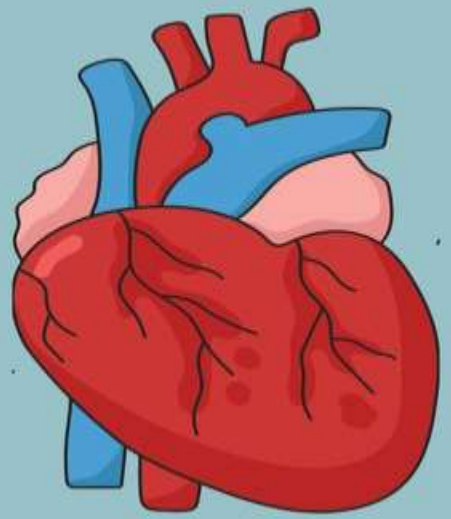
Edited past paper



By
Ahamd Alhaj
jihad Abuzayed
Zeenah Alsmady
Alzahra’a Saleh

Adenosine may terminate all of the following tachycardias except:

a) AV re-entrant tachycardia.
b) AV nodal re-entrant tachycardia.
c) Atrial fibrillation.
d) Antidromic tachycardia.
e) Atrial tachycardia.

Ans d

All are svt except for d.

Supraventricular Tachycardia (SVT)

- **DDx of SVT**
  - *Short RP Tachycardias (RP<PR):*
    - Typical AV Nodal Re-entry Tachycardia (AVNRT)
    - Junctional Tachycardia
    - Orthodromic Atrioventricular Tachycardia (OD – AVRT)
    - *Atrial Tachycardia*
  - *Long RP Tachycardias (RP>PR):*
    - Sinus Tachycardia (ST)
    - Atrial Tachycardia (AT)
    - *Atypical Orthodromic Atrioventricular Tachycardia (OD – AVRT)*
    - *Atypical AV Nodal Re-entry Tachycardia (AVNRT)*
    - *Junctional Tachycardia*
  - *Mimickers:*
    - Atrial Flutter with rapid conduction
    - A. Fibrillation with very rapid conduction

Slide 52

3) A 55-year-old man comes to the office for routine follow-up. Medical history includes hypertension, hyperlipidemia, coronary artery disease, stage 3 chronic kidney disease, and type 2 diabetes mellitus. Current medications include carvedilol, amlodipine, furosemide, lisinopril, nitroglycerin transdermal patch, insulin, simvastatin, aspirin, and gabapentin. The patient appears well, and he is not in acute distress. Body mass index is 27.9 kg/m2. Pulse rate is 88/min, and blood pressure is 172/88 mmHg in the left arm and 170/78 mmHg in the right arm. Which of the following findings in this patient is the most likely cause of continued uncontrolled hypertension?

a) History of hyperlipidemia.

b) Age of patient.

c) Body mass index.

d) Smoking.

e) Non-compliance with drug regimen.

Ans e

A,b,c,and d are risk factors not causes.

Which of the following conditions is NOT often associated with a prominent R wave in

electrocardiographic lead VIP?

a) Duchenne muscular dystrophy.

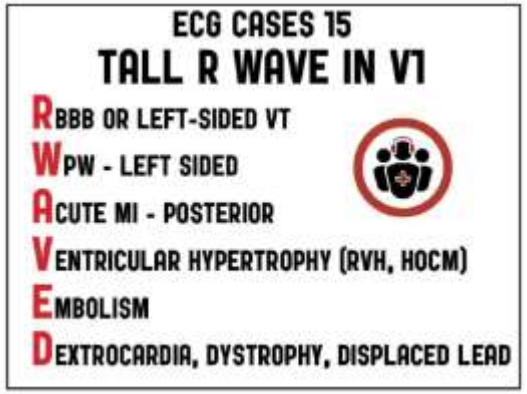
b) Wolff-Parkinson-White syndrome.

c) Left anterior fascicular block.

d) Posterior myocardial infarction.

e) Right ventricular hypertrophy

Ans c


ECG CASES 15
TALL R WAVE IN V1
RBBB OR LEFT-SIDED VT
WPW - LEFT SIDED
ACUTE MI - POSTERIOR
VENTRICULAR HYPERTROPHY (RVH, HOCM)
EMBOLISM
DEXTROCARDIA, DYSTROPHY, DISPLACED LEAD

Which of the followings does not increase the incidence of bleeding in patient with atrial

fibrillation on warfarin?

a) Age above 55 years.

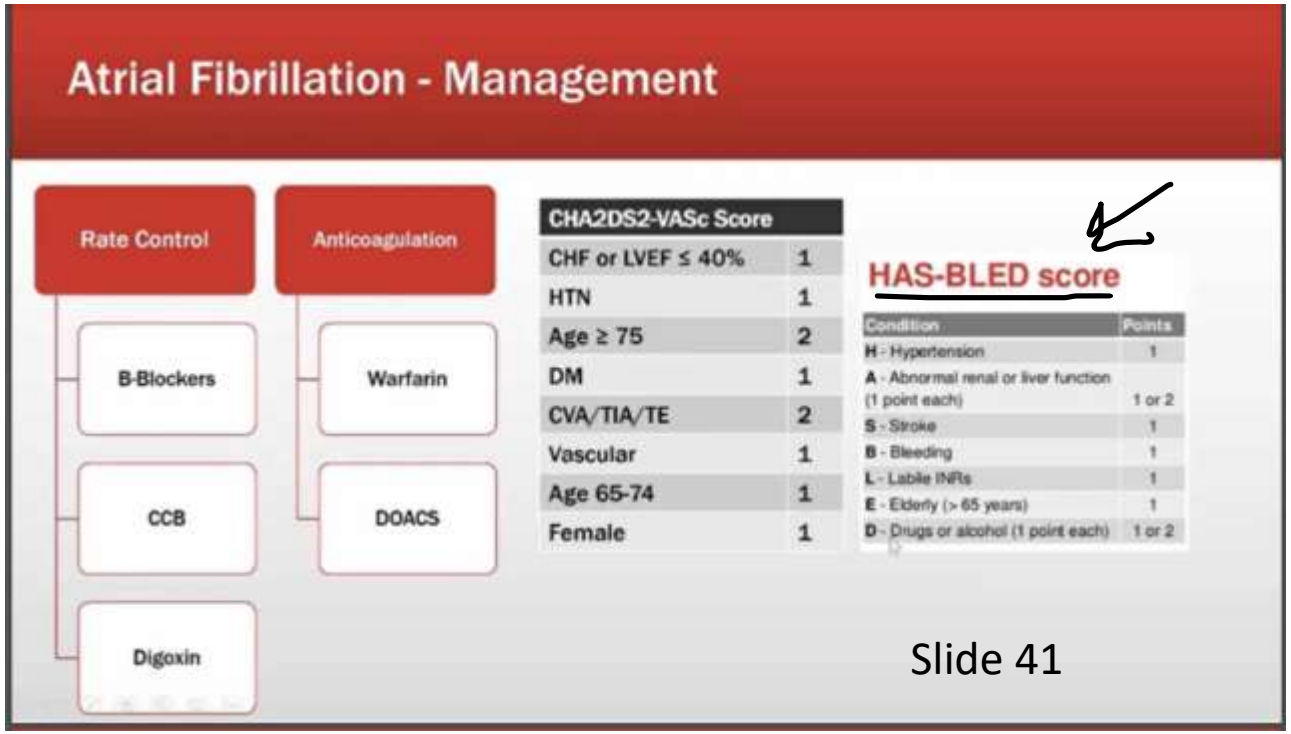
b) Alcohol ingestion.

c) Hypertension.

d) Renal Failure.

e) Stroke.

Ans a



Slide 41

A 82-year-old man with diabetes mellitus and exertional angina is found to have three-vessel coronary artery disease and a left ventricular ejection fraction of 40%. He undergoes successful coronary artery bypass graft surgery. A rhythm strip obtained on the second postoperative day shows atrial fibrillation. Preoperative administration of one of the following therapies did not prevent the occurrence of this arrhythmia?

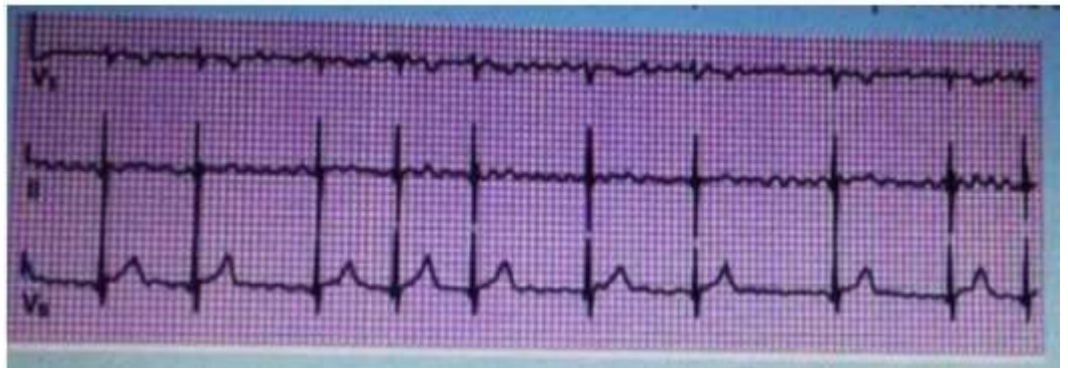
a) Sotalol.

b) Amiodarone.

c) Digoxin.

