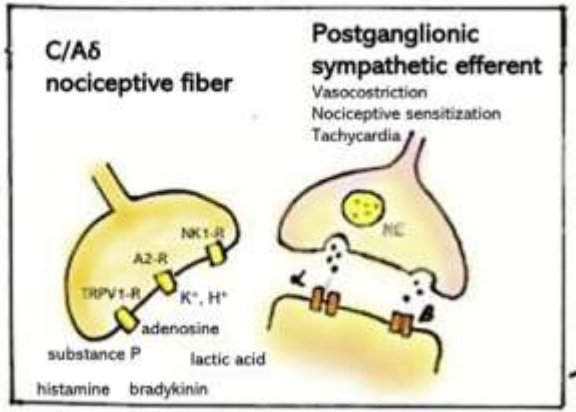

BUS
STOP

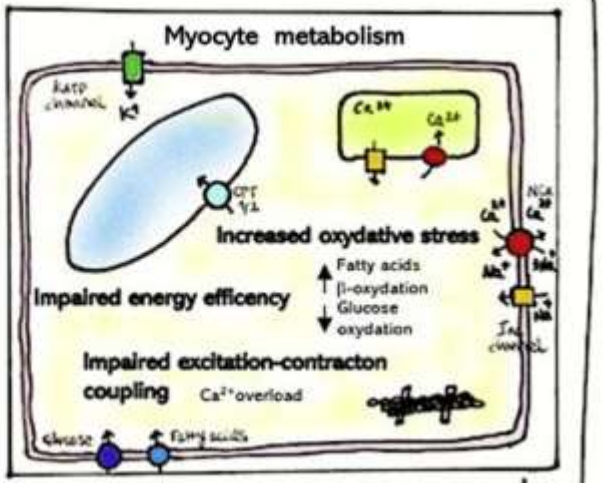
Askarid ilə xronik stenokardiyanın əlaqəsi nədir?

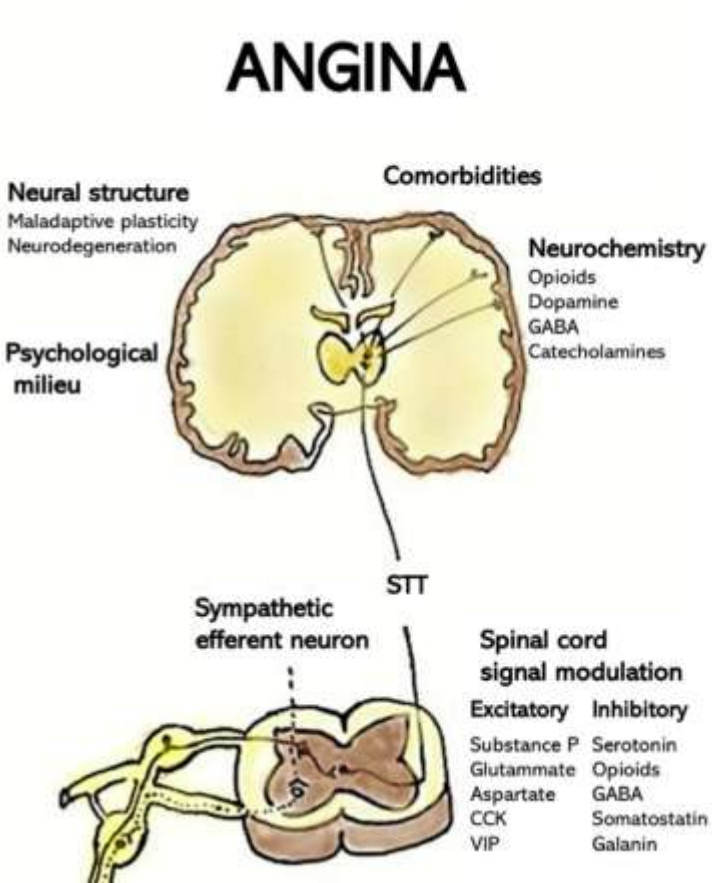
Stenokardiya mexanizmi



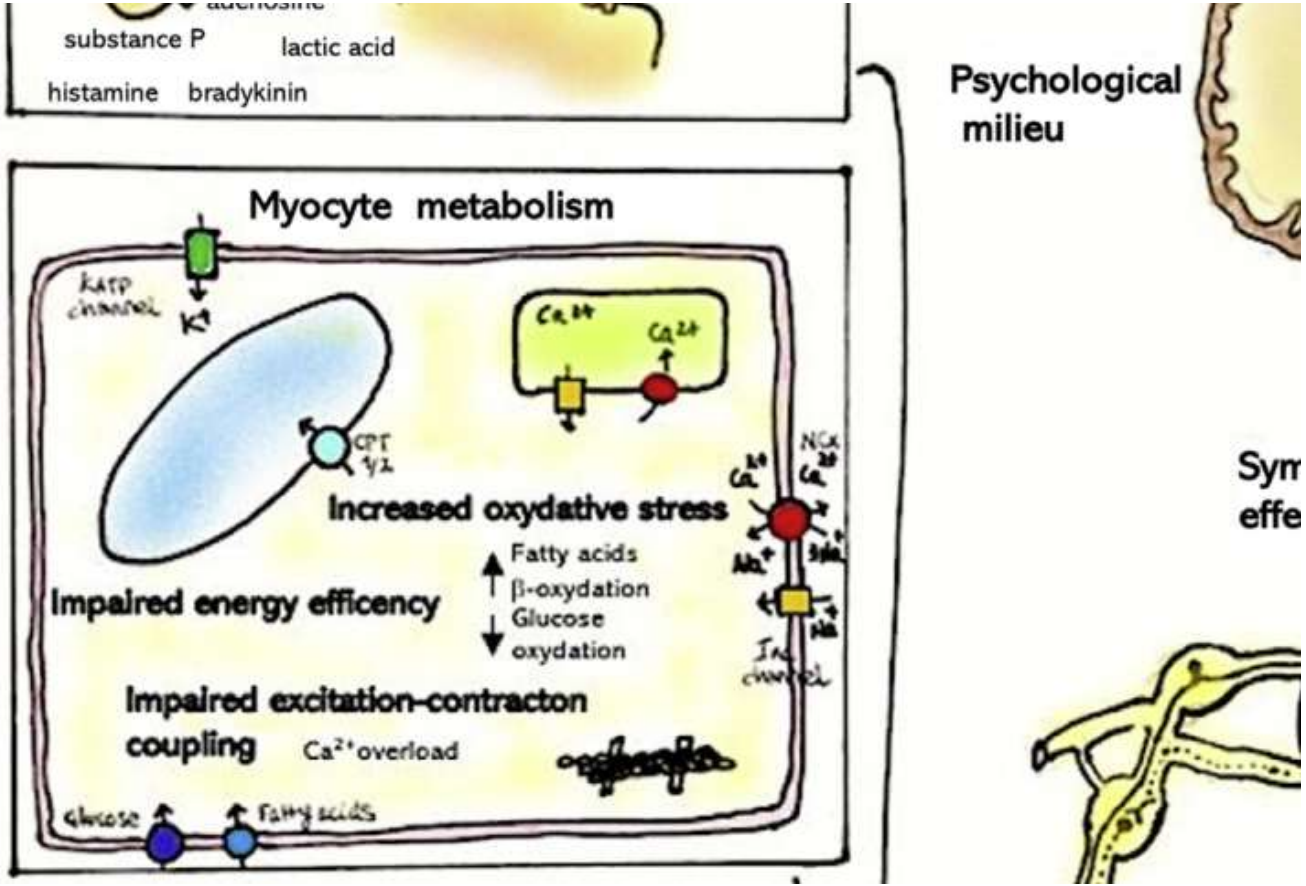
Stenokardiya mexanizmi



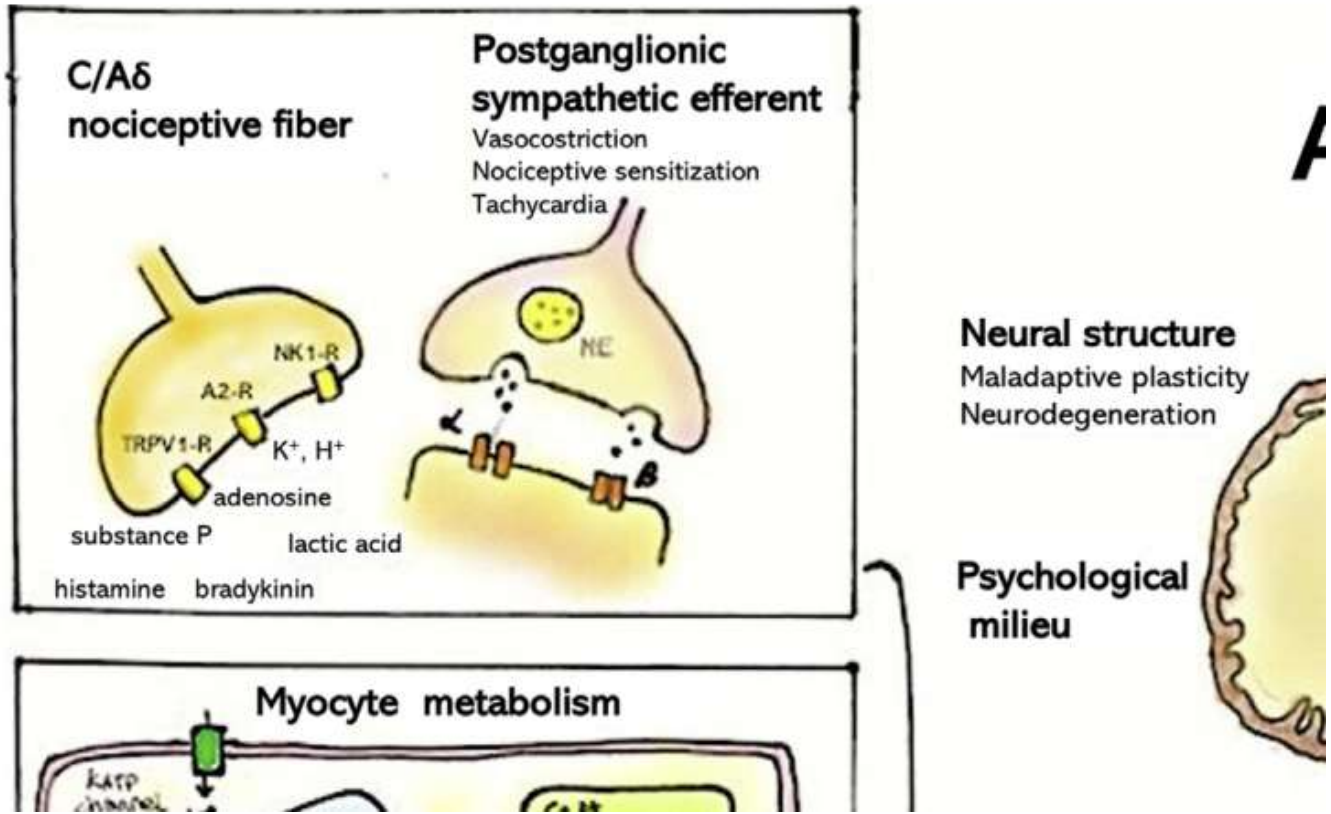




Stenokardiya mexanizmi



Stenokardiya mexanizmi



Klinik hal 1

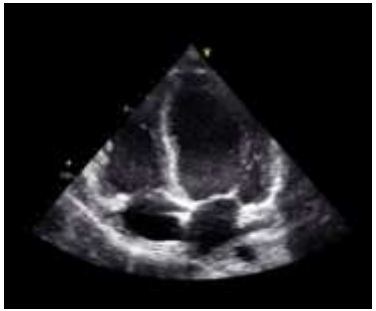
Anamnez

- 60 yaş kişi
- BKİ 30 kq/m^2
- Şikayətləri son 6 aydır yaranıb.
- 200 metr sürətli yol getdikdə stenokardiya
- ŞD, AH, HLP anamnezi var.
- Ailə hekayəsi pozitiv

