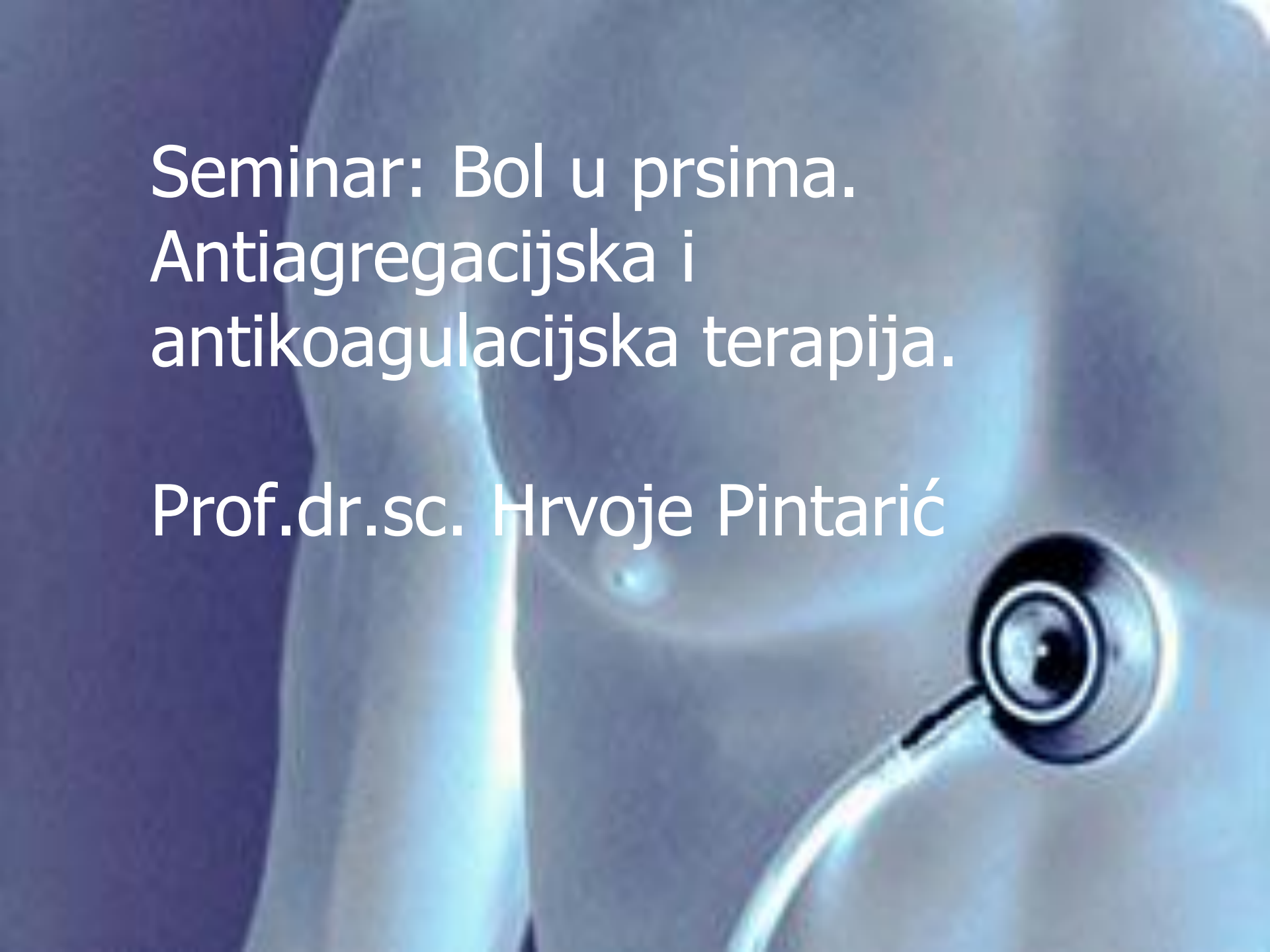


Seminar: Bol u prsima. Antiagregacijska i antikoagulacijska terapija.