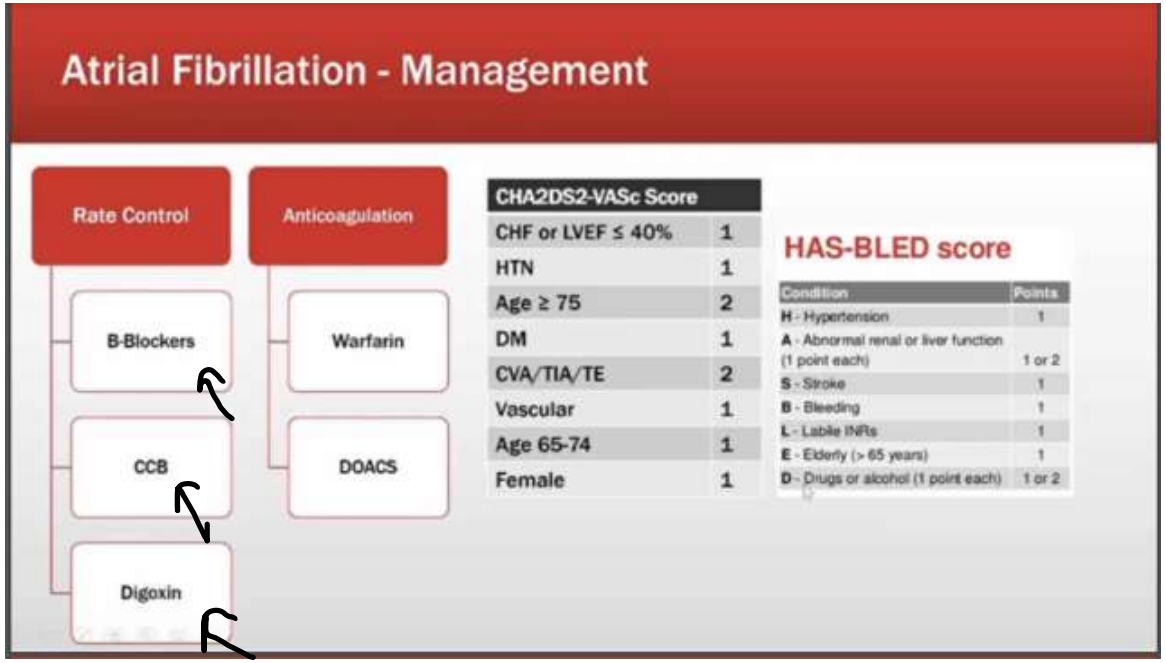
d) Metoprolol.

e) Atorvastatin



Ans e

A and d are beta blockers , b posses ccb properties.



23 years old female presented with two hours history of palpitation and dyspnea, on evaluation emergency room her blood pressure 110/70mmHg, HR 160BPM, and bilateral chest wheezes. Her ECG shows narrow complex tachycardia with one P wave for each QRS complex.

What is the best management at this time:

a) IV Metoprolol.

b) IV Adenosine.

c) IV Amiodarone.

d) IV Lidocaine.

e) IV Diltiazem.

According to 020 the ans is b because the patient is having an svt.

I think

“narrow complex tachycardia with one P wave for each QRS complex” is a description for sinus tachycardia (check min 5:41 from tachycardia lecture for sinus tachycardia explanation). Management of sinus tachycardia is by treating underlying cause.

b. IV Adenosine

“Because:It is the safest option in the setting of wheezing

May help diagnose the rhythm by transiently blocking AV node

Even if this is sinus tachycardia, adenosine will not harm and will confirm the diagnosis” chat gpt

A 27-year old male patient with a history of lymphoma presented to the emergency room with shortness of breath that started few days ago. Upon physical exam, his heart rate was 120 bpm (regular), blood pressure of 90/60 mm Hg and his systolic blood pressure dropped to 75 mm Hg during inspiration and pulse oximetry of 94% on room air. His cardiac and respiratory exam revealed distant heart sounds with increased JVP and clear lungs. What is the next

appropriate step?

a) Synchronized cardioversion.

b) IV adenosine.

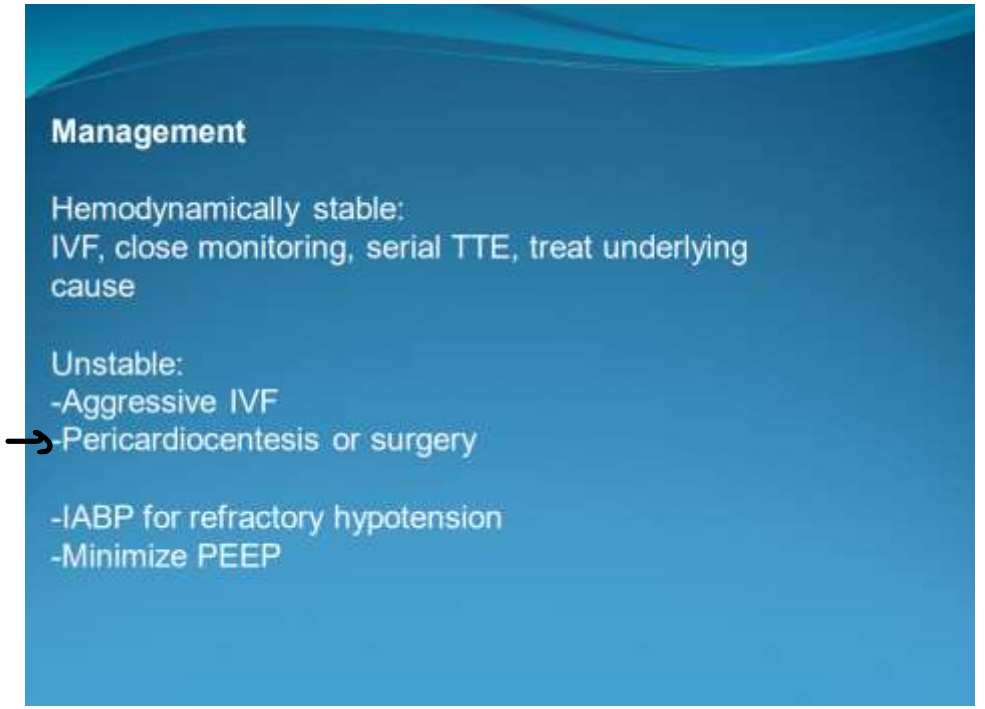
c) Computed tomography of the thorax with contrast to rule out pulmonary embolism.

d) Foley's catheter and intravenous (IV) torsemide.

e) Pericardiocentesis.

Ans e

The diagnosis is cardiac tamponade.(a patient with hypotension is considered unstable)



Which of the following biomarkers is most accurate for the diagnosis of heart failure?

a) Troponine I.

b) Troponine T.

c) Creatinine Phosphokinase CK.

d) Brain natriuretic peptide (BNP).

Ans d

Doctor mentioned in heart failure lecture that bnp is the most important for diagnosis(9:20 ;from heart failure lecture first semester)/ doctor mentioned that bnp is the main biomarker for diagnosis(13:57 ; from heart failure lecture second semester)

A 28 years old female presented with chest pain of one week duration described as sharp retrosternal pain, her symptoms improve with sitting and worsening when lying flat. Her Examination pericardial friction nub and her ECG shows diffused concave ST elevation and PR segment depression. Regarding this case, which of the following is true?

a) Most cases are symptomatic.

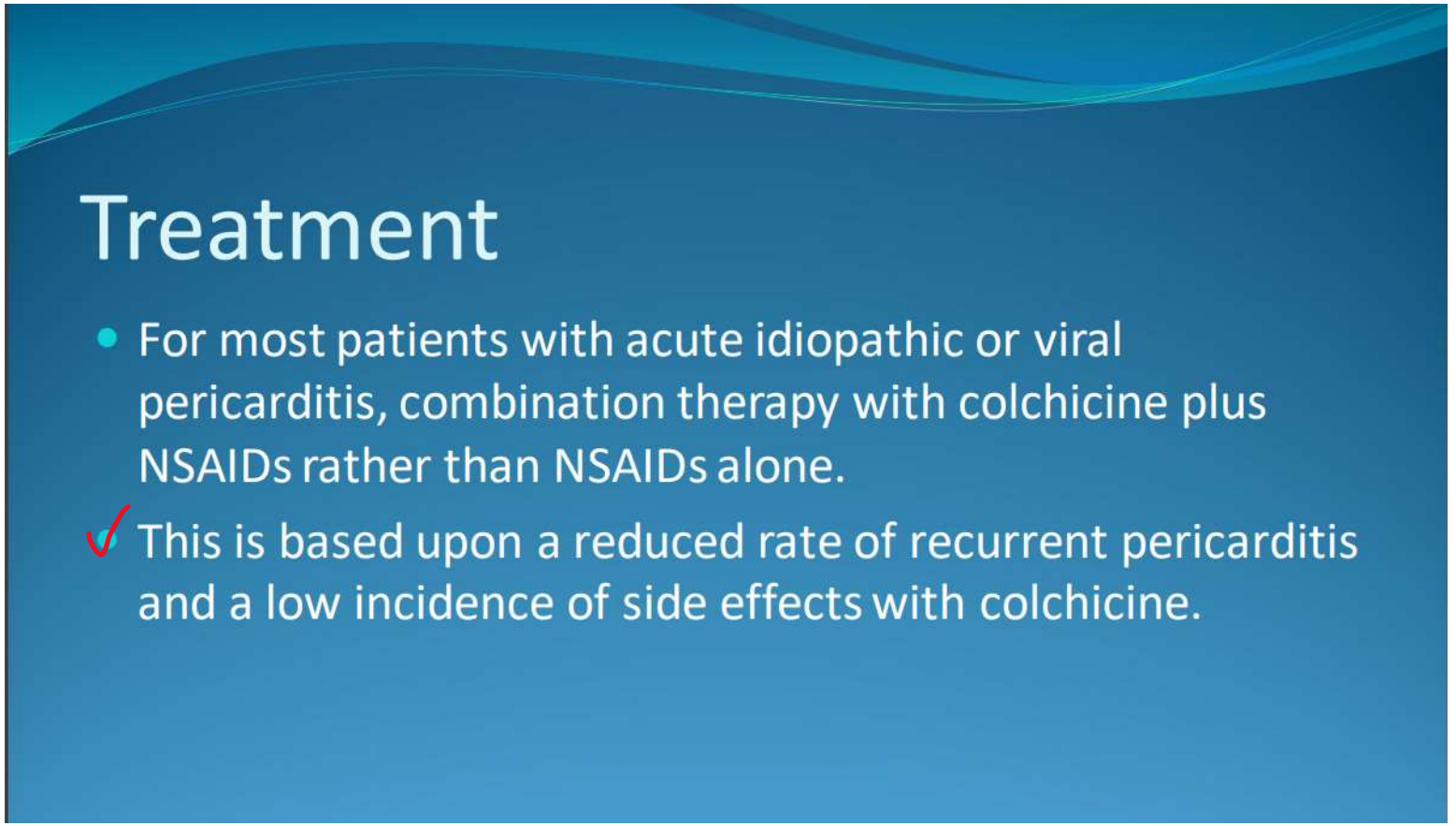
b) Heparin is the first line therapy.

c) Tamponade is a common complication.

d) Steroid is the treatment of choice.

e) Colchicine decreases the recurrence rate.