Analizlər və müayinələr

- AT 130/80, Antihipertenziv almır
- ÜVS 60
- HbA1C – 7.5%
- LDL 167 mg/dL, HDL 32 mg/dL
- Kreatinin 0.7 mg/dL

EKQ - Normal

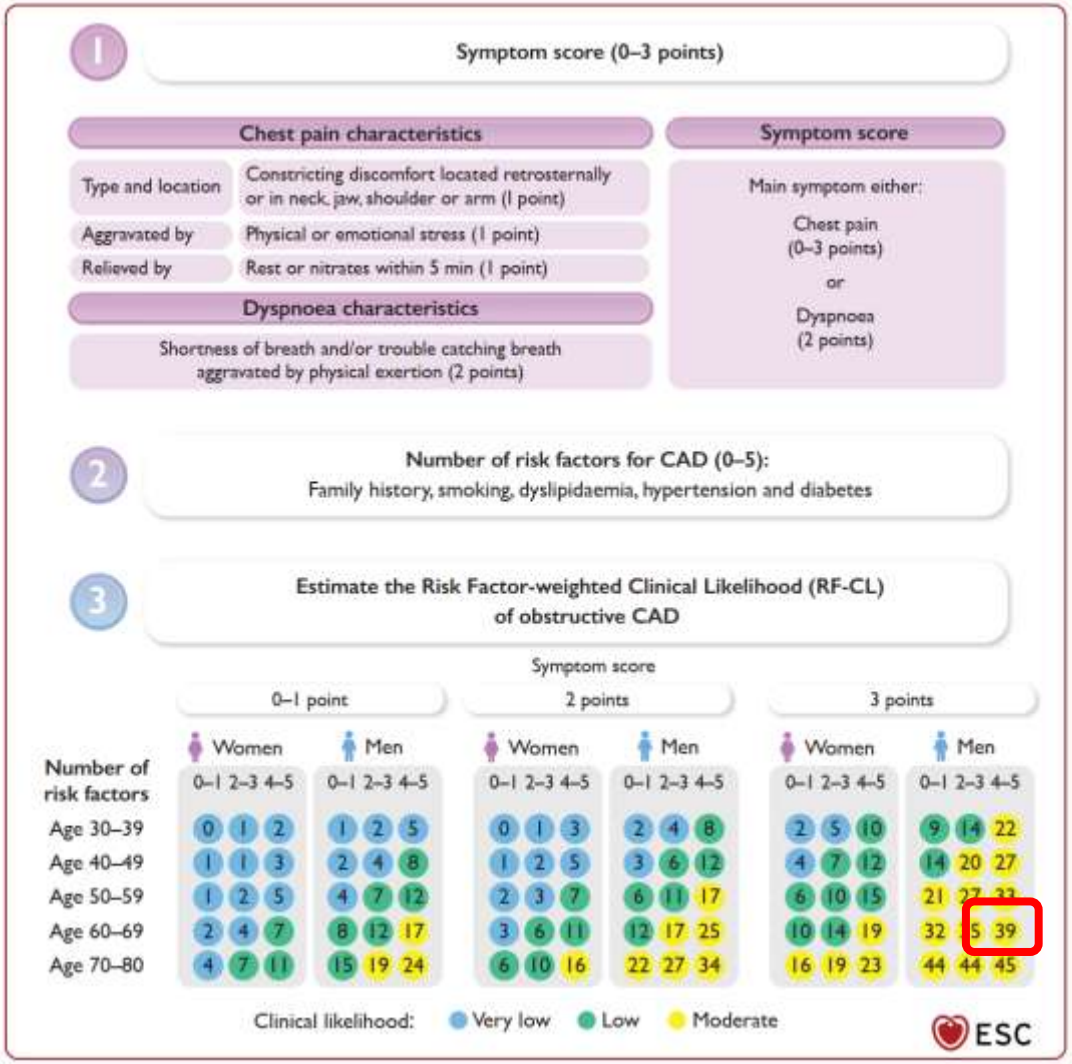


ExoKQ - Normal

Bu xəstənin sonrakı müayinəsi necə olmalıdır?

Bəlkə bir anjio edək?

1-ci addım


1
Symptom score (0–3 points)
Chest pain characteristics
Type and location
Constricting discomfort located retrosternally or in neck, jaw, shoulder or arm (1 point)
Aggravated by
Physical or emotional stress (1 point)
Relieved by
Rest or nitrates within 5 min (1 point)
Dyspnoea characteristics
Shortness of breath and/or trouble catching breath aggravated by physical exertion (2 points)
Symptom score
Main symptom either:
Chest pain (0–3 points)
or
Dyspnoea (2 points)
2
Number of risk factors for CAD (0–5):
Family history, smoking, dyslipidaemia, hypertension and diabetes
3
Estimate the Risk Factor-weighted Clinical Likelihood (RF-CL) of obstructive CAD
Symptom score
0–1 point
2 points
3 points
Women
Men
Number of risk factors
0–1 2–3 4–5
Age 30–39
0 1 2 | 1 2 5 | 0 1 3 | 2 4 8 | 2 5 10 | 9 14 22
Age 40–49
1 1 3 | 2 4 8 | 1 2 5 | 3 6 12 | 4 7 12 | 14 20 27
Age 50–59
1 2 5 | 4 7 12 | 2 3 7 | 6 11 17 | 6 10 15 | 21 27 33
Age 60–69
2 4 7 | 8 12 17 | 3 6 11 | 12 17 25 | 10 14 19 | 32 35 39
Age 70–80
4 7 11 | 15 19 24 | 6 10 16 | 22 27 34 | 16 19 23 | 44 44 45
Clinical likelihood:
Very low
Low
Moderate
ESC

2-ci addım

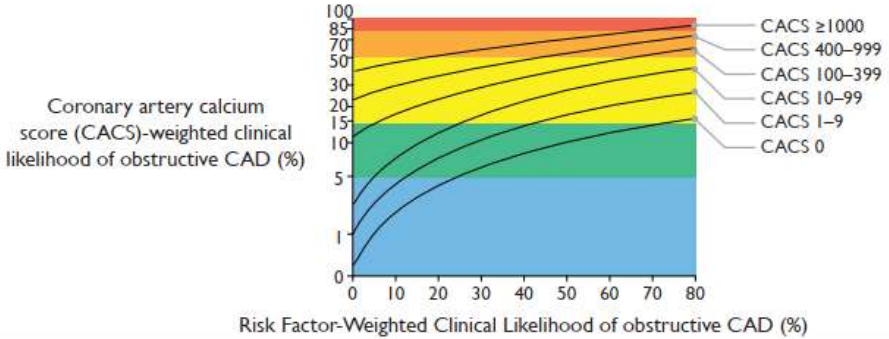
Age 60–69	2	4	7	8	12	17	3	6	11	12	17	25	10	14	19	32	35	39
Age 70–80	4	7	11	15	19	24	6	10	16	22	27	34	16	19	23	44	44	45

Clinical likelihood: Very low Low Moderate

2 **Adjust clinical likelihood based on abnormal clinical findings** (Class I)

- Resting ECG changes (Q-wave or ST-segment/T-wave changes)
- Exercise ECG with abnormal findings
- LV dysfunction (severe or segmental)
- Ventricular arrhythmia
- Peripheral artery disease
- Coronary calcification on pre-existing chest CT

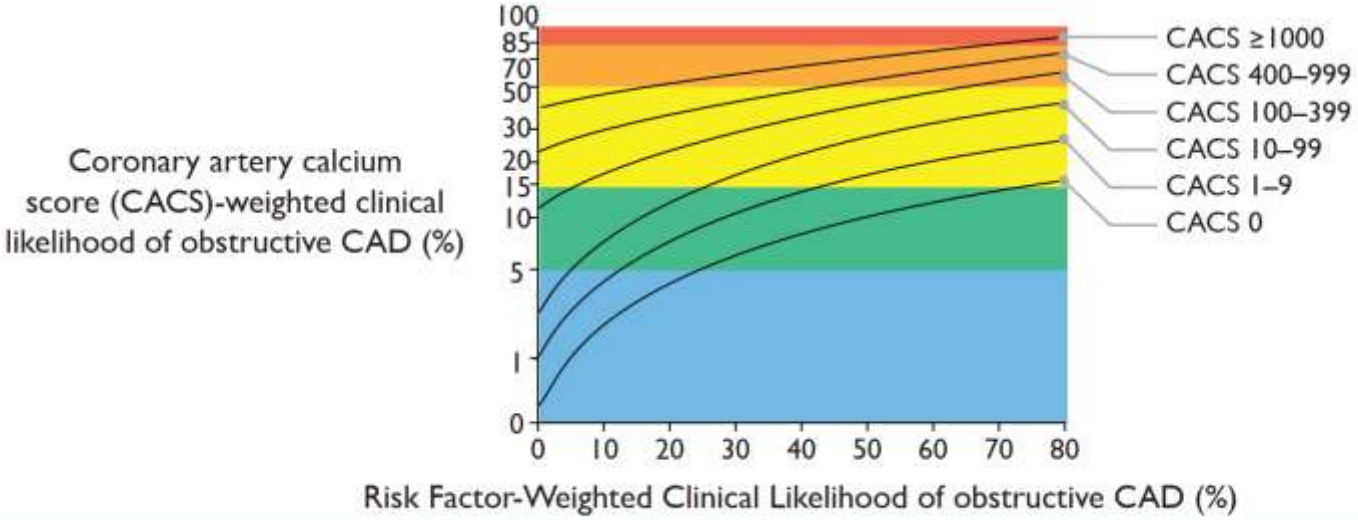
3 **Consider reclassification of low RF-CL (>5–15%) using CACS to identify very low (≤5%) CACS-CL** (Class IIa)