Prof.dr.sc. Hrvoje Pintarić

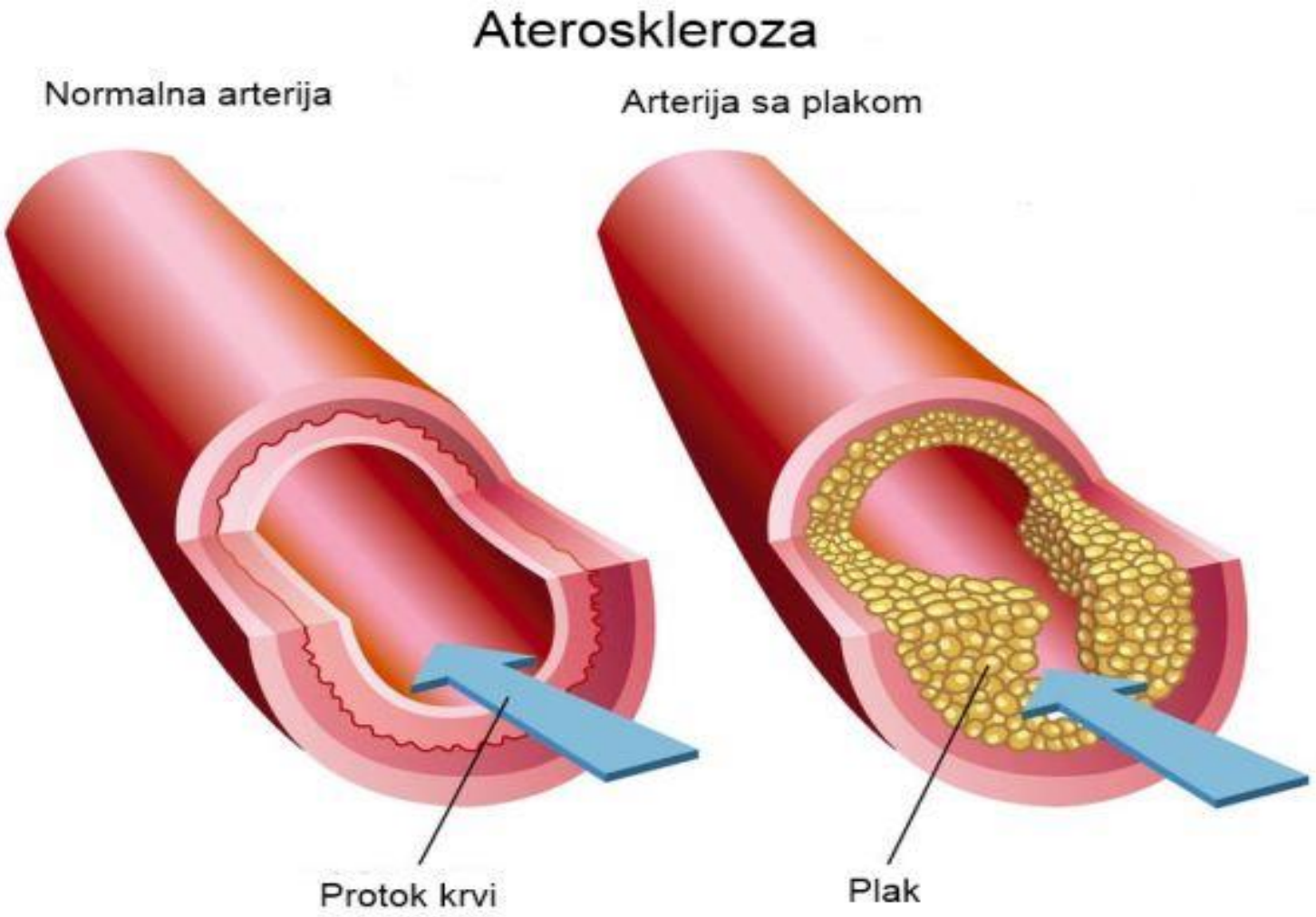
Diferencijalna dijagnoza

1. Angina pektoris / Infarkt miokarda
2. Ostali kardiovaskularni uzroci
   A. vjerojatno ishemijski
      - aortna stenoza
      - hipertrofijska kardiomiopatija
      - visoki tlak DV
      - aortna regurgitacija
      - anemija / hipoksija
   B. neishemijski uzroci
      - disekcija aorte
      - perikarditis
      - prolaps mitralne valvule
3. Gastrointestinalni
   - spazam i/ili refluks jednjaka
   - ruptura jednjaka
   - ulkusna bolest
4. Psihogeni
   - anksioznost
     - depresija
     - kardijalna psihoza
5. Neuromuskuloskeletalni
   - sy. torakalne apertrure
   - deg. promjene cervikalne i/ili torakalne kralješnice
   - kostohondritis (Sy. Tietze)
   - Herpes zoster
   - torakalna mialgija
6. Plućni
   - embolija pluća s ili bez infarkta
   - pneumotoraks
   - pleuropneumonija
7. Pleuritis

Stabilna angina

- substernalni pritisak (kao da netko sjedi na grudnom košu), bol, pečenje, žarenje
- širenje u vilicu, vrat, ramena ili ruke
- traje 5-15 minuta
- obično nema preznojavanja, mučnine, osjećaja nedostatka zraka
- ne ovisi o disanju ni položaju tijela
- bol predvidljiva – nakon napora, simptomi uvijek isti
- u tijeku napada blijedi i uplašeni, palpitacije
- "ekvivalent angine" – osjećaj slabosti, nedostatak zraka;
- netipična kod:
  - stariji
  - dijabetičari
  - žene