Ans e


Treatment
For most patients with acute idiopathic or viral pericarditis, combination therapy with colchicine plus NSAIDs rather than NSAIDs alone.
This is based upon a reduced rate of recurrent pericarditis and a low incidence of side effects with colchicine.

Which of the following statements about natriuretic peptides is FALSE?

a) Elevated plasma BNP levels predict adverse outcomes in patients with acute coronary

syndromes.

b) Prohormone BNP is cleaved into the biologically inactive N-terminal (NT) proBNP and

biologically active BNP.

c) Circulating levels of NT-proBNP levels decrease with age.

d) Circulating levels of both atrial natriuretic peptide and brain natriuretic peptide (BNP) are

elevated in

patients with heart failure.

e) Plasma BNP level is useful in distinguishing cardiac from noncardiac causes of dyspnea in the

emergency department setting.

- Ans c

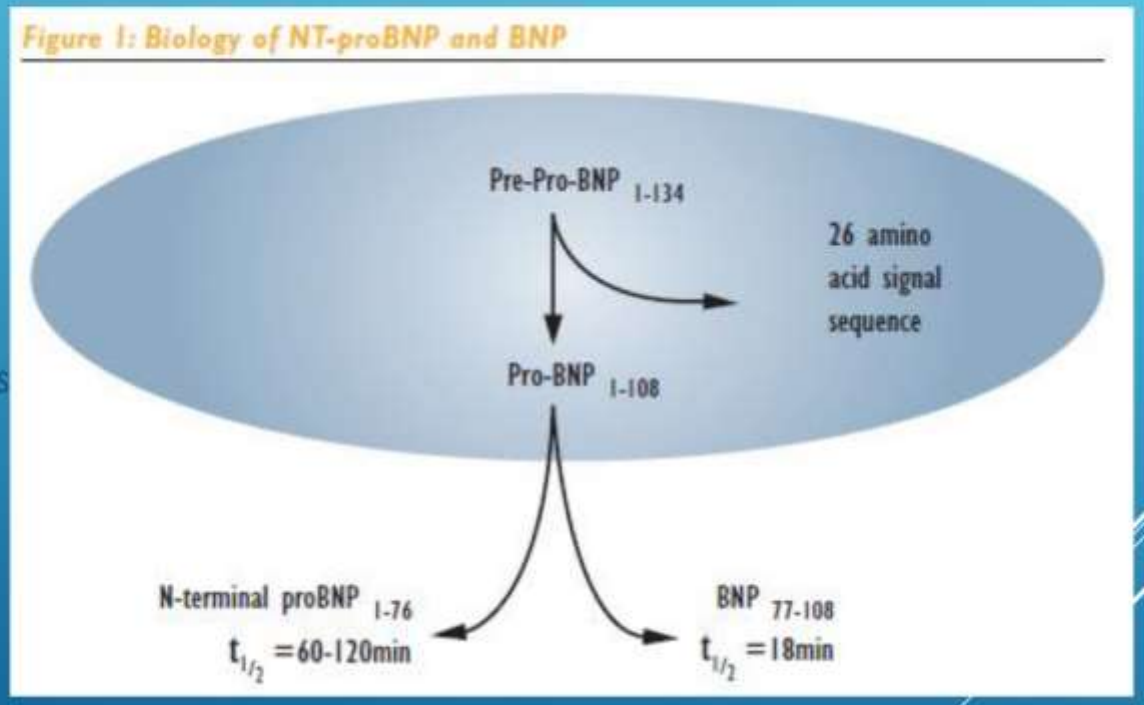
Age has no relation

CARDIAC NATRIURETIC PEPTIDES

- What is BNP?
  - A 32 amino acid polypeptide
  - Belong to a class of structurally similar natriuretic peptides (classes A,B,C and D)
  - Secreted by cardiac myocytes (mainly left) in response to excessive distension of the Heart ventricles
  - Similar to ANP (Atrial Natriuretic Peptide) but has longer $t_{1/2}$ (~20mins, double that of ANP) Named after extracts found in Pig brain
- What is NT-proBNP?
  - NT-proBNP is a biologically inactive 76 amino acid N-terminal fragment
  - Co-secreted with BNP
  - Even longer $t_{1/2}$ than BNP (~1-2hrs vs ~20mins)
- Biological effects of Cardiac Natriuretic peptides
  - Increase natriuresis
  - Decrease peripheral vascular resistance
  - Overall reduce blood pressure and therefore Cardiac Output

SYNTHESIS IN MYOCYTES

- Synthesis



Slides 36,37

A 63 years old ICU patient, doing well and was planned to be discharged to the floor, suddenly complained of chest pain and became unresponsive. His blood pressure was 75/40 mmHg his ECG showed the attached rhythm. The treatment of choice in

this case is:

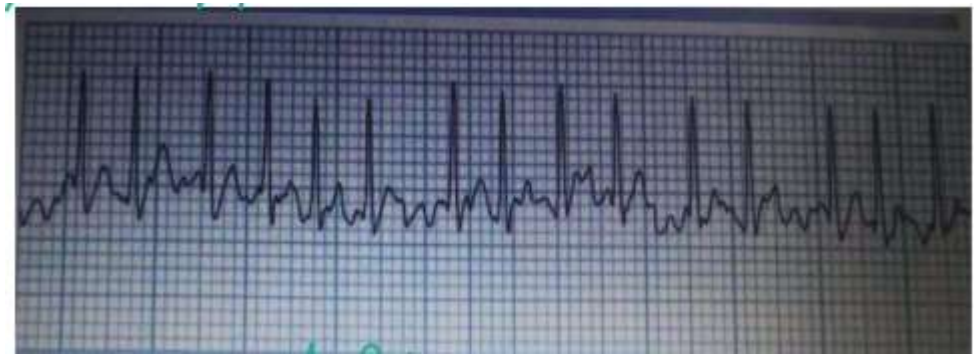
a) Digoxin oral administration.

b) Amiodarone infusion.

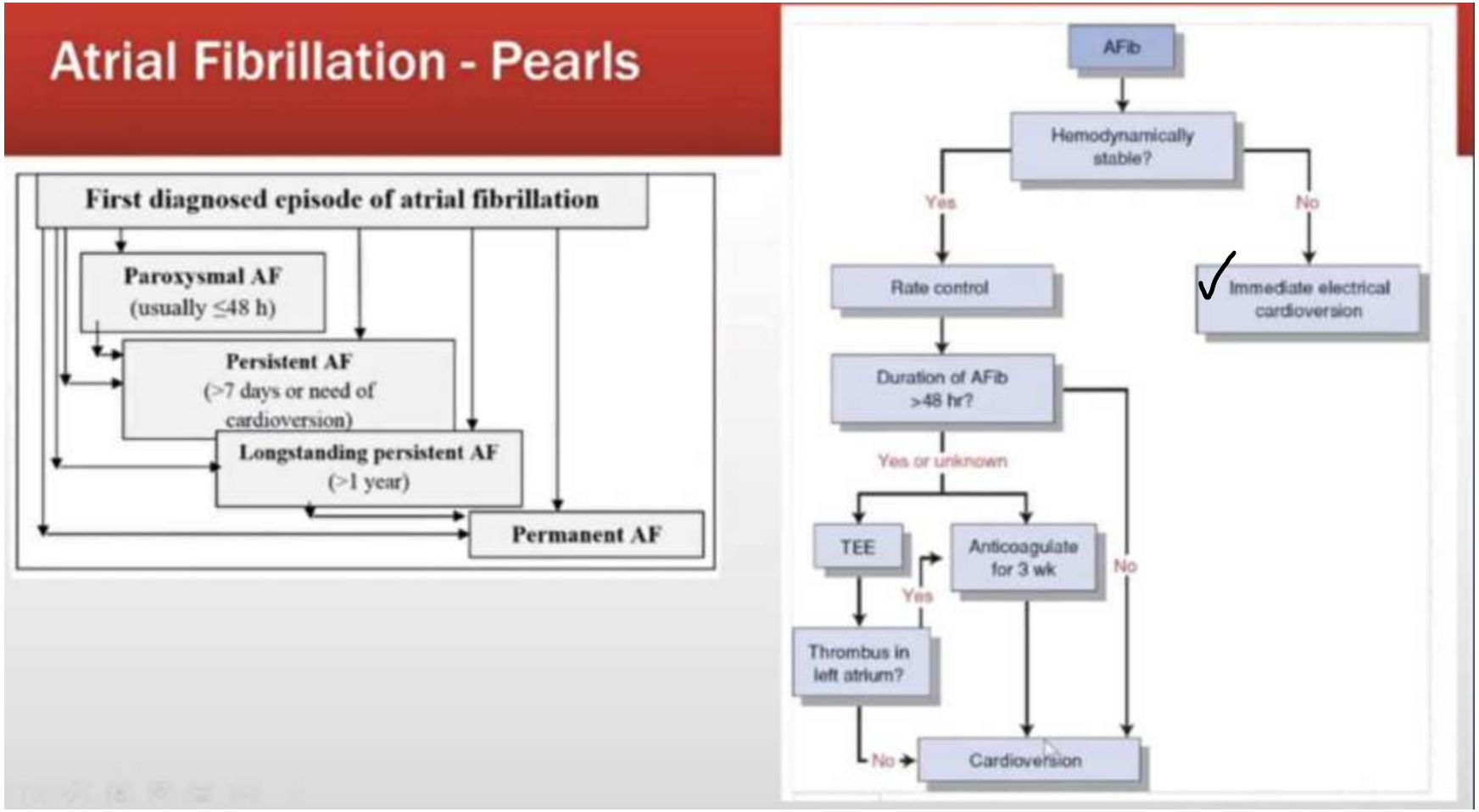
c) Metoprolol intravenous boluses.

d) Cardioversion that is synchronized.

e) Adenosine 6,12,12 mgs.