ESC

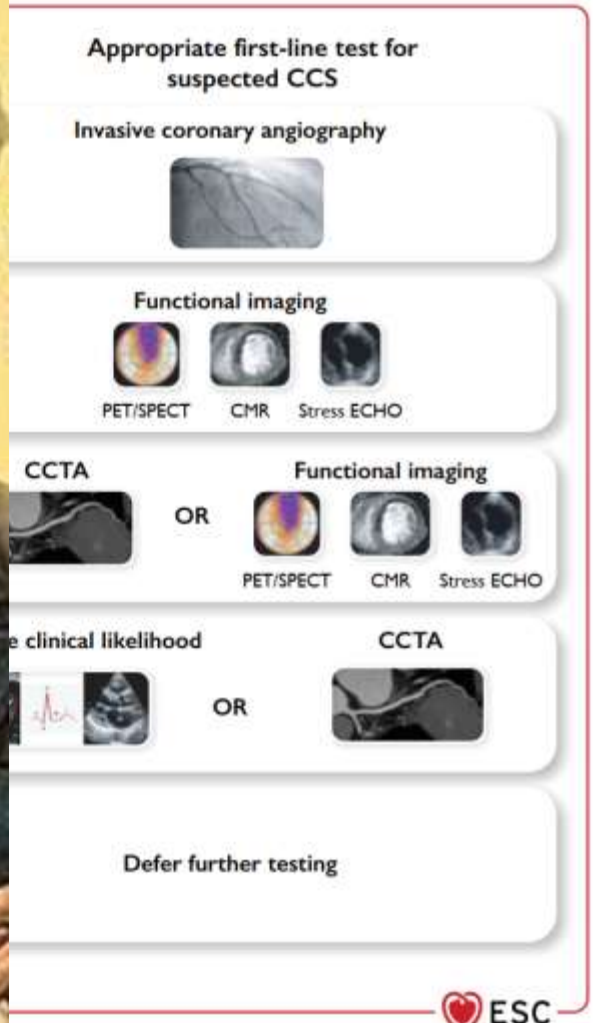
3-ci addım

3 Consider reclassification of low RF-CL (>5–15%) using CACS to identify very low (≤5%) CACS-CL **(Class IIa)**

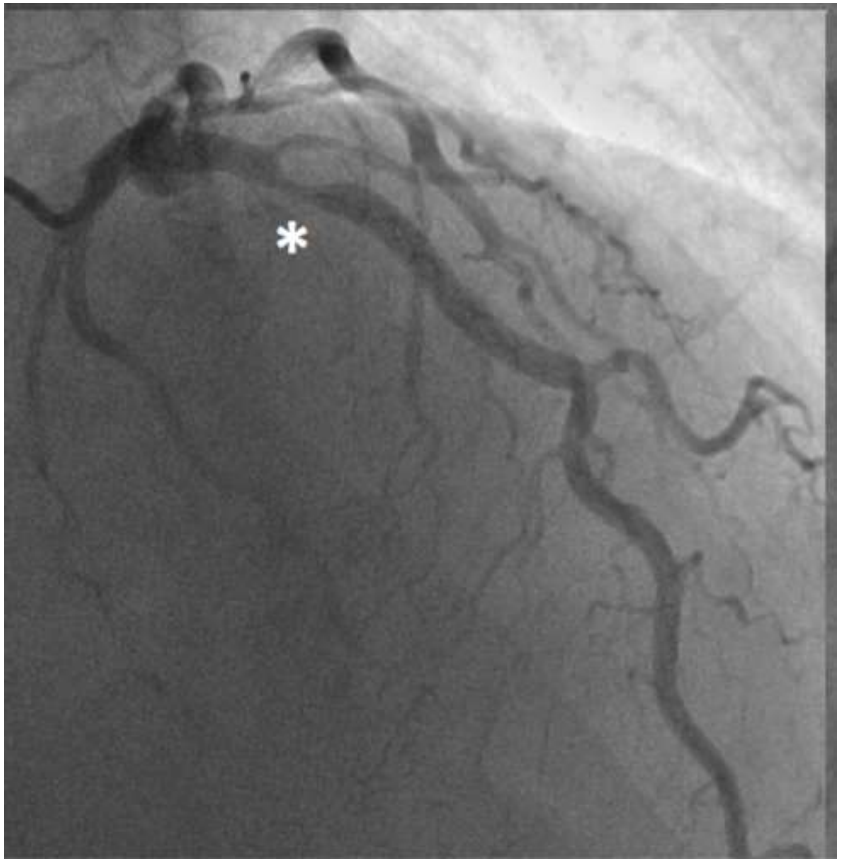


4-ci addım


HET!


Appropriate first-line test for suspected CCS
Invasive coronary angiography
Functional imaging
PET/SPECT
CMR
Stress ECHO
CCTA
OR
Functional imaging
PET/SPECT
CMR
Stress ECHO
clinical likelihood
CCTA
OR
Defer further testing
ESC

Angioqrafiya

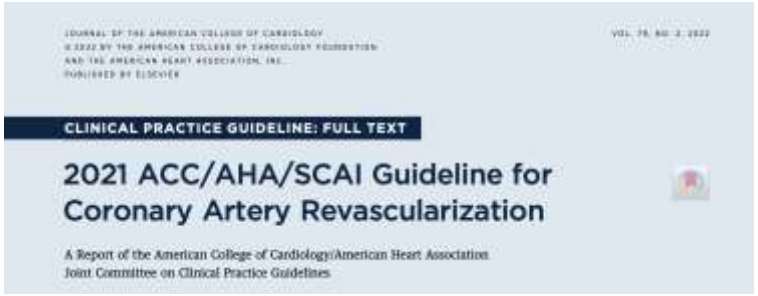


- LAD 85%
- RCA 30%
- CX 30%

Bu xəstəyə necə yanaşarıq?

- Dərman müaliceəsi ?
- Angioplastika+OMT ?

Ən son rəhbər tövsiyyələr nə deyir?



Stenosis in the proximal LAD artery

2b	B-R

7. In patients with SIHD, normal left ventricular ejection fraction, and significant stenosis in the proximal LAD, the usefulness of coronary revascularization to improve survival is uncertain (10,14,17,24-27).

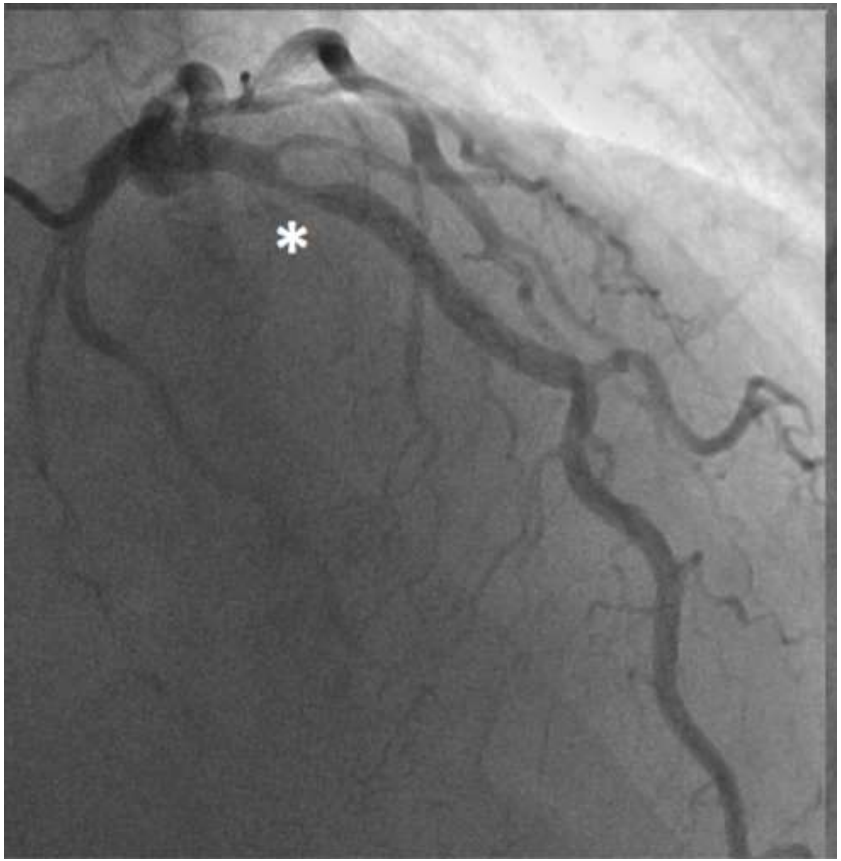
ESC European Society of Cardiology
European Heart Journal (2024) **45**, 3415–3537
https://doi.org/10.1093/eurheartj/ehae177

2024 ESC Guidelines for the management of chronic coronary syndromes

Developed by the task force for the management of chronic coronary syndromes of the European Society of Cardiology (ESC)

Revascularization to improve outcomes		
In chronic coronary syndrome patients with left ventricular ejection fraction >35%		
In CCS patients with LVEF >35%, myocardial revascularization is recommended, in addition to guideline-directed medical therapy, for patients with functionally significant left main stem stenosis to improve survival.[718,719,859,860]	I	A
In CCS patients with LVEF >35%, myocardial revascularization is recommended, in addition to guideline-directed medical therapy, for patients with functionally significant three-vessel disease to improve long-term survival and to reduce long-term cardiovascular mortality and the risk of spontaneous myocardial infarction.[55,56,317,732–734]	I	A
In CCS patients with LVEF >35%, myocardial revascularization is recommended, in addition to guideline-directed medical therapy, for patients with functionally significant single- or two-vessel disease involving the proximal LAD, to reduce long-term cardiovascular mortality and the risk of spontaneous myocardial infarction.[55,56,317,719,732–734]	I	B
In chronic coronary syndrome patients with left ventricular ejection fraction ≤35%		

Angioqrafiya



Bəs bu xəstəyə necə yanaşarıq?

- Dərman müaliçəsi ?
- Angioplastika+OMT ?

ISCHEMİA Trial

The NEW ENGLAND JOURNAL of MEDICINE

ESTABLISHED IN 1812 APRIL 9, 2020 VOL. 382 NO. 15

Initial Invasive or Conservative Strategy for Stable Coronary Disease

D.J. Maron, J.S. Hochman, H.R. Reynolds, S. Bangalore, S.M. O'Brien, W.E. Boden, B.R. Chaitman, R. Senior, J. López-Sendón, K.P. Alexander, R.D. Lopes, L.J. Shaw, J.S. Berger, J.D. Newman, M.S. Sidhu, S.G. Goodman, W. Ruzyllo, G. Gosselin, A.P. Maggioni, H.D. White, B. Bhargava, J.K. Min, G.B.J. Mancini, D.S. Berman, M.H. Picard, R.Y. Kwong, Z.A. Ali, D.B. Mark, J.A. Spertus, M.N. Krishnan, A. Elghamaz, N. Moorthy, W.A. Hueb, M. Demkow, K. Mavromatis, O. Bockeria, J. Peteiro, T.D. Miller, H. Szwed, R. Doerr, M. Keltai, J.B. Selvanayagam, P.G. Steg, C. Held, S. Kohsaka, S. Mavromichalis, R. Kirby, N.O. Jeffries, F.E. Harrell, Jr., F.W. Rockhold, S. Broderick, T.B. Ferguson, Jr., D.O. Williams, R.A. Harrington, G.W. Stone, and Y. Rosenberg, for the ISCHEMIA Research Group*