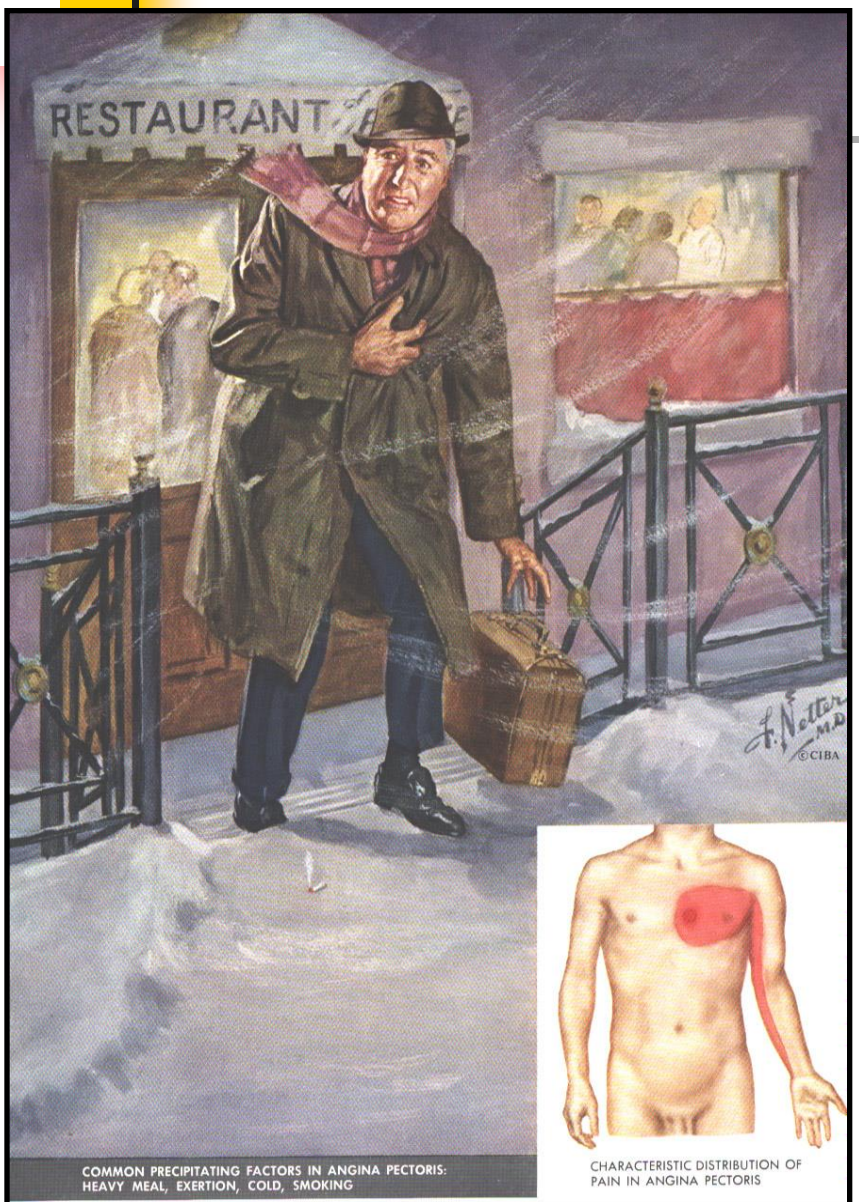
Stabilna angina



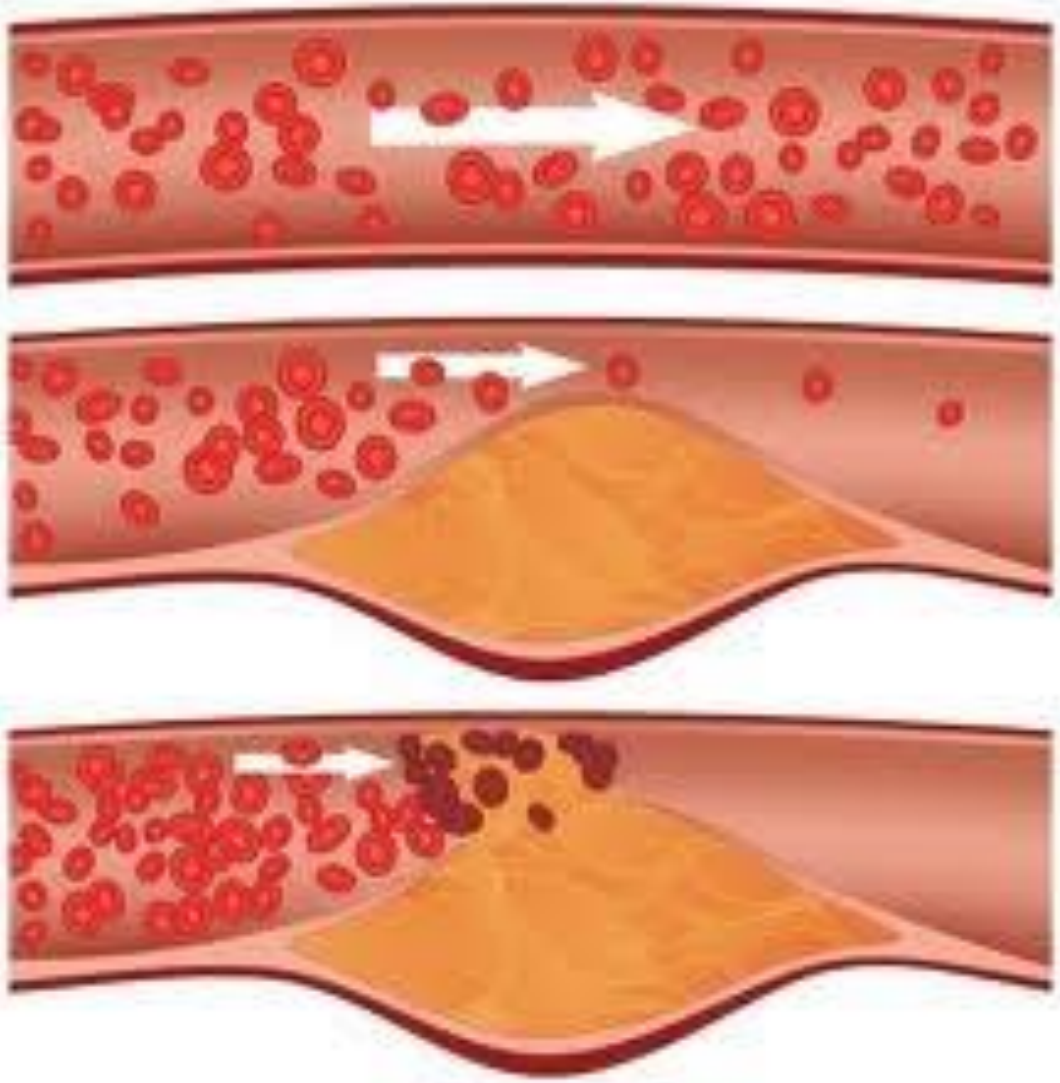
Nestabilna angina

- promjena kvalitete i kvantitete tegoba:
  - izraženiji bolovi (crescendo angina)
  - veća učestalost
  - duže trajanje tegoba (>20 min)
  - bolovi ne prestaju uz nitrate
  - bolovi u mirovanju (dekubitalna angina)
- novonastala angina (de novo)

Akutni infarkt miokarda

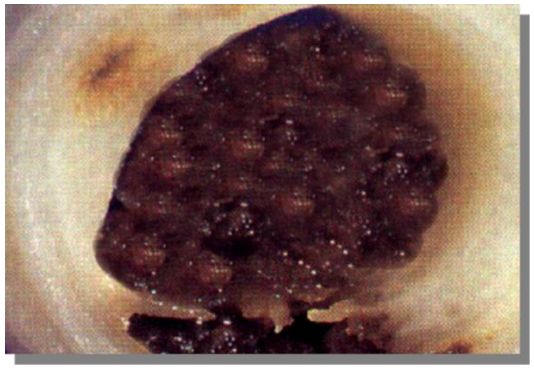


- substernalna, difuzna bol s osjećajem stezanja ili pritiska
- propagacija u vrat, vilicu, ramena ili ruke
- dodatni simptomi:
  - slabost
  - mučnina/povraćanje
  - preznojavanje
  - osjećaj nedostatka zraka
- tegobe traju >20 min, ne prestaju uz nitrate
- "atipični simptomi" – mučnina, povraćanje, dispnea kao izolirani simptomi (stariji, dijabetičari, žene)
- "silent ishemija" – ¼ svih infarkta se ne "registrira"



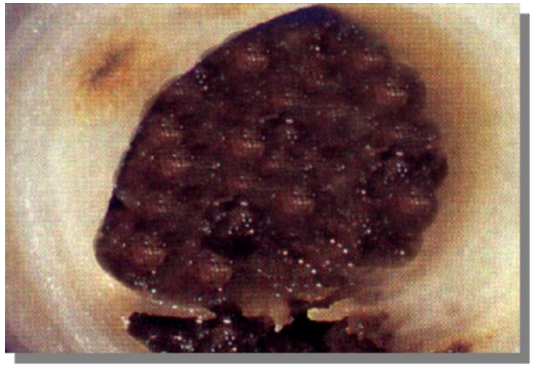
AKUTNI KORONARNI SINDROM

Elevacija ST segmenta (STEMI)



AKUTNI KORONARNI SINDROM

Elevacija ST segmenta (STEMI)

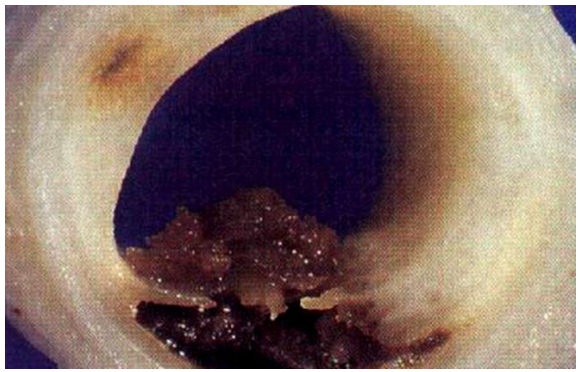


Nestabilna angina

Troponin + ili -

Bez elevacije ST segmeta (NSTEMI)

Troponin +



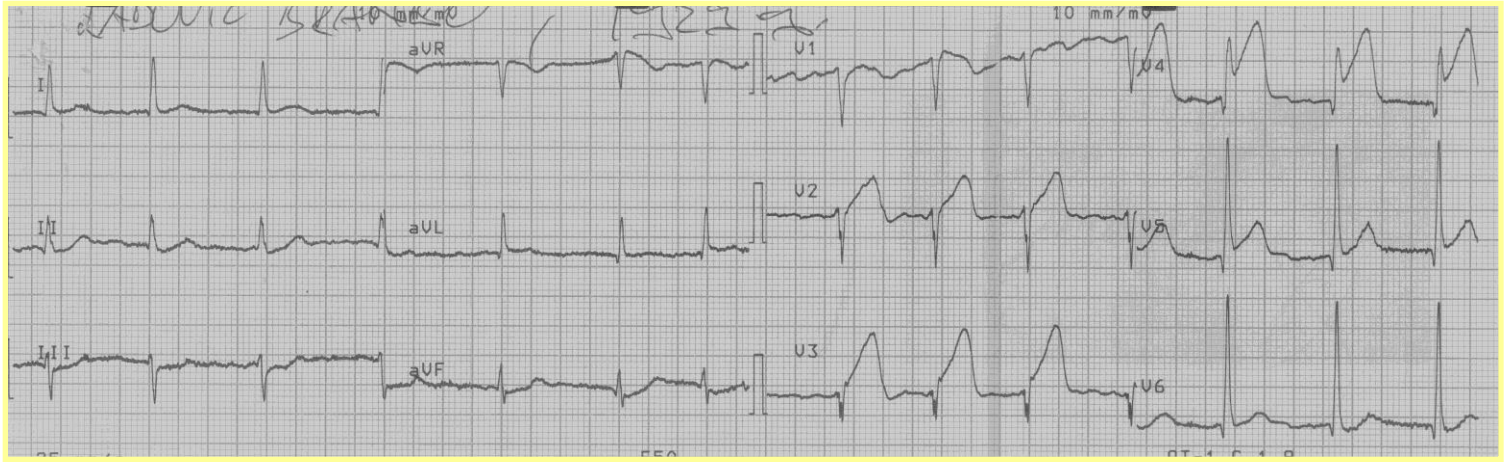
Podtipovi bolesnika s CAD

Tipičan bolesnik tipična klinika	**Atipičan bolesnik tipična klinika**
Tipičan bolesnik atipična klinika	**Atipičan bolesnik atipična klinika**