Ans d


Atrial Fibrillation - Pearls
First diagnosed episode of atrial fibrillation
Paroxysmal AF
(usually ≤48 h)
Persistent AF
(>7 days or need of cardioversion)
Longstanding persistent AF
(>1 year)
Permanent AF
AFib
Hemodynamically stable?
Yes
No
Rate control
Immediate electrical cardioversion
Duration of AFib >48 hr?
Yes or unknown
TEE
Anticoagulate for 3 wk
No
Yes
Thrombus in left atrium?
No
Cardioversion

A 56-year-old male comes to your clinic requesting advice after recent cardiac surgery. The patient had a long-standing murmur and was diagnosed with mitral stenosis. He eventually underwent repair with a prosthetic valve and his symptoms of dyspnea have resolved. He has resumed physical activity and seeks to maintain his current health. He wants advice on future procedures and possible risk of infection. Which procedure will you advise warrants such treatment solely for endocarditis prophylaxis?

a) Colonoscopy.

b) Wisdom tooth extraction.

c) EGD.

d) Bronchoscopy without biopsy.

e) Dilatation ureteral stricture.

Ans b

Infective endocarditis

Which procedures require prophylaxis?

- Dental procedures
  - Manipulation of gingival tissue or root of teeth
  - Perforation of oral mucosa
  - Cleaning, extraction, root canal
- Incision into active skin/soft tissue infection
- Incision or biopsy in respiratory tract
  - Tonsillectomy/adenoidectomy
  - Bronchoscopy with biopsy

A 60-year-old patient, presented with sudden severe right leg pain of 1-hour duration. On examination: right leg is cold with no palpable pulses. Which of the following is the least possible cause?

a) Sick sinus syndrome.

b) Paroxysmal atrial fibrillation.

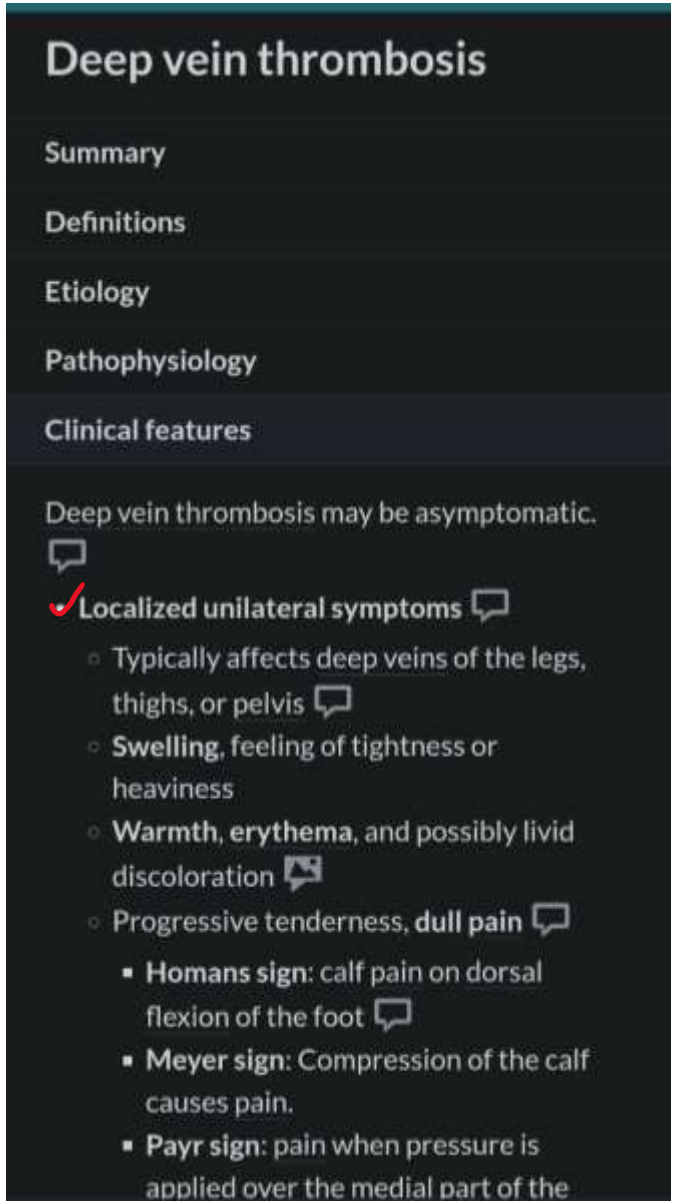
c) Constrictive pericarditis.

d) Infective endocarditis.

e) Anterior myocardial infarction.

Ans c
Unilateral leg pain is a sign of DVT all options cause embolism and c is the only one that does not cause embolism

Picture from amboss.



You have been treating a 75-year-old man for hypertension for the last 20 years. He

frequently misses medication doses, and his blood pressure is rarely well controlled. In the

office today, his blood pressure is 165/90. He states that he feels well. Which of the following

would you expect on his physical exam?

a) Basilar crackles in the lung fields.

b) S4 gallop and a left ventricular heave.

c) S4 gallop and a right ventricular heave.

d) S3 gallop and a left ventricular heave.

e) Papilledema.

Ans b

Couldn’t find an explanation from lectures or slides.

A 60-year-old man with hypertension and continued tobacco use visits your office for a physical. Initial labs reveal a total cholesterol of 340, LDL of 210, and HDL of 35. What would you recommend to lower his cholesterol?

a) Start diet therapy.

b) Start diet therapy and an exercise program.

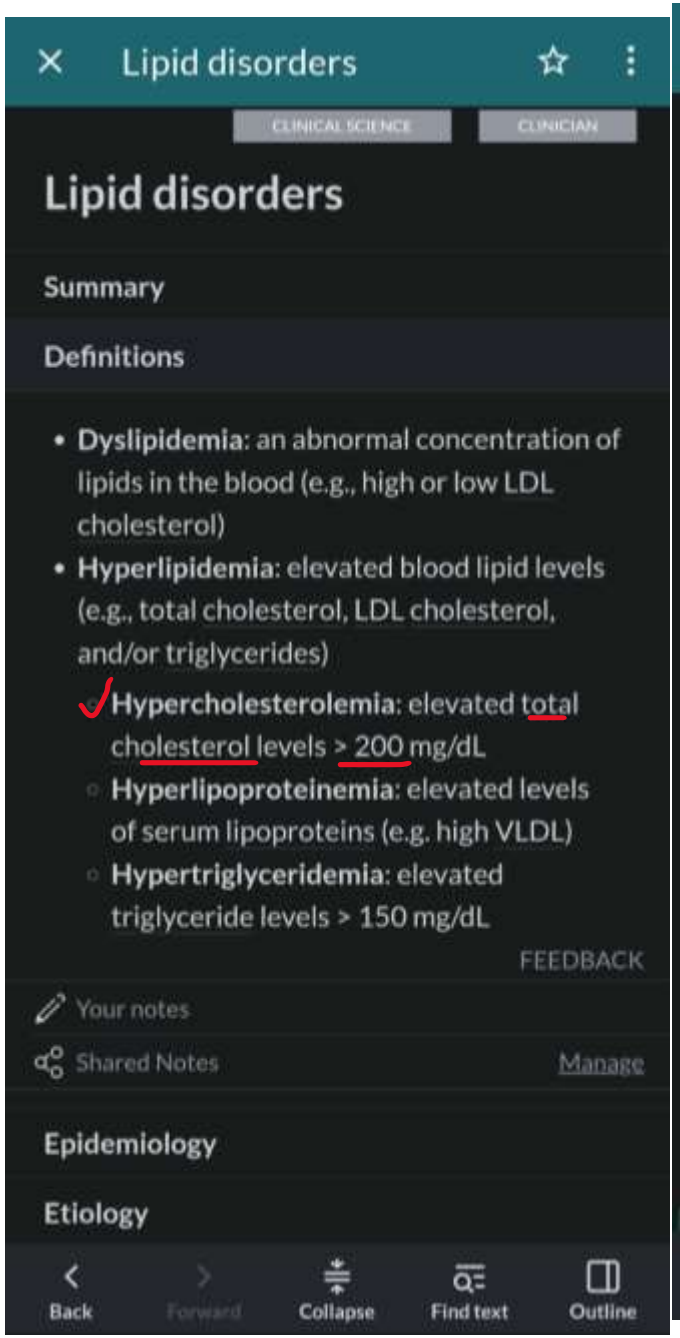
c) Start diet therapy, an exercise program, and a statin.