Total 5179 patients: 2588 undergo PCI, 2591receive OMT

Follow up: median 3.2

Initial Invasive or Conservative Strategy for Stable Coronary Disease

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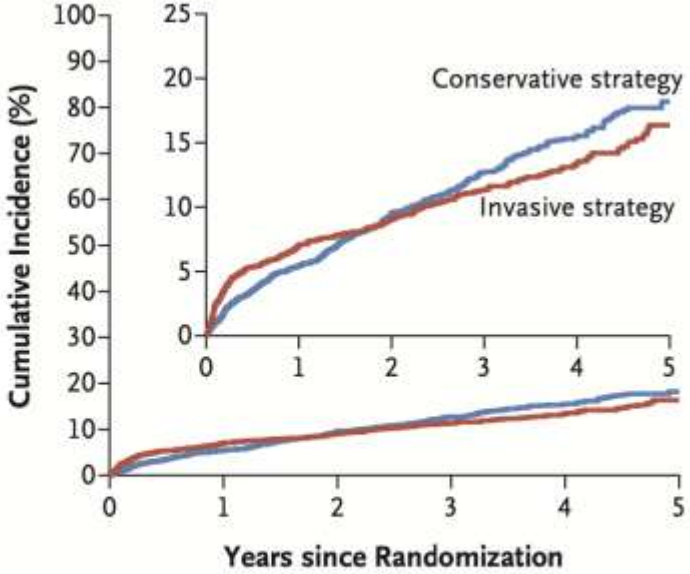
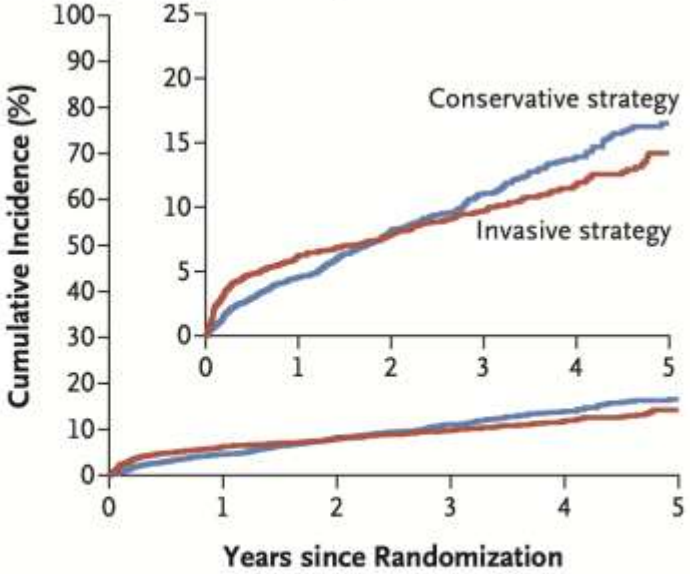
A Primary Composite Outcome



No. at Risk

Conservative strategy	2591	2431	1907	1300	733	293
Invasive strategy	2588	2364	1908	1291	730	271

B Death from Cardiovascular Causes or Myocardial Infarction



No. at Risk

Conservative strategy	2591	2453	1933	1325	746	298
Invasive strategy	2588	2383	1933	1314	742	282

Initial Invasive or Conservative Strategy for Stable Coronary Disease

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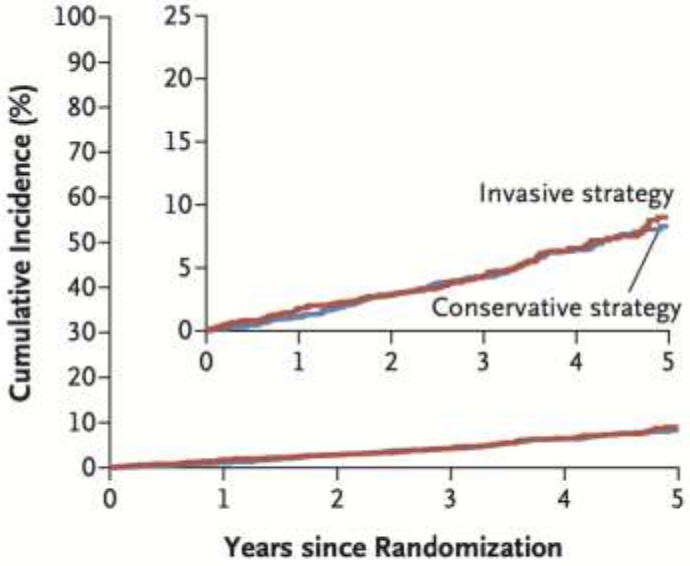
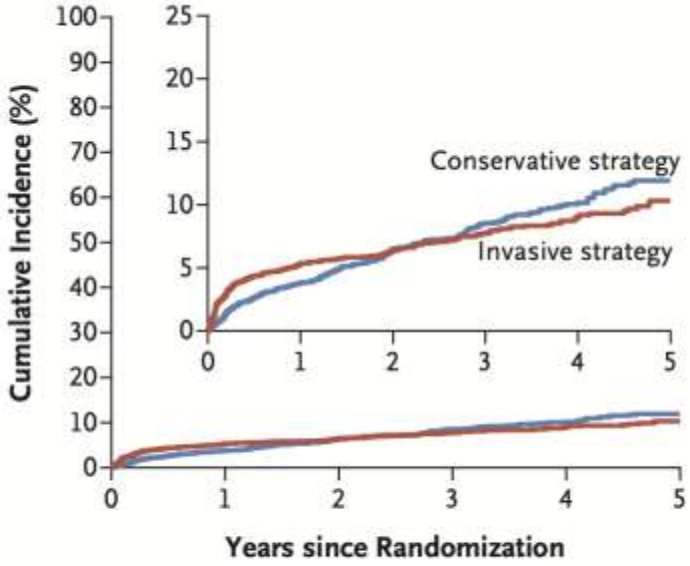
C Death from Any Cause



No. at Risk

Conservative strategy	2591	2548	2065	1445	844	349
Invasive strategy	2588	2518	2061	1431	827	317

D Myocardial Infarction



No. at Risk

Conservative strategy	2591	2452	1931	1321	747	298
Invasive strategy	2588	2379	1931	1313	742	283

Single- or double-vessel disease not involving the proximal LAD		
In symptomatic CCS patients with significant single- or double-vessel disease not involving the proximal LAD and with insufficient response to guideline-directed medical therapy, PCI is recommended to improve symptoms.[50,321,732]	I	B
In symptomatic CCS patients with significant single- or double-vessel disease not involving the proximal LAD and with insufficient response to guideline-directed medical therapy, not amenable to revascularization by PCI, CABG may be considered to improve symptoms.	IIb	C

Bu xəstəyə necə yanaşarıq?

- Dərman müalicəsi
- Angioplastika+OMT

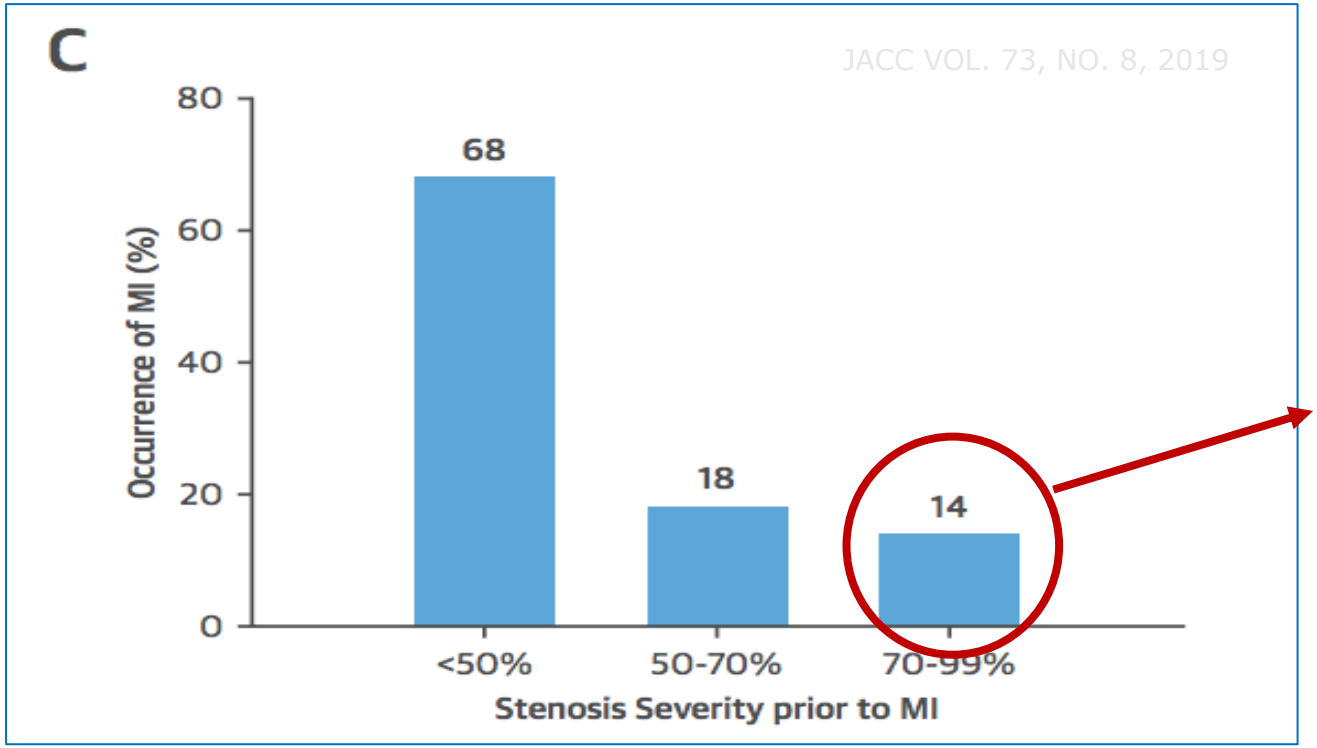
80% darlığın açılması Mİ qarşısını almaz

80% darlıq

Ateroskleroz diffuz bir xəstəlikdir.

Mİ səbəb olacaq çox sayıda plak var.

Mİ səbəb olacaq plaklar hansılardır?



Sadəcə işemiyaya səbəb olan ciddi darlıqlara stent taxmaq işin həlli deyil.

Males	2,338 (53.5)
Age, y	58.5 ± 9.3
40-<50	816 (18.7)
50-<60	1,529 (35.0)
60-<70	1,501 (34.3)
≥70 y	525 (12.0)
Risk factors and symptoms	
Family history of early CAD	2,878 (65.8)
Smoking	
Never	1,897 (43.4)
Former	999 (22.9)
Active	1,475 (33.7)
Dyslipidemia	1,070 (24.5)
Hypertension	1,744 (39.9)
Diabetes	282 (6.5)
eGFR, mL/min/1.73 m^2	82.0 ± 10.2
Cardiac symptoms at referral	
Typical chest pain	1,001 (22.9)
Atypical chest pain	1,595 (36.5)
Nonspecific chest pain	984 (22.5)
Dyspnea	791 (18.1)
Coronary artery calcium score	
0	1,994 (45.2)
1-99	1,272 (29.1)
100-400	600 (13.7)
>400	505 (11.6)
Disease severity at coronary computed tomography angiography	
No or nonobstructive CAD	3,265 (74.7)
Suspected obstructive CAD	1,106 (25.3)
Invasive coronary angiography	
Hemodynamically nonobstructive CAD	3,894 (89.1)
Hemodynamically obstructive CAD	477 (10.9)

JACC: Cardiovascular Imaging
Volume 17, Issue 10, October 2024, Pages 1199-1210

Original Research

Clinical Likelihood Prediction of Hemodynamically Obstructive Coronary Artery Disease in Patients With Stable Chest Pain