Podtipovi bolesnika s CAD

Tipičan bolesnik tipična klinika	**Atipičan bolesnik tipična klinika**
Tipičan bolesnik atipična klinika	**Atipičan bolesnik atipična klinika**

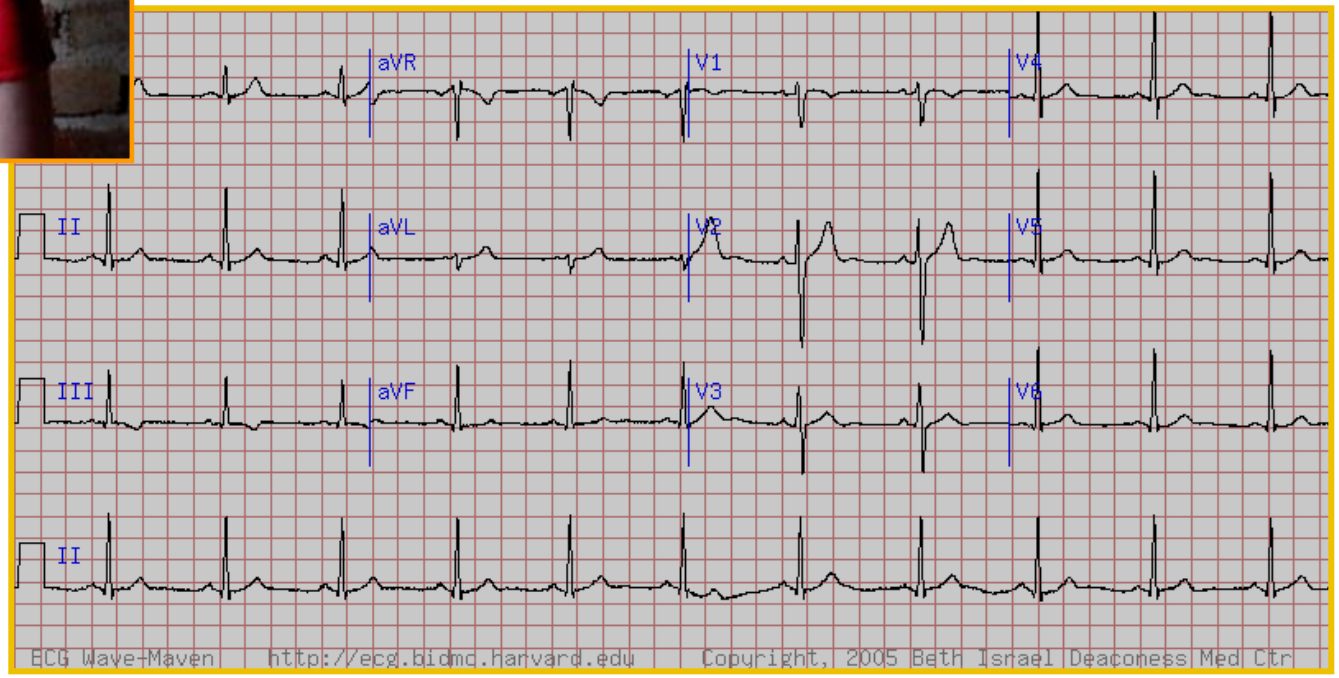
AIM



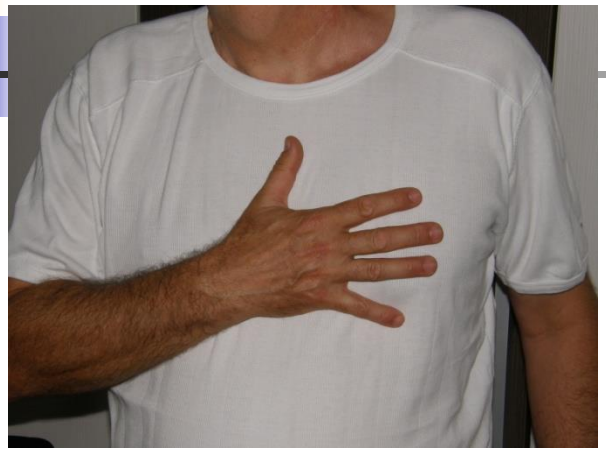
Podtipovi bolesnika s CAD

Tipičan bolesnik tipična klinika	**Atipičan bolesnik tipična klinika**
Tipičan bolesnik atipična klinika	**Atipičan bolesnik atipična klinika**

??

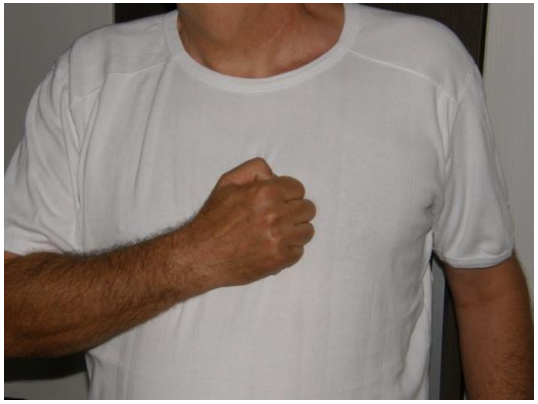

aVR
V1
V4
II
aVL
V2
V5
III
aVF
V3
V6
II
ECG Wave-Maven
http://ecg.bidmc.harvard.edu
Copyright, 2005 Beth Israel Deaconess Med Ctr