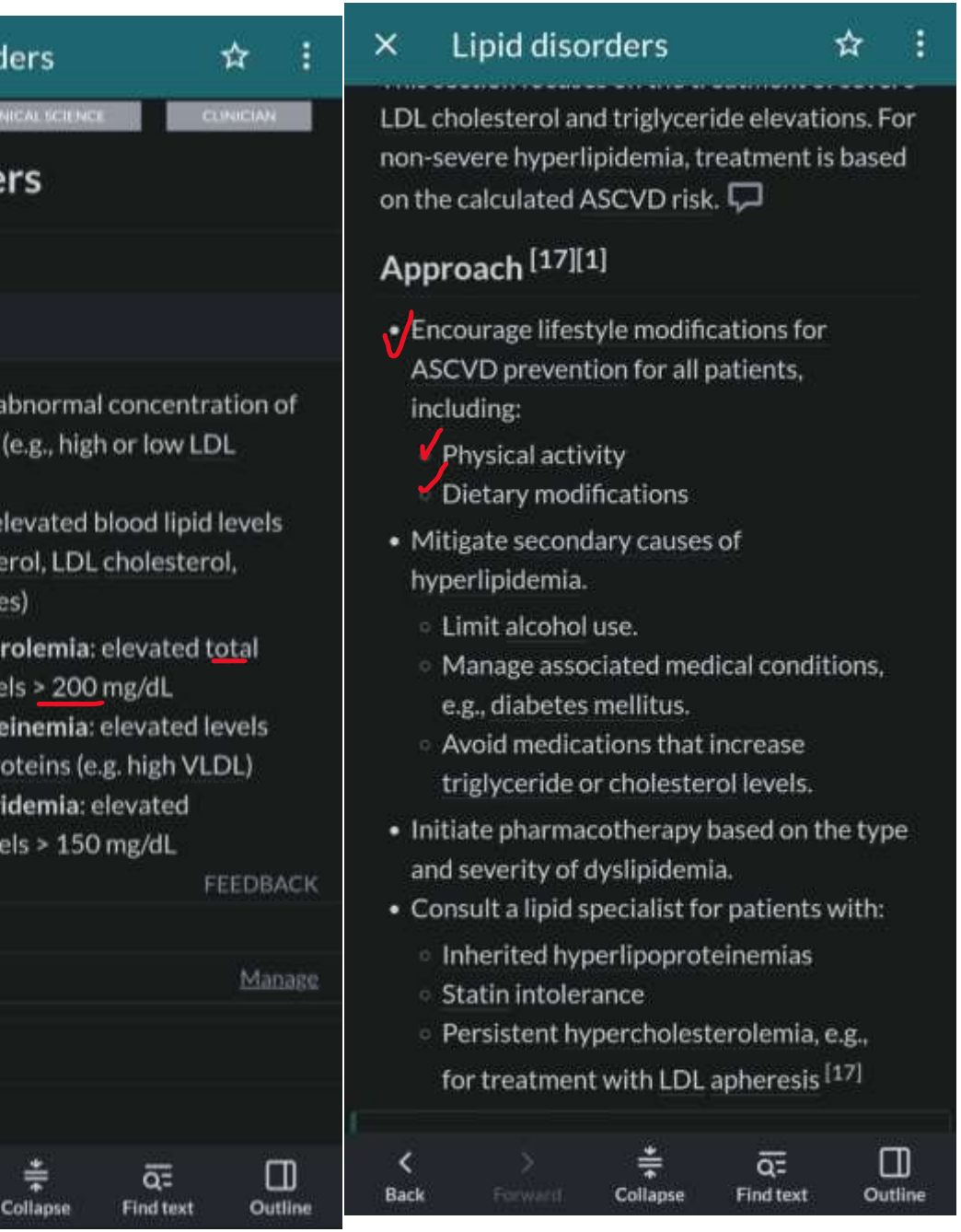
d) Repeat the labs to confirm the cholesterol measurement and then start diet therapy.

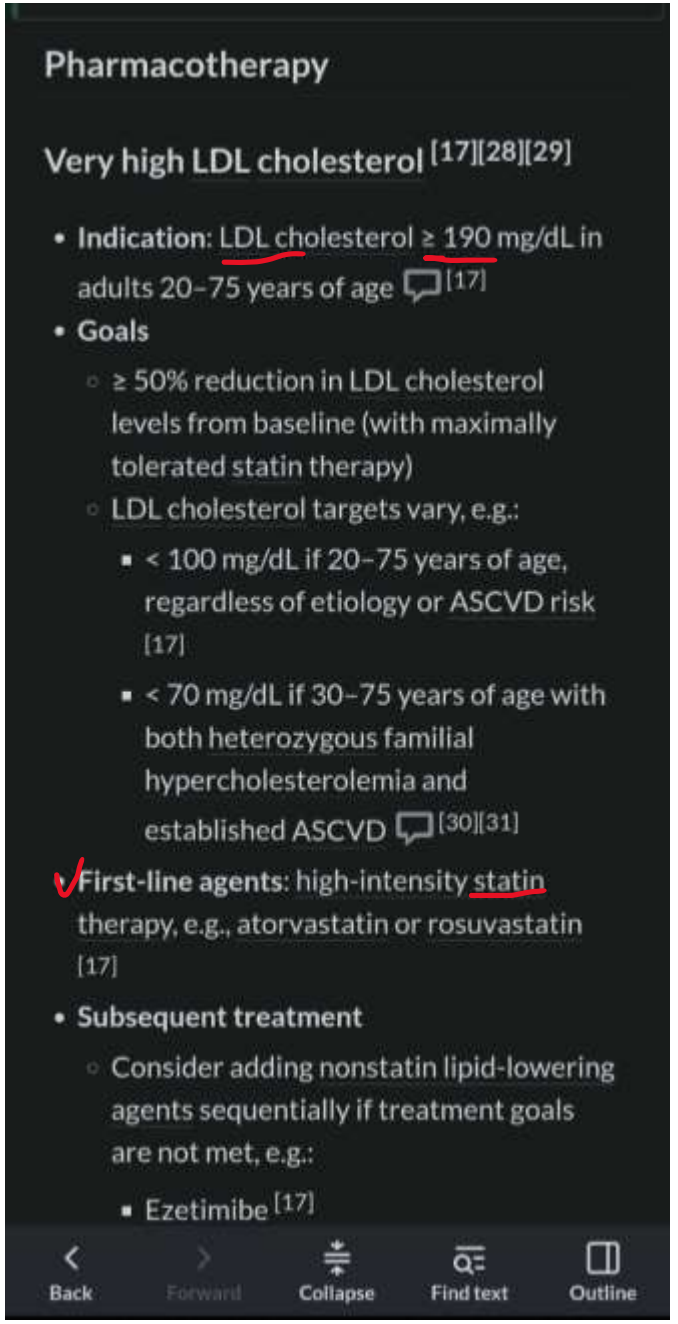
e) Repeat the labs to confirm the cholesterol measurement and then start medication

Ans c

Source: amboss







The best method to treat a collapsed patient in anaphylactic shock is:

a) Intubation

b) Intravenous adrenaline

c) Albuterol as a bronchodilator

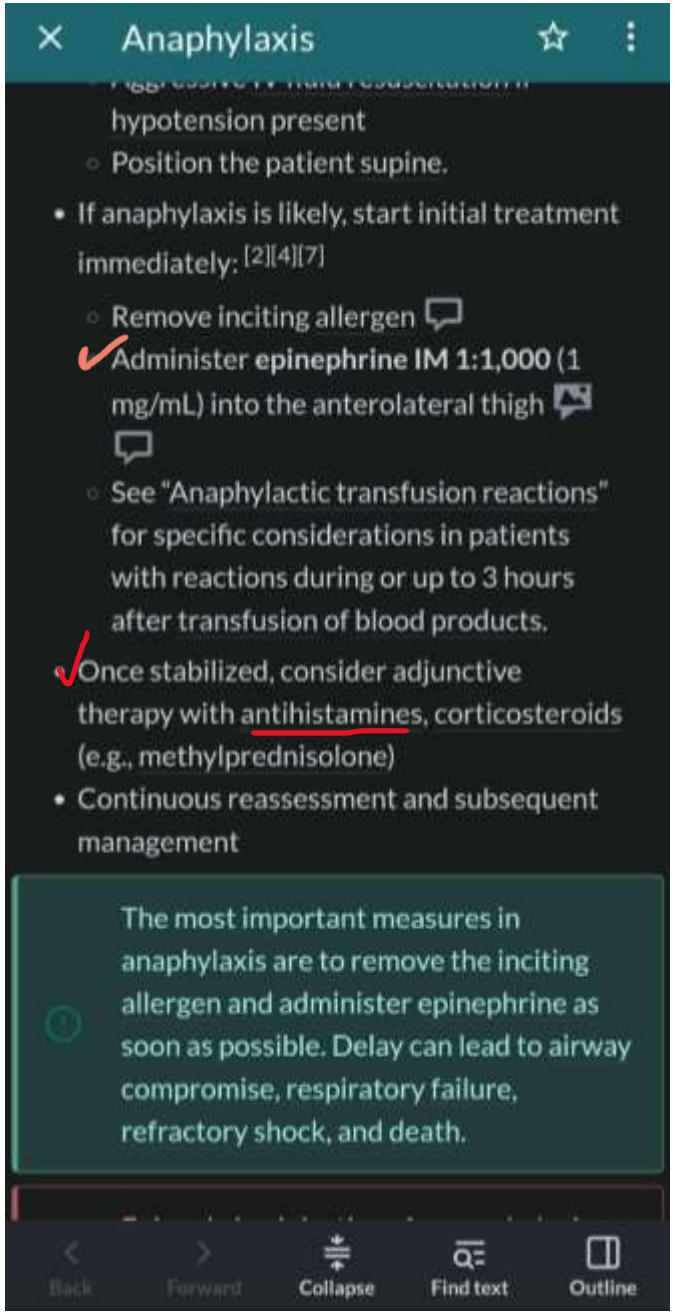
d) Antihistamines

e) High dose of steroids

Ans d

according to amboss it's b

epinephrine (adrenaline)



What is the condition that is associated with the highest risk of developing infective

endocarditis?

a. Severe aortic regurgitation.