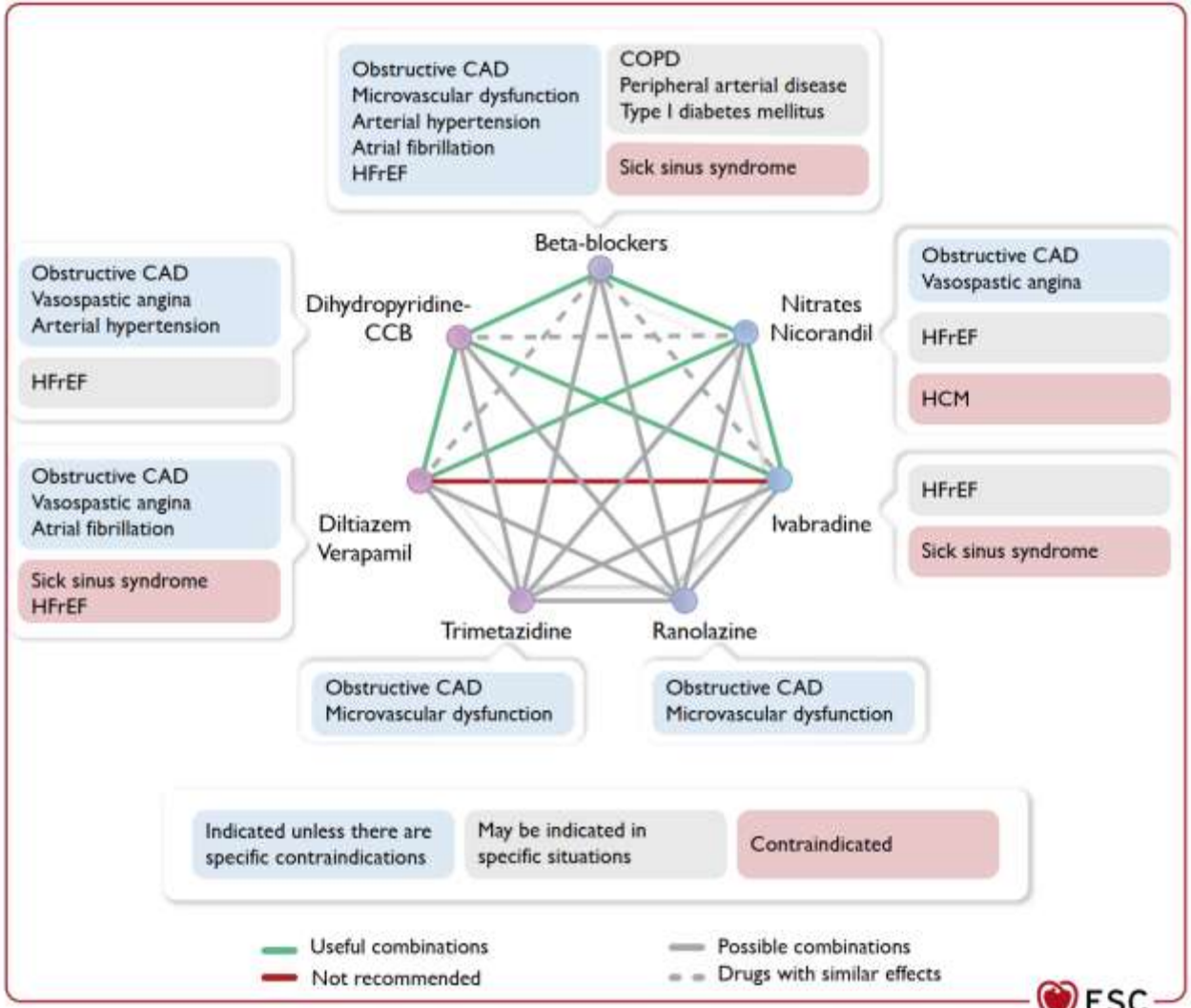
Laust Dupont Rasmussen MD, PhD [a,b], Salma Raghad Karim MD [c],

Stenokardiya ilə baş vuran >40yaş 4371 xəstə

Hamısına KAQ və 70-90% darlıqlara FFR

Hemodinamik obstuksiyası olanlar 10.9%

KT şübhəli obstruktiv KAX 25.3%


Obstructive CAD
Microvascular dysfunction
Arterial hypertension
Atrial fibrillation
HFrEF
COPD
Peripheral arterial disease
Type I diabetes mellitus
Sick sinus syndrome
Beta-blockers
Obstructive CAD
Vasospastic angina
Arterial hypertension
HFrEF
Dihydropyridine-CCB
Nitrates
Nicorandil
Obstructive CAD
Vasospastic angina
HFrEF
HCM
Obstructive CAD
Vasospastic angina
Atrial fibrillation
Sick sinus syndrome
HFrEF
Diltiazem
Verapamil
Ivabradine
HFrEF
Sick sinus syndrome
Trimetazidine
Ranolazine
Obstructive CAD
Microvascular dysfunction
Obstructive CAD
Microvascular dysfunction
Indicated unless there are specific contraindications
May be indicated in specific situations
Contraindicated
Useful combinations
Not recommended
Possible combinations
Drugs with similar effects
ESC

Rx

PATIENT INFO _____

_____

ADDRESS _____

_____

PRESCRIPTION

1. *Rozuvastatin/Ezetimib 40/10mg*
   1 tab x 1 dəfə axşam
2. *Lerkanidipin 20mq*
   1 tab x 1 dəfə səhər
3. *Asetilsalisil turşusu 100mg*
   1 tab x 1 dəfə səhər yem. sonra

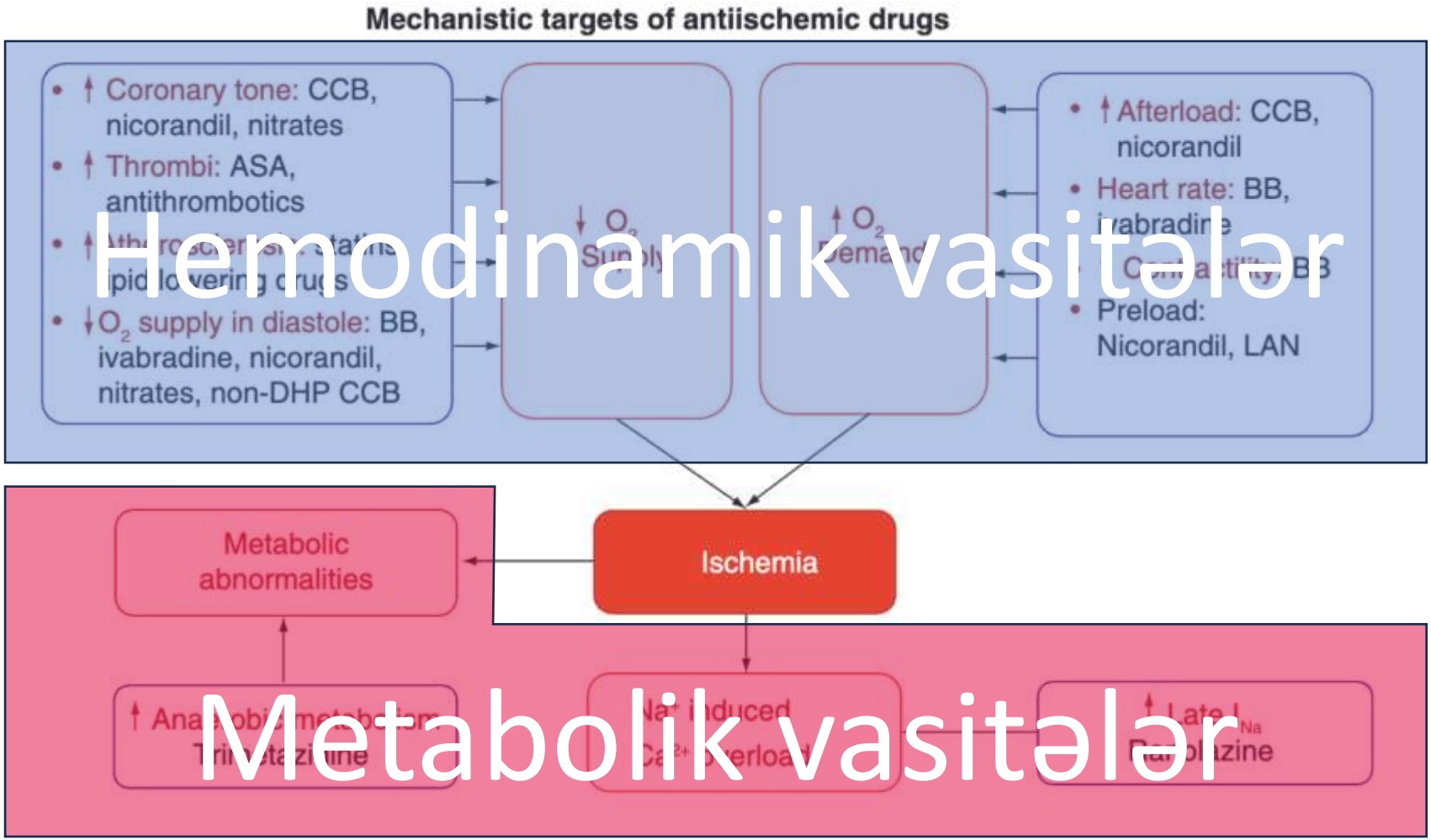
SIGNATURE _____ DATE _____

Klinik hal 1

Anamnez

- Pasient 1 ay sonra kontrol müayinəyə gəlibdir.
- Artıq 300 metr sürətli yol getdikdə stenokardiya şikayətləri yaranır.

Selection of antianginal medication		
Short-acting nitrates are recommended for immediate relief of angina.[536,537]	I	B
Initial treatment with beta-blockers and/or CCBs to control heart rate and symptoms is recommended for most patients with CCS.[c] [518,538]	I	B
If anginal symptoms are not successfully controlled by initial treatment with a beta-blocker or a CCB alone, the combination of a beta-blocker and a DHP-CCB should be considered, unless contraindicated.[505,538,539]	IIa	B
Long-acting nitrates or ranolazine should be considered as add-on therapy in patients with inadequate control of symptoms while on treatment with beta-blockers and/or CCBs, or as part of initial treatment in properly selected patients.[d] [513,540]	IIa	B


Mechanistic targets of antiischemic drugs
Coronary tone: CCB, nicorandil, nitrates
Thrombi: ASA, antithrombotics
O_2 supply in diastole: BB, ivabradine, nicorandil, nitrates, non-DHP CCB
$\downarrow O_2$ Supply
$\uparrow O_2$ Demand
Afterload: CCB, nicorandil
Heart rate: BB, ivabradine
Preload: Nicorandil, LAN
Hemodinamik vasitələr
Ischemia
Metabolic abnormalities
Metabolik vasitələr

Bu dərmanların ortaq cəhəti nədir?