Prezentacija boli - *tipična*

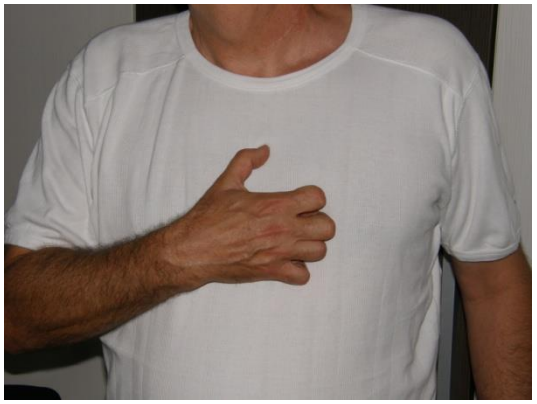


Pozitivan Levinov znak

Najtipičnije za stenkardiju

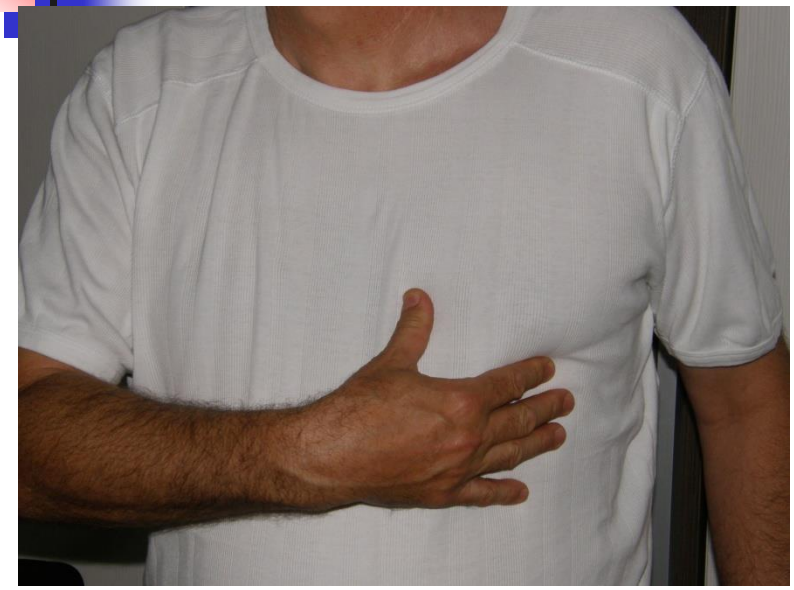


Bol tipa težine



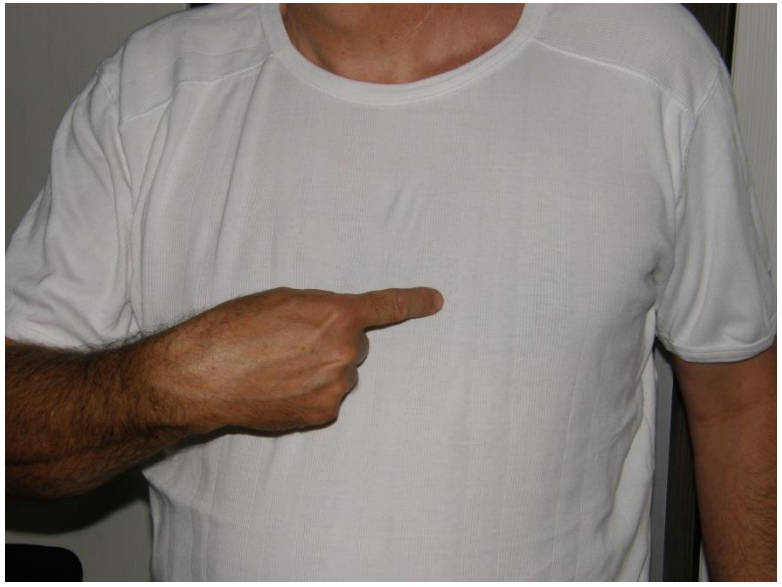
Bol tipa stezanja

Prezentacija boli - *atipična*



Bol u predjelu dojke

Često bolnost na palpaciju



Bol na malom arealu

Tipa "pikanja i probadanja"

Pneumonija

- kod lobarne pneumonije opći osjećaj pritiska i bolnosti na jednoj strani prsišta
- bol započinje istodobno s drugim simptomima (zimica, tresavica, febrilitet, iskašljaj)
- kod atipične pneumonije i bronhopneumonije pečenje u sredini prsišta, osobito provocirano kašljem
- kod zahvaćanja pleure – pleuritična bol (lokalizirana bol ovisna o položaju i respiraciji)
- uzroci pogrešno dijagnosticirane pneumonije u infarktu miokarda:
  - kod kardijalnih bolesnika čest kašalj zbog plućne kongestije i osjećaja nedostatka zraka
  - krepitacije (moguće i jednostrane)
  - moguć subfebrilitet (<38)
  - razvoj blaže lukocitoze i povišenog CRP-a

Perikarditis

- substernalna bol s propagacijom u leđa ili vrat
- pogoršava se kod lijeganja, smanjuje se u sjedećem položaju i kod naginjanja prema naprijed
- bol mijenja intenzitet u ovisnosti o dijelu srčane akcije i respiracije
- ostali znakovi:
  - perikardno trenje
  - anamneza febriliteta/virusne infekcije unatrag 2-4 tjedna

Disekcija aorte

- nagla, iznenadna
- trgajuća bol
- gotovo uvijek iradira u leđa ili se osjeća samo na leđima (između lopatica)
- "stariji" hipertenzivni muškarci
- ostali znakovi:
  - zahvaćanje karotide i subklavije
    - deficit pulsa
    - neurološki ispadi
    - razlika u tlakovima na lijevoj i desnoj ruci
  - šum aortne regurgitacije
  - rentgen pluća

Plućna embolija

- obično započinje kao opća nelagodnost
- pleuritična bol kod manjih perifernih embolusa
- substernalna kod većih embolusa
- upečatljivi ostali znakovi:
  - tahikardija i tahipnea
  - rentgen pluća
  - EKG
  - acidobazni status

Ezofagitis

- anamneza žgaravice/refluksa/disfagije/hijatalne hernije
- bol kod refluks ezofagitisa
  - konstantna i dugotrajna
  - lokalizira se u nisko substernalno
  - širi se prema epigastriju
  - izaziva se dubokom palpacijom epigastrija
- bol kod ezofagealnog spazma
  - difuzna
  - oponaša anginoznu bol po karakteru i jakosti
  - nastaje nakon jela
  - provocira se gutanjem

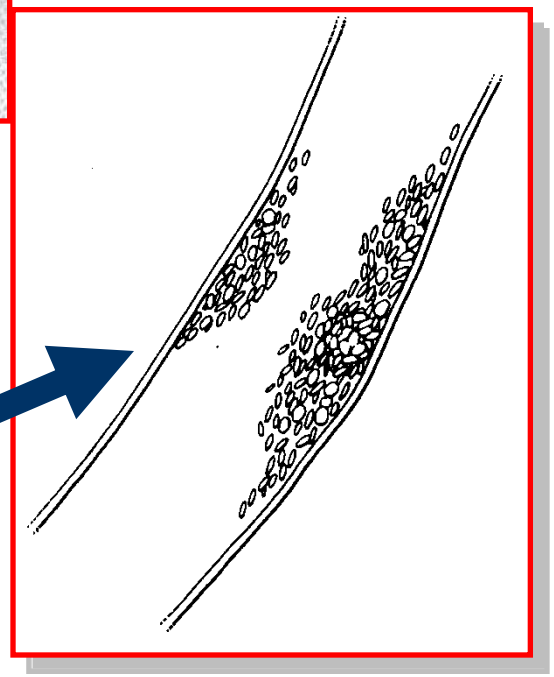
Kostohondralna/radikularna bol

- izraženija nakon dugotrajnog ležanja
- konstantna
- pojačava se pritiskom na rebrene hrskavice ili perkusijom kralješnice
- ne ovisi o fizičkom naporu ili uzbuđenju
- dobro reagira na NSAID