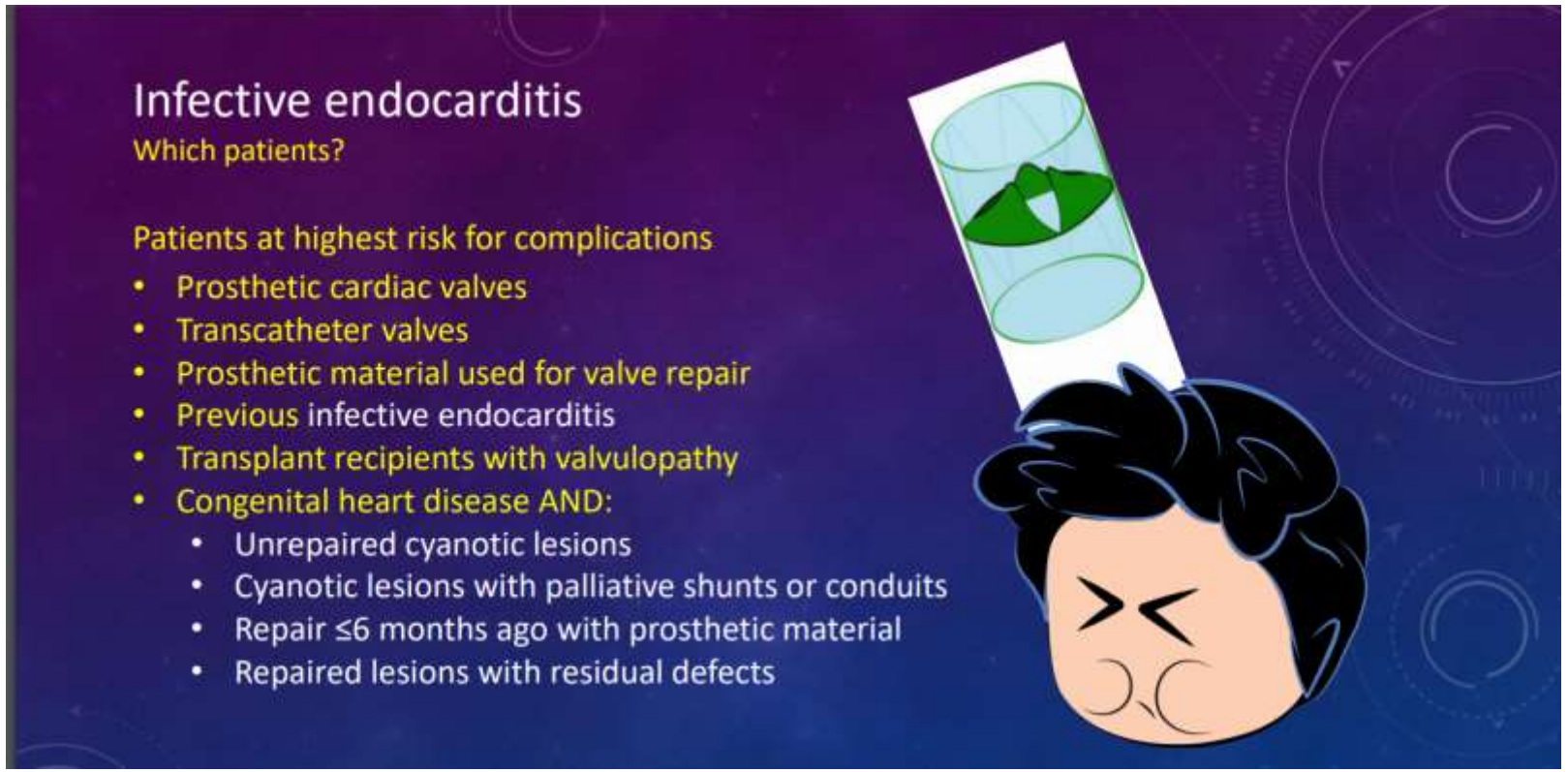
b. Mitral regurgitation.

c. Rheumatic fever with valvular heart disease.

d. Mitral valve prolapse.

e. Prosthetic valve.

Ans e


Infective endocarditis
Which patients?
Patients at highest risk for complications
• Prosthetic cardiac valves
• Transcatheter valves
• Prosthetic material used for valve repair
• Previous infective endocarditis
• Transplant recipients with valvulopathy
• Congenital heart disease AND:
• Unrepaired cyanotic lesions
• Cyanotic lesions with palliative shunts or conduits
• Repair ≤6 months ago with prosthetic material
• Repaired lesions with residual defects

A 32-year-female was noted to have mild reduction in exercise capacity over the past 6 to 12 months. On physical examination, the blood pressure is 100/70 mm Hg and the pulse is 68/min and regular. The apical impulse is not displaced. The S1 is normal. The S2 is split throughout the respiratory cycle. A grade 2/6 midsystolic murmur is noted at the second left intercostal space. There is a grade 2/6 diastolic rumble noted at the lower left sternal border. Both murmurs increase with inspiration. The remaining findings on physical examination are unremarkable. An electrocardiogram demonstrates normal sinus rhythm with right axis deviation and normal intervals. Which of the following is the most likely diagnosis in this patient?

a. Left atrial myxoma
b. Mitral stenosis.
c. Atrial septal defect
d. Hypertrophic cardiomyopathy
e. Pulmonary artery hypertension

Ans c

Auscultation of the heart

Where to listen: **APT M**

(A) Aortic area:
Systolic murmur
- Aortic stenosis
- Flow murmur (eg, physiologic murmur)
- Aortic valve sclerosis

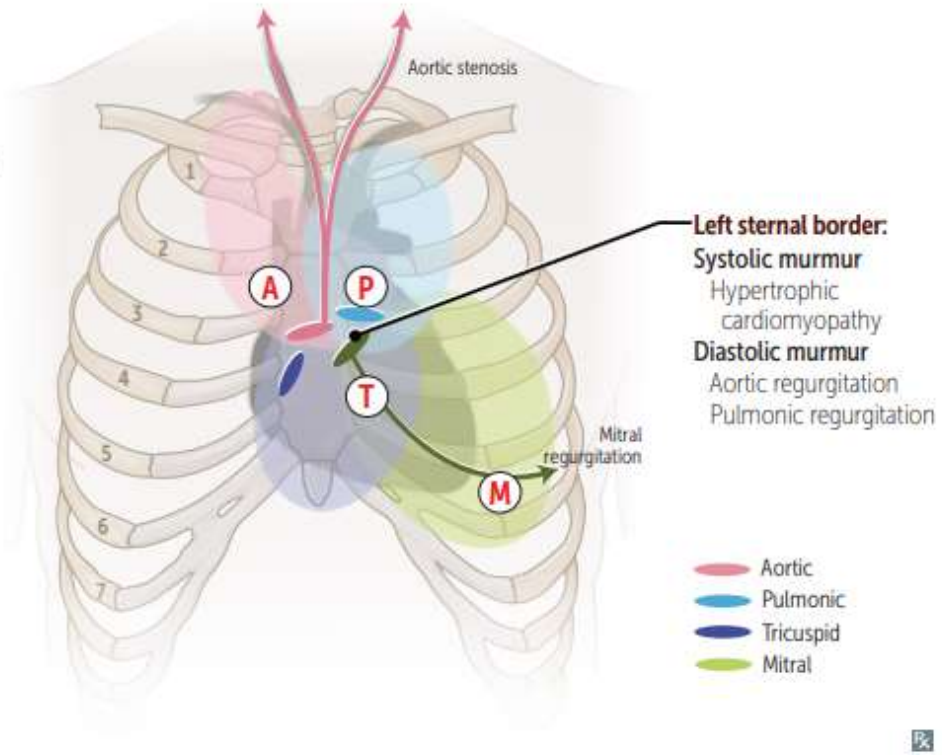
(P) Pulmonic area:
Systolic ejection murmur
- Pulmonic stenosis
- Atrial septal defect
- Flow murmur

(T) Tricuspid area:
Holosystolic murmur
- Tricuspid regurgitation
- Ventricular septal defect

Diastolic murmur
- Tricuspid stenosis

(M) Mitral area (apex):
Systolic murmur
- Mitral regurgitation
- Mitral valve prolapse

Diastolic murmur
- Mitral stenosis



A 59 Years old male patient who is known to have Diabetes and hypertension presented with four hours history of retrosternal chest pain associated with nausea and vomiting, his ECG is shown below. What is your diagnosis?

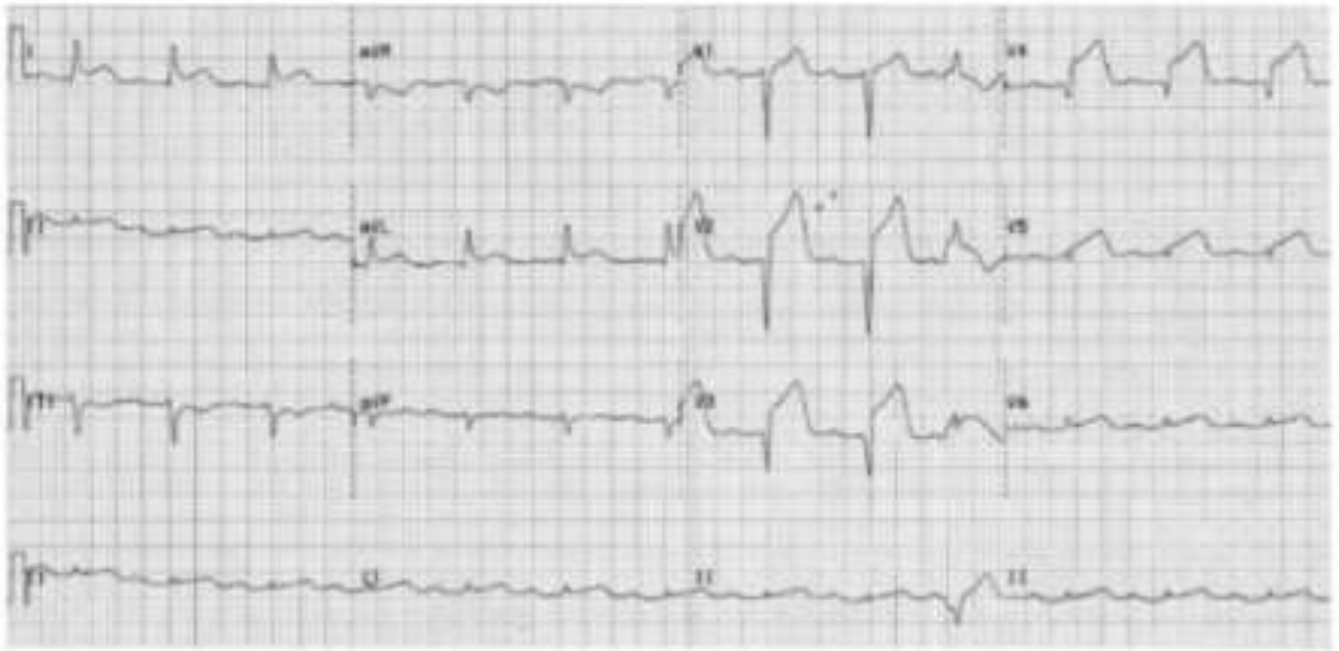
a. Posterior MI

b. Anterior MI

c. Inferior MI

d. Interoposterior MI

e. Pericarditis



Ans b

St elevation in v1-v4

Case presentation

A50 year old male presented to emergency room complaining of sudden sever chest pain of 1 hour duration. It is retrosternal, compressive, and radited to left shoulder and arm.