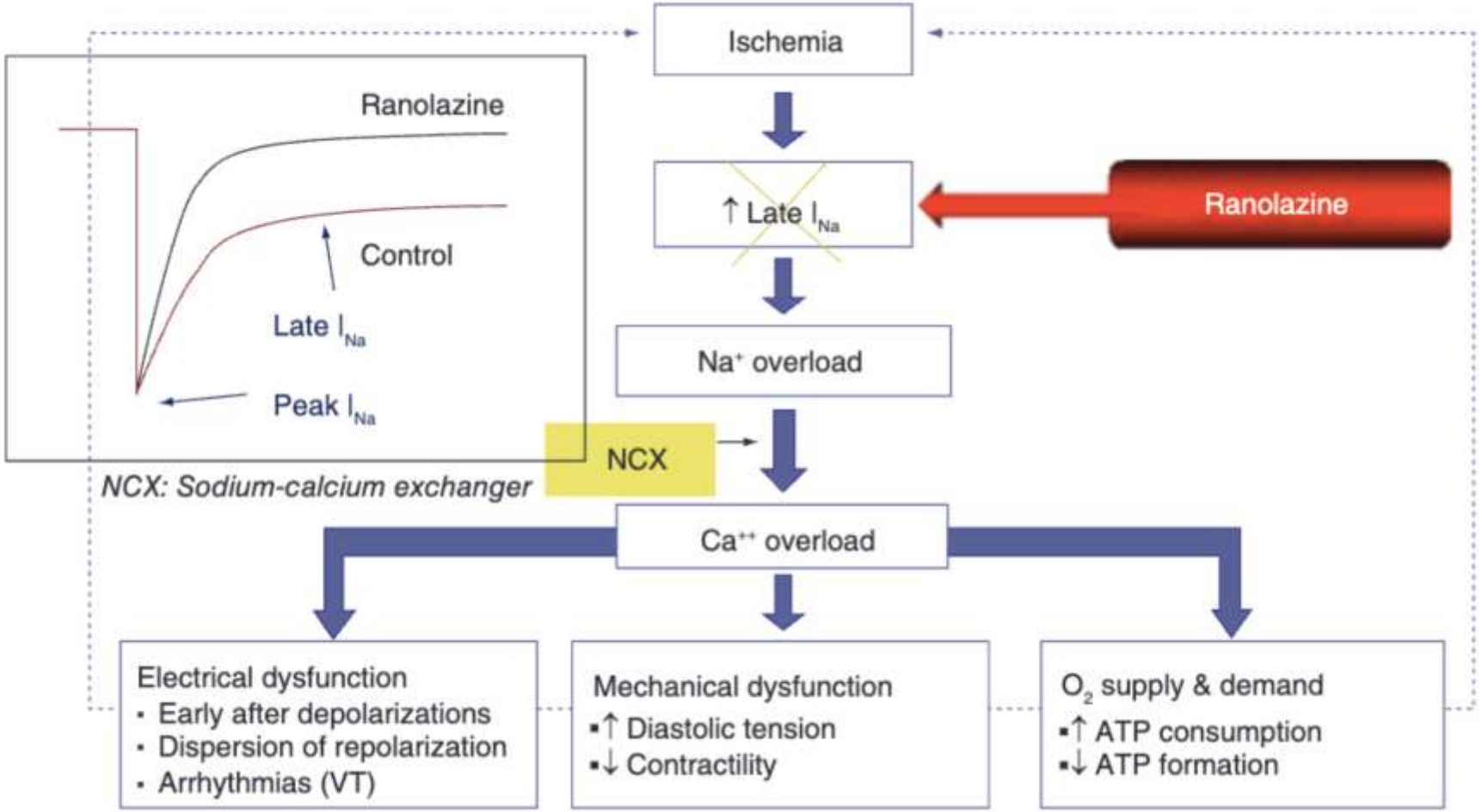
- Trimetazidin
- Setirizin
- Sildenafil
- Ranolazin

Askarid ilə xronik stenokardiyanın əlaqəsi nədir?

Piperazin 1953-cü ildən antihelmin kimi istifadə edilib

Piperazin derivativləri

- Trimetazidin
- Setirizin
- Sildenafil
- Ranolazin

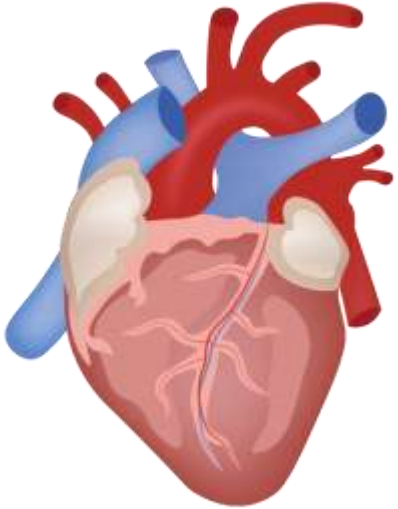

Ischemia
Ranolazine
Control
Late I_{Na}
Peak I_{Na}
↑ Late I_{Na}
Ranolazine
Na^+ overload
NCX
NCX: Sodium-calcium exchanger
Ca^{++} overload
Electrical dysfunction
• Early after depolarizations
• Dispersion of repolarization
• Arrhythmias (VT)
Mechanical dysfunction
▪↑ Diastolic tension
▪↓ Contractility
O_2 supply & demand
▪↑ ATP consumption
▪↓ ATP formation

Normal halda ATP istehsalı

Qlükoz Oksidasiyası

%30

Laktat → Pirüvat



ATP

Yağ turşusu Oksidasiyası

Yağ asetil koenzim

3 Keto Açil Tiolaz

%70

Miokard ATP ehtiyacının %30 u qlükoza Oksidasiyası hesabınadır

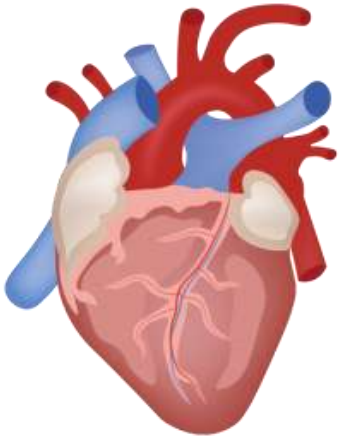
Miokard ATP ehtiyacının %70 i Yağ turşusu Oksidasiyası hesabınadır

Miokard işemiyası olanda qlükoz oksidasıyası azalır və Yağ turşusu oksidasiyası yolu ilə ATP istehsalı artar. ATP istehsalı %33 daha az olur.

Glukoz oksidasiyası

Laktat

Pirüvat



ATP %33

Yağ turşusu oksidasiyası

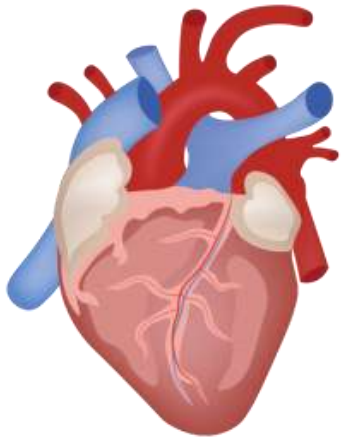
Yağ asetil koenzim

3 Keto asetil Tiolaz (3KAT)

Glukoz Oksidasiyası

Laktat

Pirüvat

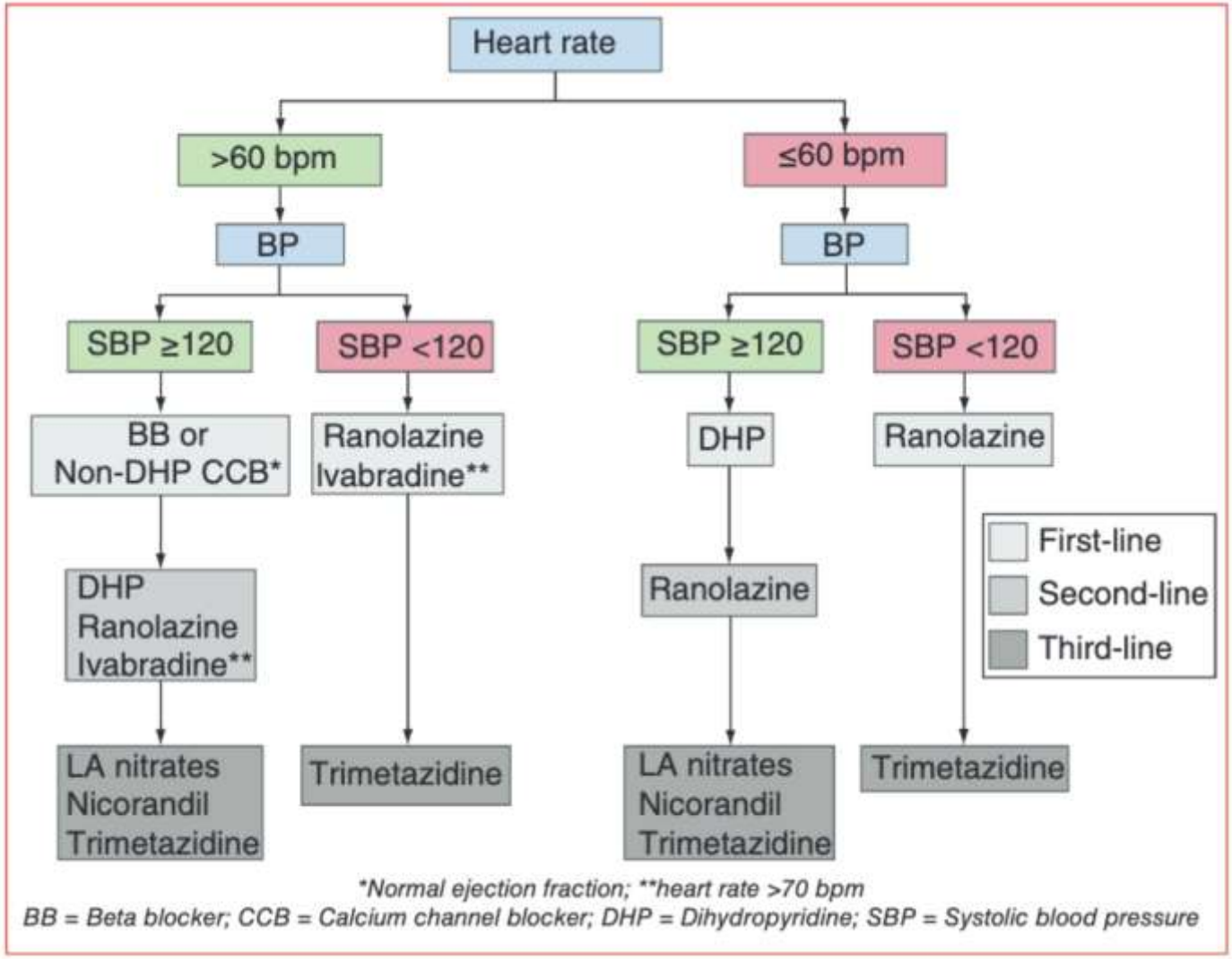


ATP

Yağ turşusu oksidasiyası

Yağ asetil koenzim

3 Keto Açil Tiolaz (3KAT)



*Normal ejection fraction; **heart rate >70 bpm

BB = Beta blocker; CCB = Calcium channel blocker; DHP = Dihydropyridine; SBP = Systolic blood pressure

Rx

PATIENT INFO _____

_____

ADDRESS _____

_____

PRESCRIPTION

1. *Rozuvastatin/Ezetimib 40/10mg*
   1 tab x 1 dəfə axşam
2. *Lerkanidipin 20mq*
   1 tab x 1 dəfə səhər
3. *Asetilsalisil turşusu 100mg*
   1 tab x 1 dəfə səhər yem. sonra
4. *Ranolazin 500mg*
   1 tab x 2 dəfə səhər və axşam