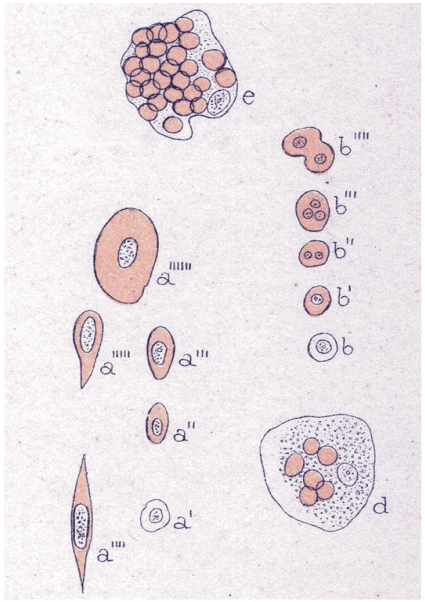
TROMBOCYTE: history

Giulio Bizzozero (1846-1901)

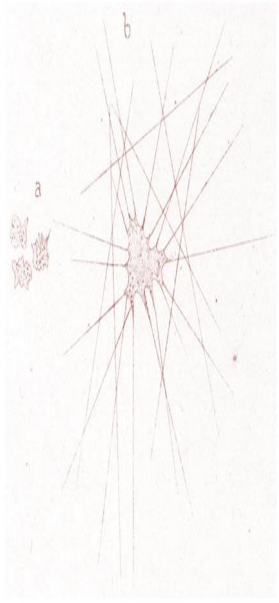
1882.