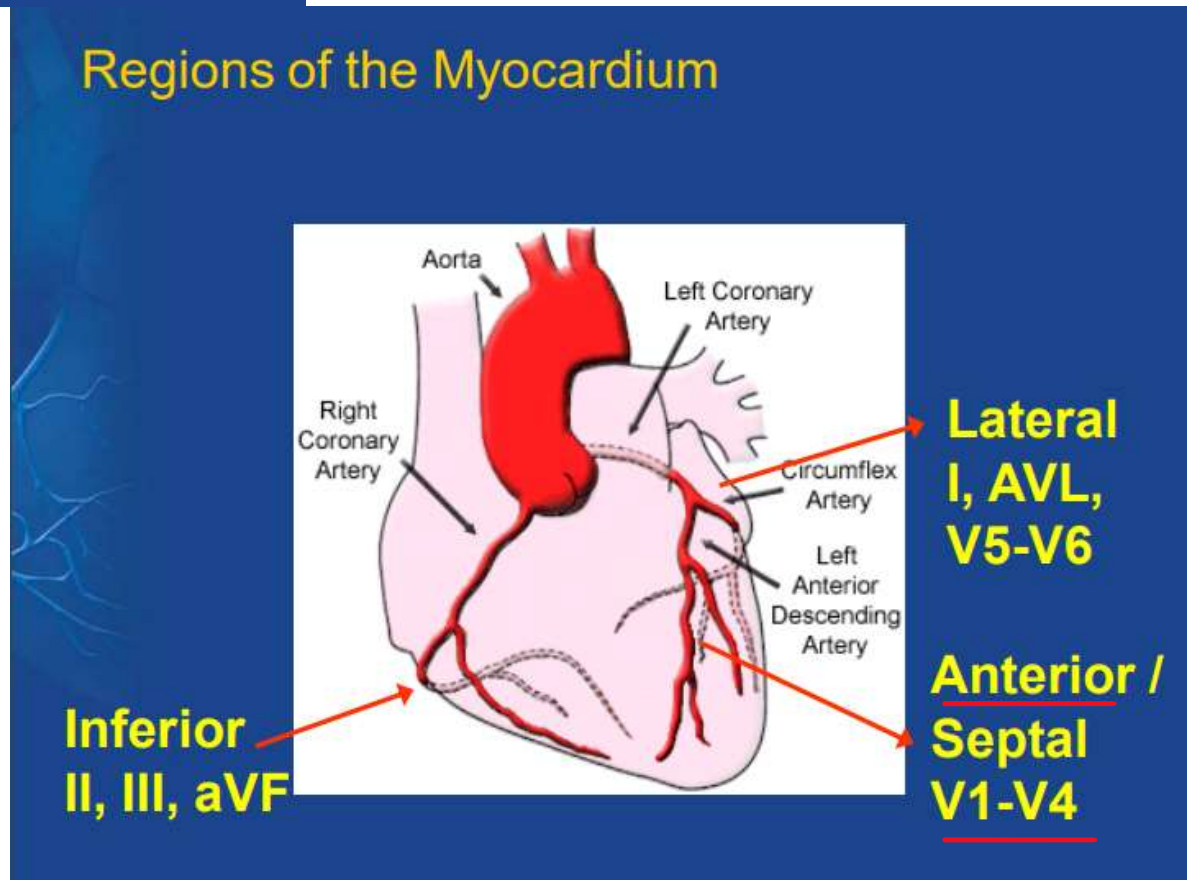
Associated with sweating, nausea and vomiting

On examination: patient is anxious, in pain, sweaty.

BP: 100/60. PULSE: 120 BPM, RR: 26/min

Chest: basal crepitations

The most likely diagnosis is Myocardial infarction



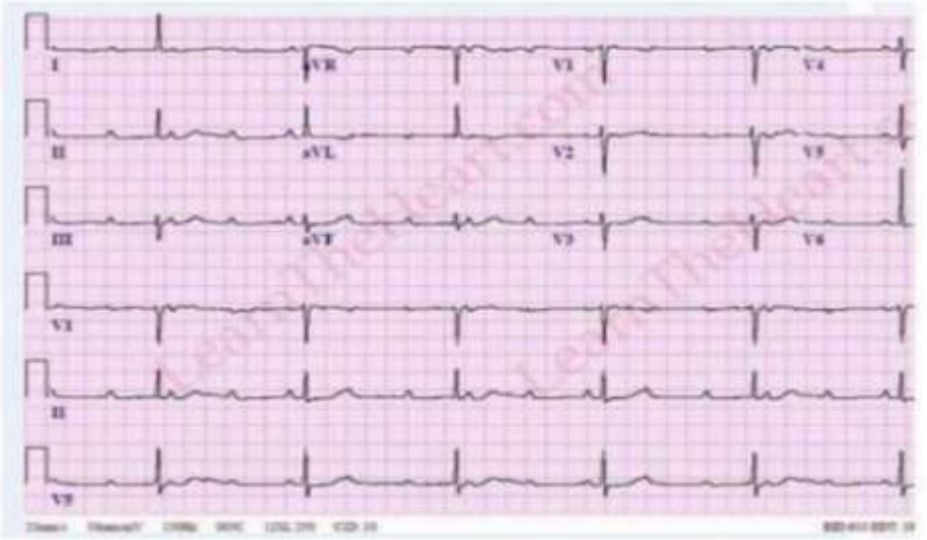
a. Sinus rhythm with frequent Premature atrial contraction

b. Sinus bradycardia

c. Atrial fibrillation.

d. Third degree AV nodal block

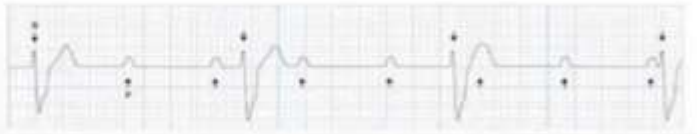
e. Second degree AV block



Ans d

Atrio-Ventricular (AV) Block

- 3rd Degree AV Block
  - P > QRS
  - AV Dissociation
- Management:
  - Medical Emergency
  - Emergent Pacer placement



A 23 years old female college student presented with two hours history of palpitation and dyspnea, on evaluation in the emergency room her blood pressure 110/70mmHg, HR 160BPM.The rest of her examination is normal. Her ECG is shown below. What is the best management at this time:

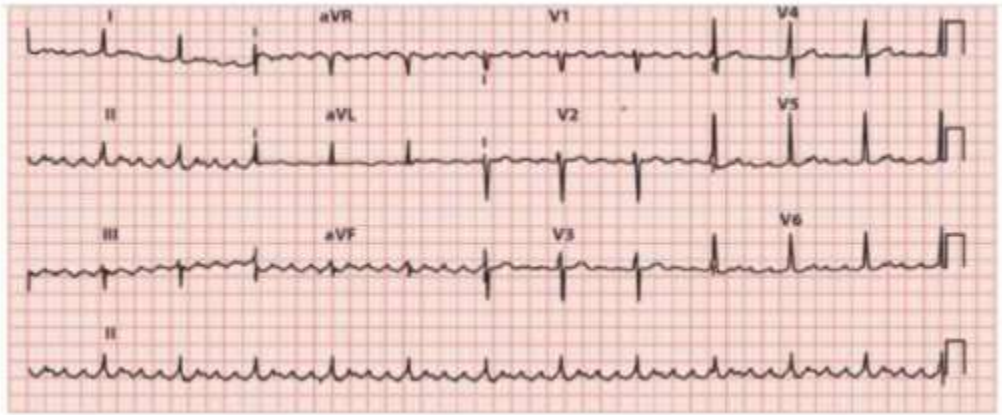
a. IV Diltizem

b. IV Adenosine

c. IV Metoprolol

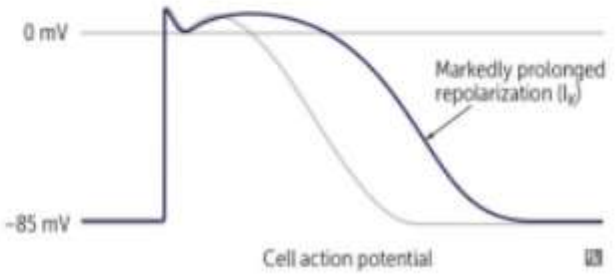
d. IV Digoxin

e. IV Amiodarone



Ans e

Ecg shows arrythmia

Antiarrhythmics—potassium channel blockers (class III)	Amiodarone, Ibutilide, Dofetilide, Sotalol.	AIDS.
MECHANISM	↑ AP duration, ↑ ERP, ↑ QT interval.	
CLINICAL USE	Atrial fibrillation, atrial flutter; ventricular tachycardia (amiodarone, sotalol).	
ADVERSE EFFECTS	Sotalol—torsades de pointes, excessive β blockade. Ibutilide—torsades de pointes. Amiodarone—pulmonary fibrosis, hepatotoxicity, hypothyroidism or hyperthyroidism (amiodarone is 40% iodine by weight), acts as hapten (corneal deposits, blue/gray skin deposits resulting in photodermatitis), neurologic effects, constipation, cardiovascular effects (bradycardia, heart block, HF).	Remember to check PFTs, LFTs, and TFTs when using amiodarone. Amiodarone is lipophilic and has class I, II, III, and IV effects. 