SIGNATURE _____ DATE _____

Klinik hal 1

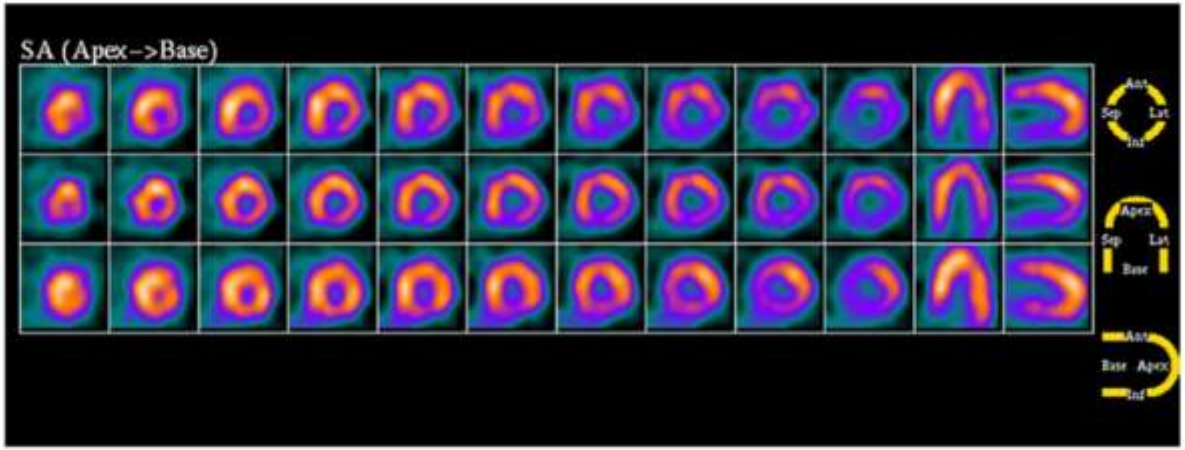
Anamnez

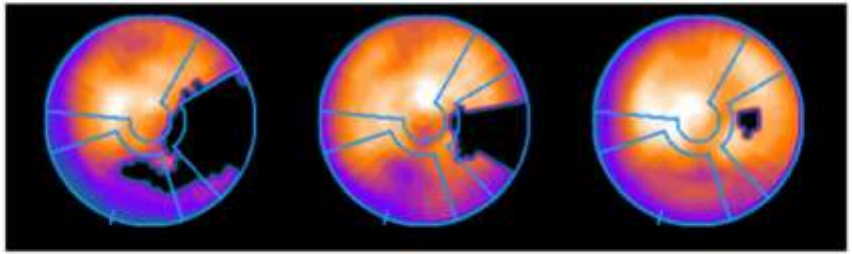
- Pasient 1 ay sonra kontrol müayinəyə gəlibdir.
- Pasient yalnız intensiv hərəkətdə (yoxuş qalxdıqda) stenikardik ağrı hiss edir

JACC: CARDIOVASCULAR IMAGING
VOL. 2, NO. 11, 2009

PUBLISHED BY ELSEVIER INC
ISSN 1936-878X/09/$36.00
DOI:10.1016/j.jcmg.2009.08.004

A Study of the Effects of Ranolazine Using Automated Quantitative Analysis of Serial Myocardial Perfusion Images





Polar maps	A	B	C
Ischemia	25%	11%	0%

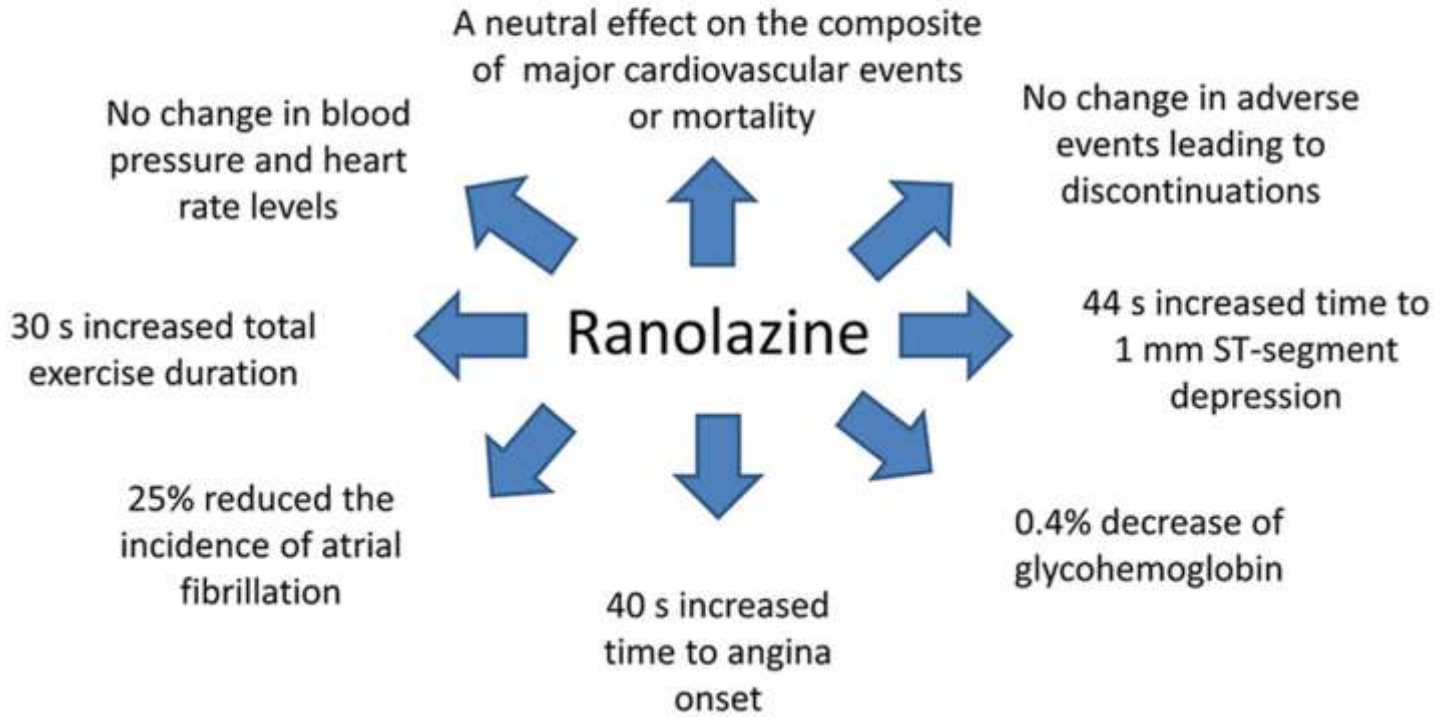
Contents lists available at ScienceDirect
Hellenic Journal of Cardiology
journal homepage: http://www.journals.elsevier.com/hellenic-journal-of-cardiology/

Original Article

Effects of ranolazine on various outcomes in patients with stable angina: an updated meta-analysis

Athanasios Manolis [1], Manolis Kallistratos [1,*], Leonidas Poulimenos [2], Tatiana Zamfir [1], Costas Thomopoulos [3]

Meta-analysis in angina: 18 placebo-controlled trials, (n=12,995 patients)



ŞD və Ranozalin

Circulation

CURRENT ISSUE | ARCHIV

RESEARCH ARTICLE | Originally Published 6 April 2009 |

Check for updates

Evaluation of the Glycometabolic Effects of Ranolazine in Patients With and Without Diabetes Mellitus in the MERLIN-TIMI 36 Randomized Controlled Trial

David A. Morrow, MD, MPH, Benjamin M. Scirica, MD, MPH, Bernard R. Chaitman, MD, Darren K. McGuire, MD, Sabina A. Murphy, MPH, Ewa Karwatowska-Prokopczuk, MD, PhD, Carolyn H. McCabe, BS, Eugene Braunwald, MD, and for the MERLIN-TIMI 36 Investigators | AUTHOR INFO & AFFILIATIONS

Circulation

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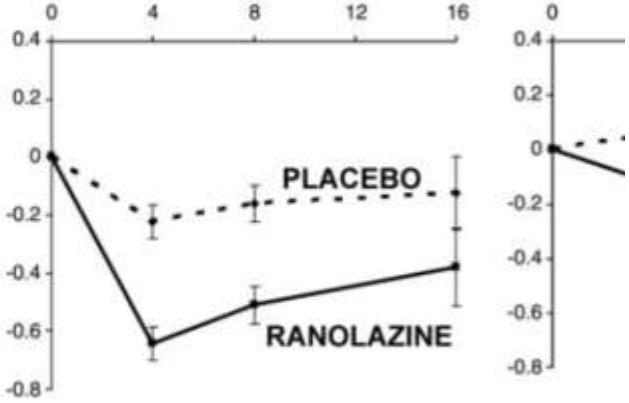
Change in HbA1c

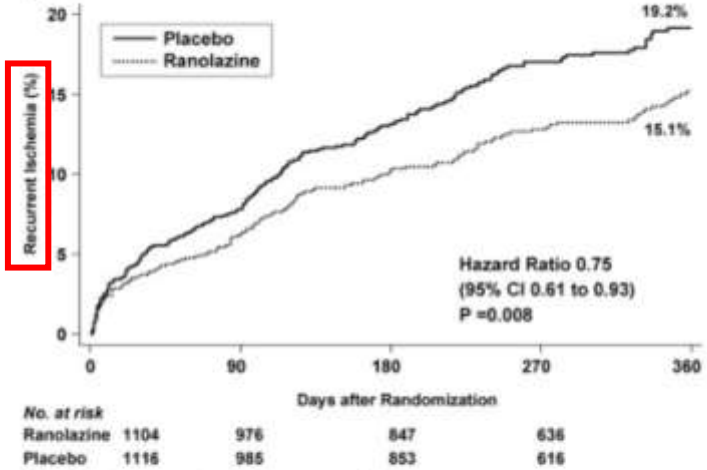
Diabetes Mellitus

Month of Follow-up



	M4	M8	M16
Placebo	N = 770	N = 598	N = 122
Ranolazine	N = 707	N = 535	N = 112
P-value	<0.001	<0.001	0.16