rabbit

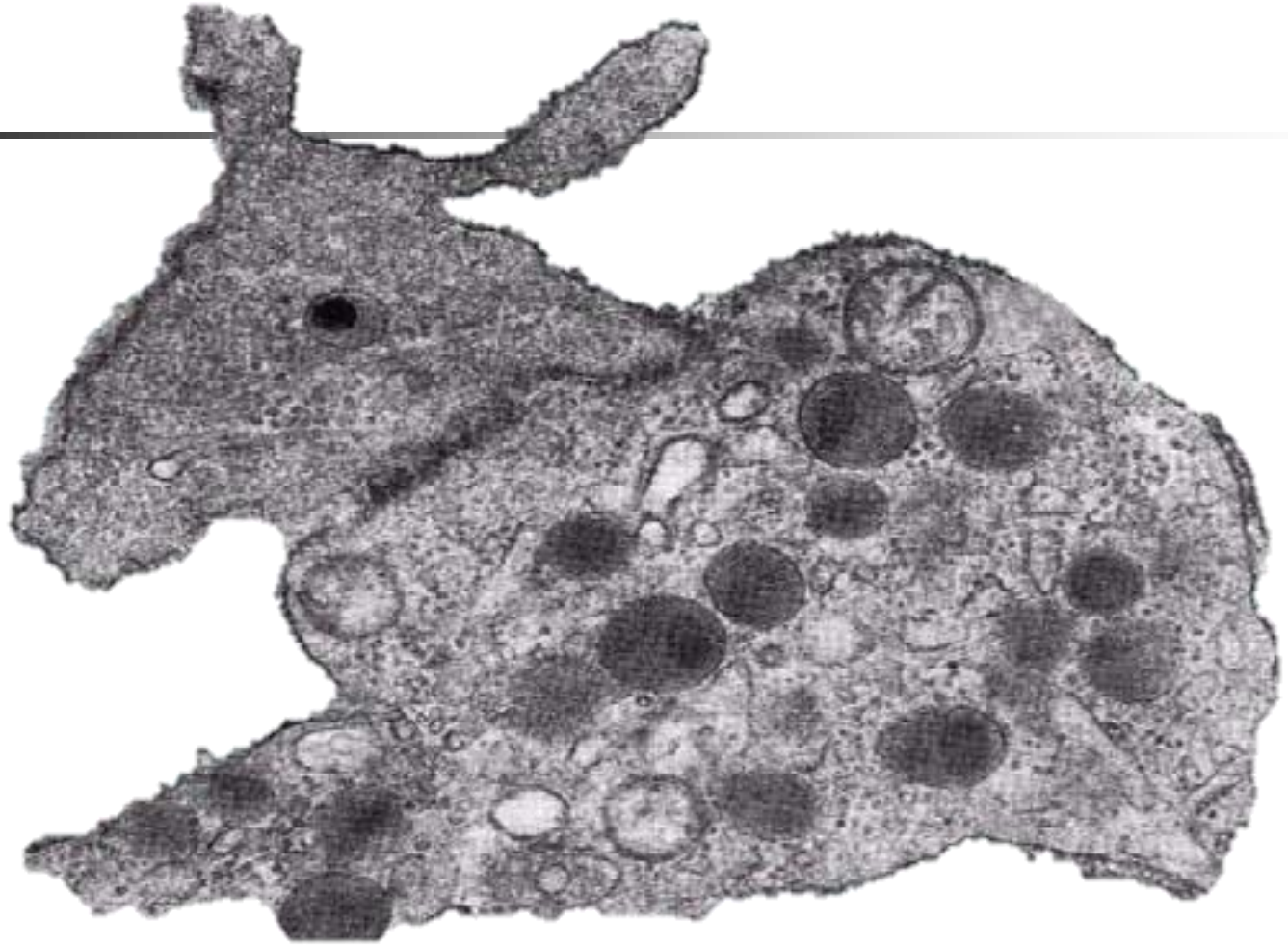


Nature Reviews | Molecular Cell Biology

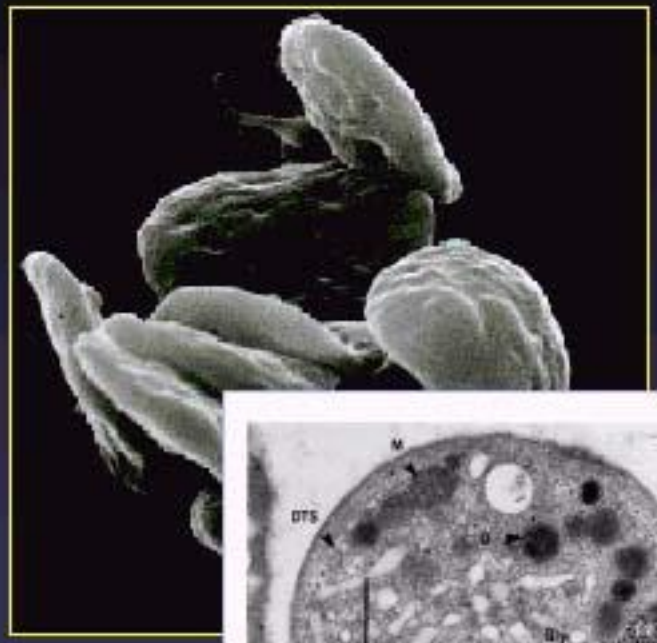


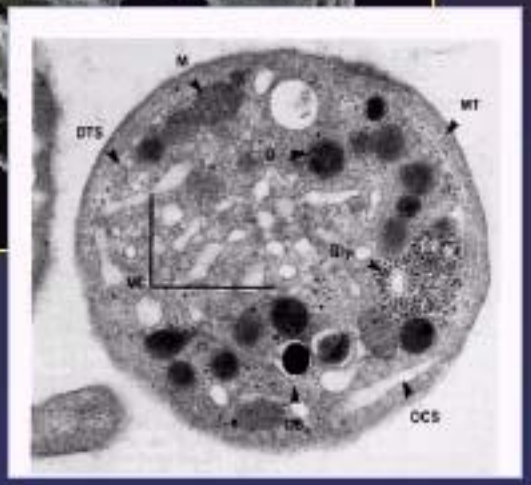
Nature Reviews | Molecular Cell Biology

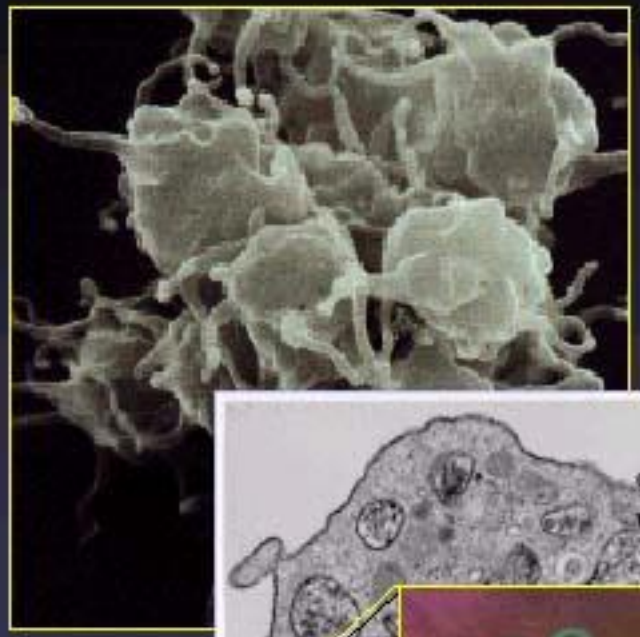
***Nature Reviews Molecular Cell Biology* 2; 776-784 (2001)**

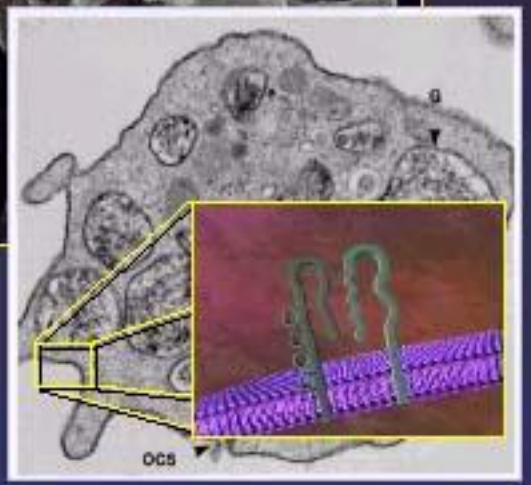


Platelet Biology









Resting Platelet → Activated Platelet

ESC smjernice za liječenje bolesnika sa STEMI-AKS-om

ESC smjernice za liječenje bolesnika sa IM sa ST-elevacijom (STEMI-ACS)		
Preporuka	**Razred***	**Razina†**
Acetilsalicilna kiselina (oralno ili intravenozno)	**1**	**B**
Antagonisti receptora adenozin difosfata (ADP) preporučuju se istodobno s acetilsalicilnom kiselinom. **Opcije su:**	**1**	**A**
• **Prasugrel – kod klopidogrel naivnih bolesnika, bez povijesti prethodnog moždanog udara, TIA, dob <75 godina**	**1**	**B**
• **TIKAGRELOR**	**1**	**B**
• **Klopidogrel - poželjno kada prasugrel ili BRILIQUE nisu dostupni ili kontraindicirani**	**1**	**C**

*Razred 1 označava "dokazi i/ili opći dogovor da je određeno liječenje ili zahvat djelotvorno ,korisno i učinkovito" ; opcija za prvu liniju liječenja kod ovih bolesnika

Razred 2a označava da dokazi idu u prilog koristi i učinkovitosti liječenja.

†Razina A je temeljena na podacima iz više randomiziranih kliničkih istraživanja ili meta-analiza. Razina B se temelji na podacima dobivenim iz jedne randomizirane kliničke studije ili velike ne-randomizirane studije

European Heart Journal (2012) 33, 2569-2619 doi :10.1093/eurheartj/ehs 215

ESC smjernice za liječenje bolesnika s NSTEMI-AKS-om

ESC smjernice za liječenje bolesnika sa IM bez ST-elevacije (NSTEMI-ACS)

OAP	Recommendation	Class*	Level†
TIKAGRELOR	Preporučuje se svim bolesnicima sa umjerenim i visokim rizikom od ishemičnog događaja, bez obzira na početni način liječenja,te uključujući i pacijente koji su prije liječeni klopidogrelom.	1	B
Prasugrel	Preporučuje se za $P2Y_{12}$-inhibitor-naivne bolesnike (posebno za dijabetičare) sa poznatom koronarnom anatomijom i za one koji nastavljaju liječenje sa PKI-om osim ako postoji visok rizik od životno ugrožavajućih krvarenja ili druge kontraindikacije.	1	B
Klopidogrel (300-mg UD, 75-mg DO)	Preporuča se za bolesnike koji ne mogu primiti BRILIQUE ili prasugrel.	1	A
Klopidogrel 600-mg UD (ili dodatnih 300-mg prije PKI-e nakon udarne doze od 300-mg)	Preporuča se za bolesnike koji su planirani za invazivno liječenje kada BRILIQUE ili prasugrel nisu izbor.	1	B
TIKAGRELOR ili klopidogrel	Trebalo bi ponovno nastaviti liječenje što prije nakon CABG-a (kada se procijeni da je sigurno za bolesnika).	2a	B

*Razred 1 označava "dokazi i/ili opći dogovor da je određeno liječenje ili zahvat djelotvorno ,korisno i učinkovito" ; opcija za prvu liniju liječenja kod ovih bolesnika

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UD – udarna doza
DO-doza održavanja
PKI – Perkutana koronarna intervencija
CABG – Aortokoronarna premosnica

Eur Heart J. doi:10.1093/eurheartj/ehr236.

European Heart Journal 2012;33:2719-2747 -
doi:10.1093/eurheartj/ehs253

2012 focussed update of the ESC Guidelines for the Management of Atrial Fibrillation

An update of the 2010 ESC Guidelines for the Management of Atrial Fibrillation

Developed with the special contribution of the European Heart Rhythm Association (EHRA)

Authors/Task Force Members: A. John Camm (Chairperson) (UK), Gregory Y. H. Lip (UK), Raffaele De Caterina (Italy), Irene Savelieva (UK), Dan Atar (Norway), Stephan H. Hohnloser (Germany), Gerhard Hindricks (Germany), Paulus Kirchhof (Germany/UK)

European Heart Journal 2012;33:2719-2747 -
doi:10.1093/eurheartj/ehs253

www.escardio.org/guidelines

Opportunistic Screening

Recommendations for screening AF		
Recommendations	**Class[a]**	**Level[b]**
Opportunistic screening for AF in patients ≥65 years of age using pulse-taking followed by an ECG is recommended to allow timely detection of AF.	I	B

[a]Class of recommendation. [b]Level of evidence.
AF = atrial fibrillation; LoE = level of evidence.

European Heart Journal 2012;33:2719-2747 - doi:10.1093/eurheartj/ehs253

Risk factor-based point-based scoring system - CHA2DS2-VASc

Risk factor	Score
Congestive heart failure/LV dysfunction	1
Hypertension	1
Age ≥ 75 ans	2
Diabetes mellitus	1
Stroke/TIA/thrombo-embolism	2
Vascular disease*	1
Age 65-74	1
Sex category [i.e. femal sex]	1
Maximum score	**9**

Adjusted stroke rate according to CHA2DS2-VASc score

CHA_2DS_2-VASc score	Patients (n = 7329)	Adjusted stroke rate (%/y)
0	1	0%
1	422	1.3%
2	1230	2.2%
3	1730	3.2%
4	1718	4.0%
5	1159	6.7%
6	679	9.8%
7	294	9.6%
8	82	6.7%
9	14	15.2%

Anticoagulation - General

Recommendations for prevention of thromboembolism in non-valvular AF - general		
Recommendations	**Class**	**Level**
Antithrombotic therapy to prevent thromboembolism is recommended for all patients with AF, except in those patients (both male and female) who are at low risk (aged <65 years and lone AF), or with contraindications.	I	A
The choice of antithrombotic therapy should be based upon the absolute risks of stroke/thromboembolism and bleeding and the net clinical benefit for a given patient.	I	A
The CHA_2DS_2-VASc score is recommended as a means of assessing stroke risk in non-valvular AF.	I	A
Female patients who are aged <65 and have lone AF (but still have a CHA_2DS_2-VASc score of 1 by virtue of their gender) are low risk and no antithrombotic therapy should be considered.	IIa	B

European Heart Journal 2012;33:2719-2747 - doi:10.1093/eurheartj/ehs253

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Anticoagulation – General (Cont..)

Recommendations	Class	Level
In patients with a CHA_2DS_2-VASc score of 0 (i.e., aged <65 years with lone AF) who are at low risk, with none of the risk factors, no antithrombotic therapy is recommended.	I	B
In patients with a CHA_2DS_2-VASc score ≥2, OAC therapy with: • adjusted-dose VKA (INR 2–3); or • a direct thrombin inhibitor (dabigatran); or • an oral factor Xa inhibitor (e.g., rivaroxaban, apixaban)[d] .... is recommended, unless contraindicated.	I	A
In patients with a CHA_2DS_2-VASc score of 1, OAC therapy with: • adjusted-dose VKA (INR 2–3); or • a direct thrombin inhibitor (dabigatran); or • an oral factor Xa inhibitor (e.g., rivaroxaban, apixaban)[d] .... should be considered, based upon an assessment of the risk of bleeding complications and patient preferences.	IIa	A

[d] = pending EMA/FDA approval – prescribing information is awaited

European Heart Journal 2012;33:2719-2747 - doi:10.1093/eurheartj/ehs253

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Anticoagulation - General

Recommendations for prevention of thromboembolism in non-valvular AF - general		
Recommendations	**Class**	**Level**
When patients refuse the use of any OAC (whether VKAs or NOACs), antiplatelet therapy should be considered, using combination therapy with aspirin 75–100 mg plus clopidogrel 75 mg daily (where there is a low risk of bleeding) or – less effectively – aspirin 75–325 mg daily.	**IIa**	**B**

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Recommendations	Class	Level
Where dabigatran is prescribed, a dose of 150 mg b.i.d. should be considered for most patients in preference to 110 mg b.i.d., with the latter dose recommended in: • elderly patients, age ≥ 80 • concomitant use of interacting drugs (e.g. verapamil) • high bleeding risk (HAS-BLED score ≥3) • moderate renal impairment (CrCl 30–49 mL/min).	IIa	B
Where rivaroxaban is being considered, a dose of 20 mg o.d. should be considered for most patients in preference to 15 mg o.d., with the latter dose recommended in: • high bleeding risk (HAS-BLED score ≥3) • moderate renal impairment (CrCl 30–49 mL/min).	IIa	C
Baseline and subsequent regular assessment of renal function (by CrCl) is recommended in patients following initiation of any NOAC, which should be done annually but more frequently in those with moderate renal impairment where CrCl should be assessed 2–3 times per year.	IIa	B
NOACs (dabigatran, rivaroxaban, and apixaban) are not recommended in patients with severe renal impairment (CrCl <30 mL/min).	III	A

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HAS-BLED Score

	Clinical Characteristic	Score
H	Hypertension	1
A	Abnormal renal or liver function (1 each)	1 or 2
S	Stroke	1
B	Bleeding	1
L	Labile INR	1
E	Elderly age	1
D	Drugs or alcohol (1 each)	1 or 2
	Maximum Score	9

Hypertension: SBP > 160 mmHg; Abnormal renal function: Chronic dialysis, renal transplant, serum creatinine ≥ 200µmol/L; Abnormal liver function: Chronic hepatitis, bilirubin > 2x upper limit of normal (ULN) in association with AST/ALT/ALP > 3 x ULN; Bleeding: Previous history, predisposition; Labile INRs: unstable/high INRs, in therapeutic range < 60%; Age > 65 years; Drugs/alcohol: Concomitant use of antiplatelet agents, non-steroidal anti-inflammatory drugs, etc.

Pisters R, et al. *Chest*, 2010;138:1093-100

Anticoagulation - Bleeding

Recommendations for prevention of thromboembolism in non-valvular AF - bleeding		
Recommendations	**Class**	**Level**
Assessment of the risk of bleeding is recommended when prescribing antithrombotic therapy (whether with VKA, NOAC, aspirin/clopidogrel, or aspirin).	I	A
The HAS-BLED score should be considered as a calculation to assess bleeding risk, whereby a score ≥3 indicates 'high risk' and some caution and regular review is needed, following the initiation of antithrombotic therapy, whether with OAC or antiplatelet therapy (LoE = A). Correctable risk factors for bleeding [e.g. uncontrolled blood pressure, labile INRs if the patient was on a VKA, concomitant drugs (aspirin, NSAIDs, etc.), alcohol, etc.] should be addressed (LoE = B). Use of the HAS-BLED score should be used to identify modifiable bleeding risks that need to be addressed, but should not be used on its own to exclude patients from OAC therapy (LoE = B).	IIa	A / B
The risk of major bleeding with antiplatelet therapy (with aspirin–clopidogrel combination therapy and – especially in the elderly – also with aspirin monotherapy) should be considered as being similar to OAC.	IIa	B

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The risk of major bleeding with antiplatelet therapy (with aspirin–clopidogrel combination therapy and – especially in the elderly – also with aspirin monotherapy) should be considered as being similar to OAC.	IIa	B

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