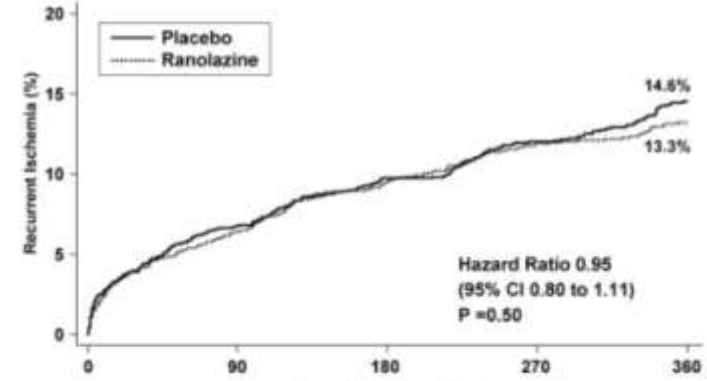
A Patients with diabetes mellitus



No. at risk

Ranolazine	1104	976	847	636
Placebo	1116	985	853	616

B Patients without diabetes mellitus



No. at risk

Ranolazine	2175	1944	1723	1301
Placebo	2165	1922	1713	1317

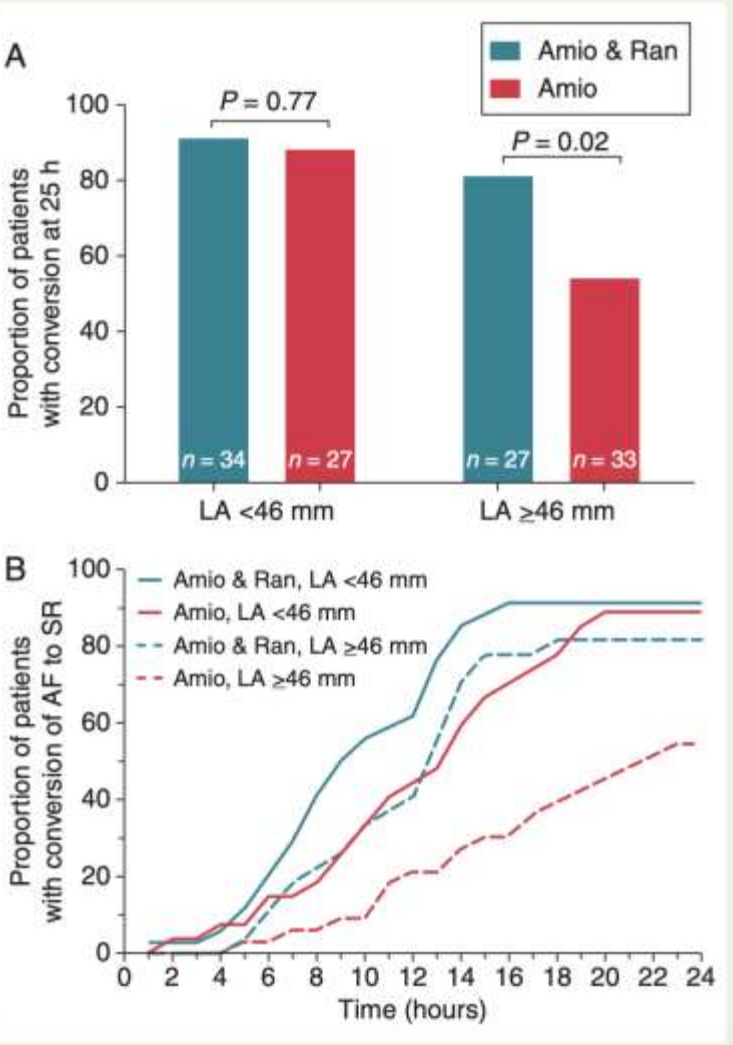
Ranolazin və qulaqcıq aritmiyaları

Ranolazin və yeni yaranmış qulaqcıqların səyriməsi

CLINICAL RESEARCH
Atrial fibrillation

Ranolazine enhances the efficacy of amiodarone for conversion of recent-onset atrial fibrillation

Konstantinos C. Koskinas[1*†], Nikolaos Fragakis[1†], Demosthenes Katritsis[2], Vassileios Skeberis[1], and Vassileios Vassilikos[1]



Ranolazin və postop qulaqcıqların səyriməsi

Effect of ranolazine in preventing postoperative atrial fibrillation in patients undergoing coronary revascularization surgery

Georgios I Tagarakis, Isaac Aidonidis, Stella S Daskalopoulou, Vassilios Simopoulos, Vassilios Liouras, Marios E Daskalopoulos, Charalampos Parisis, Kiriaki Papageorgiou, Ioannis Skoularingis, Filippos Triposkiadis, Paschalis-Adam Molyvdas, Nikolaos B Tsilimingas [1]

Methods: In the current prospective, randomized, (1 active: 2 control), single-blind (outcome assessors), single-centre clinical trial we recruited consecutive eligible patients scheduled for elective on-pump CABG. Participants were assigned to receive either oral ranolazine 375 mg twice daily for 3 days prior to surgery and until discharge, or to receive usual care. Patients were monitored for the development of POAF.

Results: We enrolled 102 patients. Significantly lower incidence of POAF was noted in the ranolazine group compared with the control group (3 out of 34 patients, 8.8%, vs 21 out of 68 patients, 30.8%; p< 0.001). Mean values of left atrial diameter and left ventricular ejection fraction between the control and the ranolazine group were not significantly different.

Conclusion: Our findings suggest a protective role of oral ranolazine when administered in a moderate dose preoperatively in patients undergoing on-pump CABG surgery. Future studies based on a wider sample of patients will eventually support our conclusions.

Klinik hal 2

Anamnez

- 65 yaş kişi xəstə
- CCS sinif 3-4 stenokardiya ağrıları
- Hipotenzivdir.
- 10 il əvvəl Mİ
- SMAF 25%
- ŞD+
- KAQ – diffuz çoxdamar xəstəliyi – OMT
- EKQ LBBB - CRT-D 3 il əvvəl

Klinik hal 2

Anamnez

- ÜÇ – ARNİ, SGLT2i, MRA, Metoprolol 50x2.
- Antiişemik – ASA, Klopidogrel, Statin
- Uyğun cihaz şoklamaları olub (ayda 1 dəfə)
- Amiodaron toksikliyi, Meksiletin ciddi bulantı səbəbi ilə kəsilib.
- RF ablasiyadan imtina etmiş

Google

unluckiest man in the world

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Frane Selak

The (Un)Luckiest Man

Frane Selak, of Croatia, has a reputation as the world's luckiest man (or unluckiest, depending on your outlook). He's said to have survived a train crash, a plane crash, and a car crash—and that's just the start of his impossible brushes with death! Mar 1, 2024

Ripley's Believe It or Not!
https://www.ripleys.com › stories › unluckiest-man

Luckiest Or Unluckiest Man In The World?

Pasientin problemi

- Qeyri stabil stenokardiya
- Təkrarlayan cihaz şoklaması


Dedi: nişanlıyam, özgə malıyam,
Qırıldı qol qanadım yanıma düşdü....

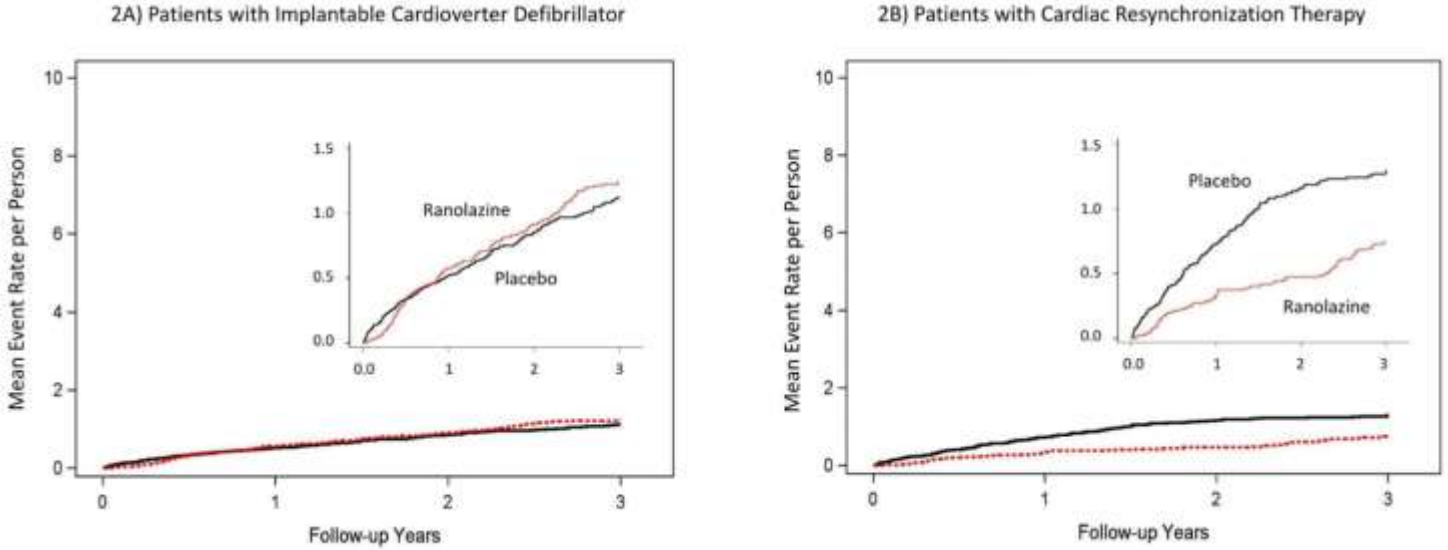

Nağaracux!


Həmişəki kimi ChatGPT-yə soruşaq?
EECP?
Bəlkəə...?

Belə xəstə populyasiyası olan çalışma ola bilər?

Published in final edited form as:
JACC Clin Electrophysiol. 2022 June ; 8(6): 754–762. doi:10.1016/j.jacep.2022.02.018.

Reduction in Ventricular Tachyarrhythmia Burden in Patients Enrolled in The Ranolazine Implantable Cardioverter-Defibrillator (RAID) Trial



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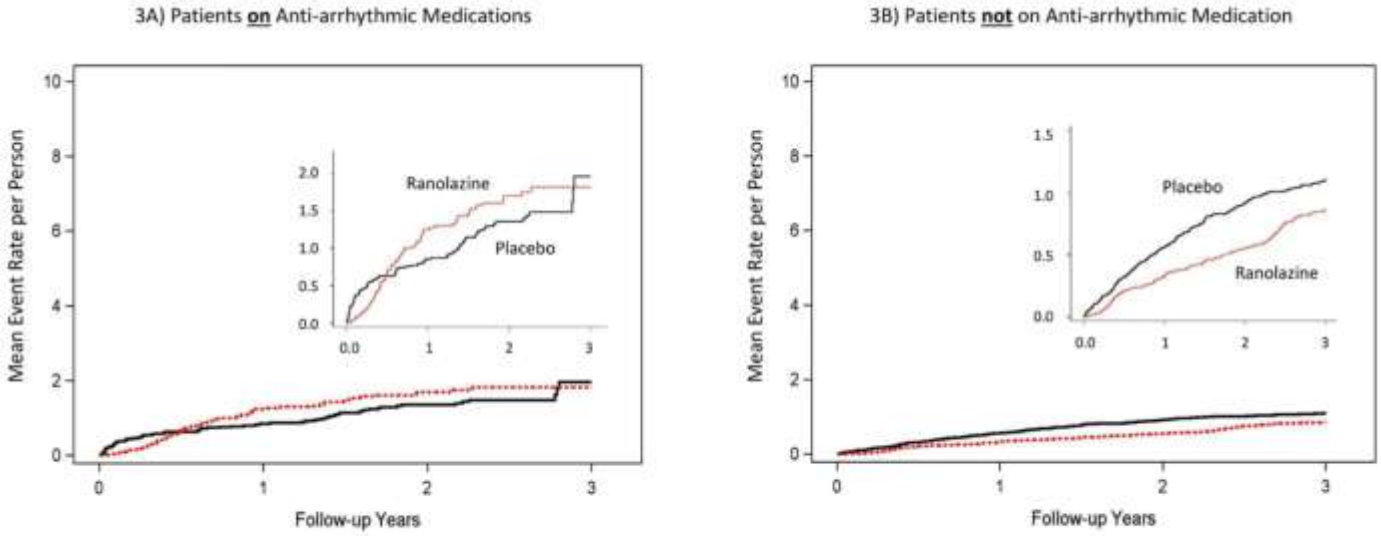

Figure 3. Mean cumulative events per patient for ventricular tachyarrhythmia stratified by concomitant antiarrhythmic drugs.

Klinik hal 2

- Müalicəyə ranolazin 500 x 2 əlavə edildi.
- 6 aydır cihaz şoklaması olmayıb
- Ağrısı CCS sinif 2 dir.

Her Derde Deva

BERLIN-CHEMIE
MENARINI

Geriyə bax ki, gələcəyini görəsən


תודה
Dankie
Gracias
Спасибо
شكراً
Merci
Takk
Köszönjük
Terima kasih
Grazie
Dziękujemy
Dėkojame
Ďakujeme
Vielen Dank
Paldies
Kiitos
Täname teid
谢谢
Təşəkkür edirəm
Tak
感謝您
Obrigado
Teşekkür Ederiz
감사합니다
Σας ευχαριστούμε
ขอบคุณ
Bedankt
Děkujeme vám
ありがとうございます
Tack