The first ring in the chain of survival indicates:

a. Starting chest compression after confirmation of cardiac arrest

b. Delivery of DC shock for the patient

c. Intensive care unit admission

d. Calling the cardiac arrest team

e. Recognition of patients at risk of developing cardiac arrest

Ans e

The dose of adrenaline during CPR is:

a. 2 mgs every 2 minutes

b. 2 mgs after every third cycle

c. 1 mg every one minute

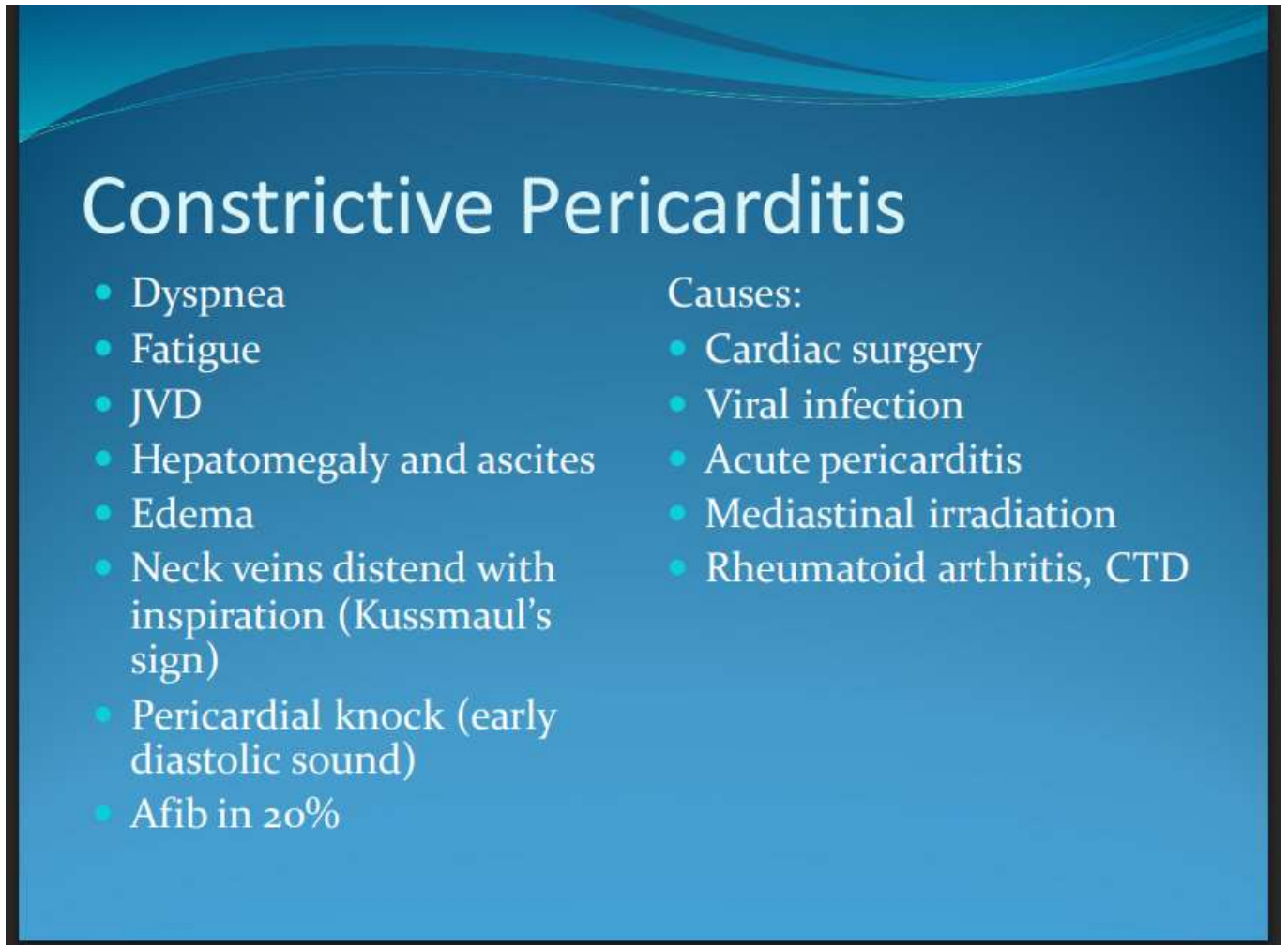
d. 1 mg every 10 minutes

e. 1 mg after every second cycle

Ans e

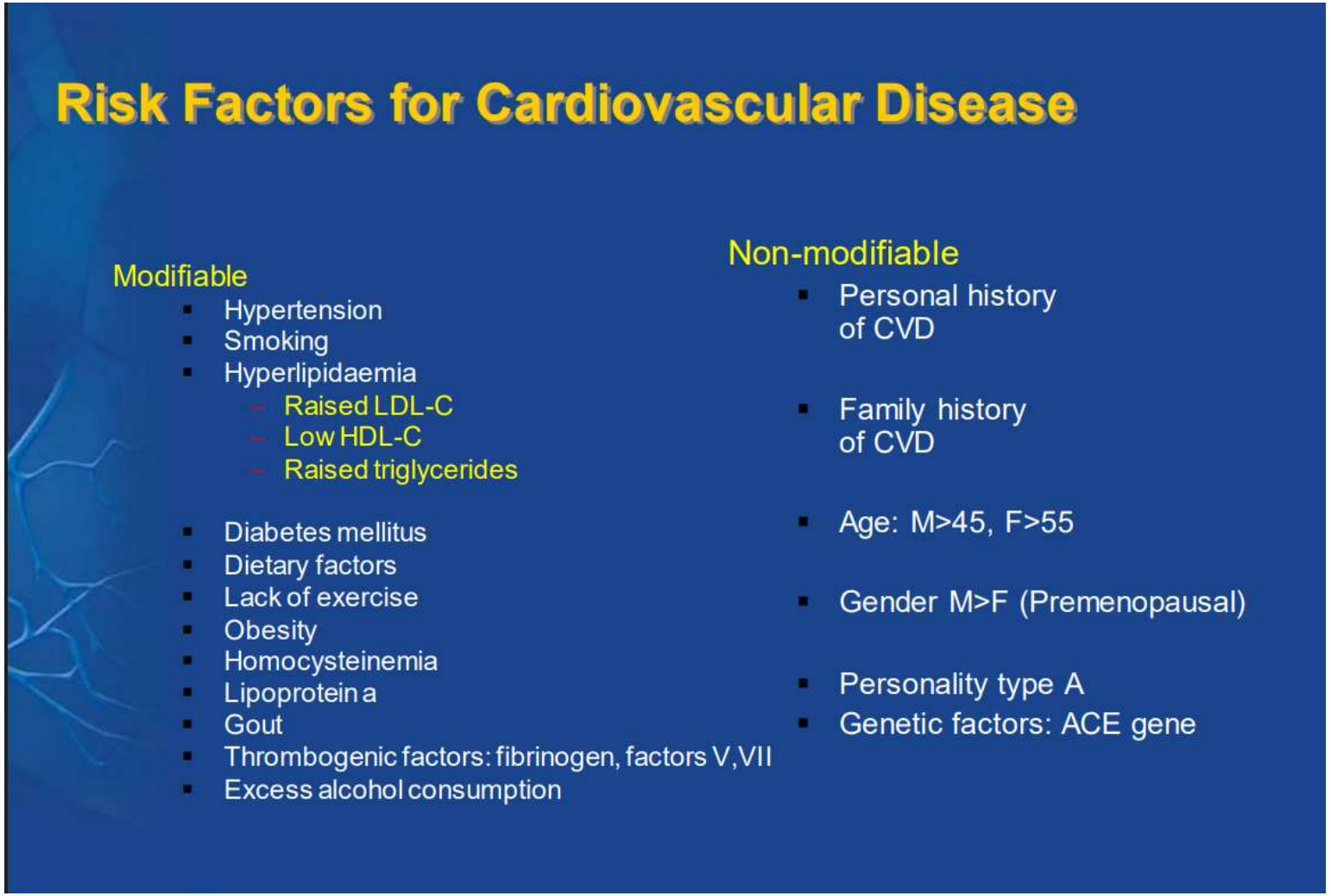
Wrong about constrictive pericarditis

Answer: Pulsus alternans



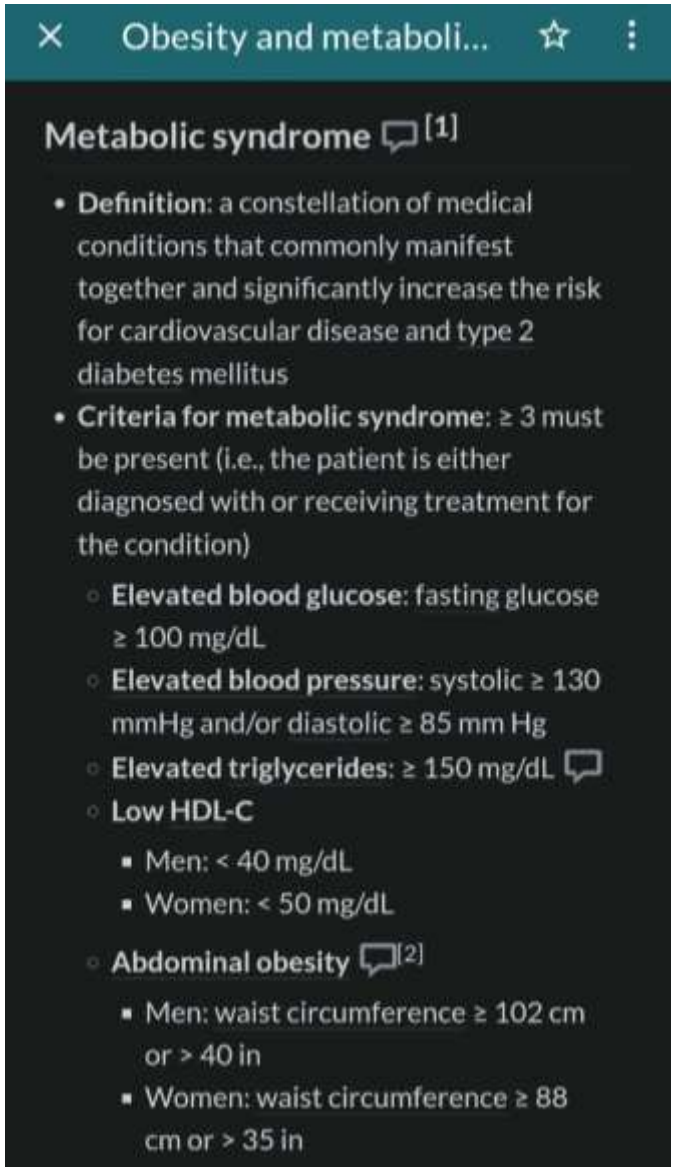
Patient with stable angina, not a factor that increases risk of adverse event:

Answer: high HDL



Not a component of the metabolic syndrome:

Answer: LDL > 130

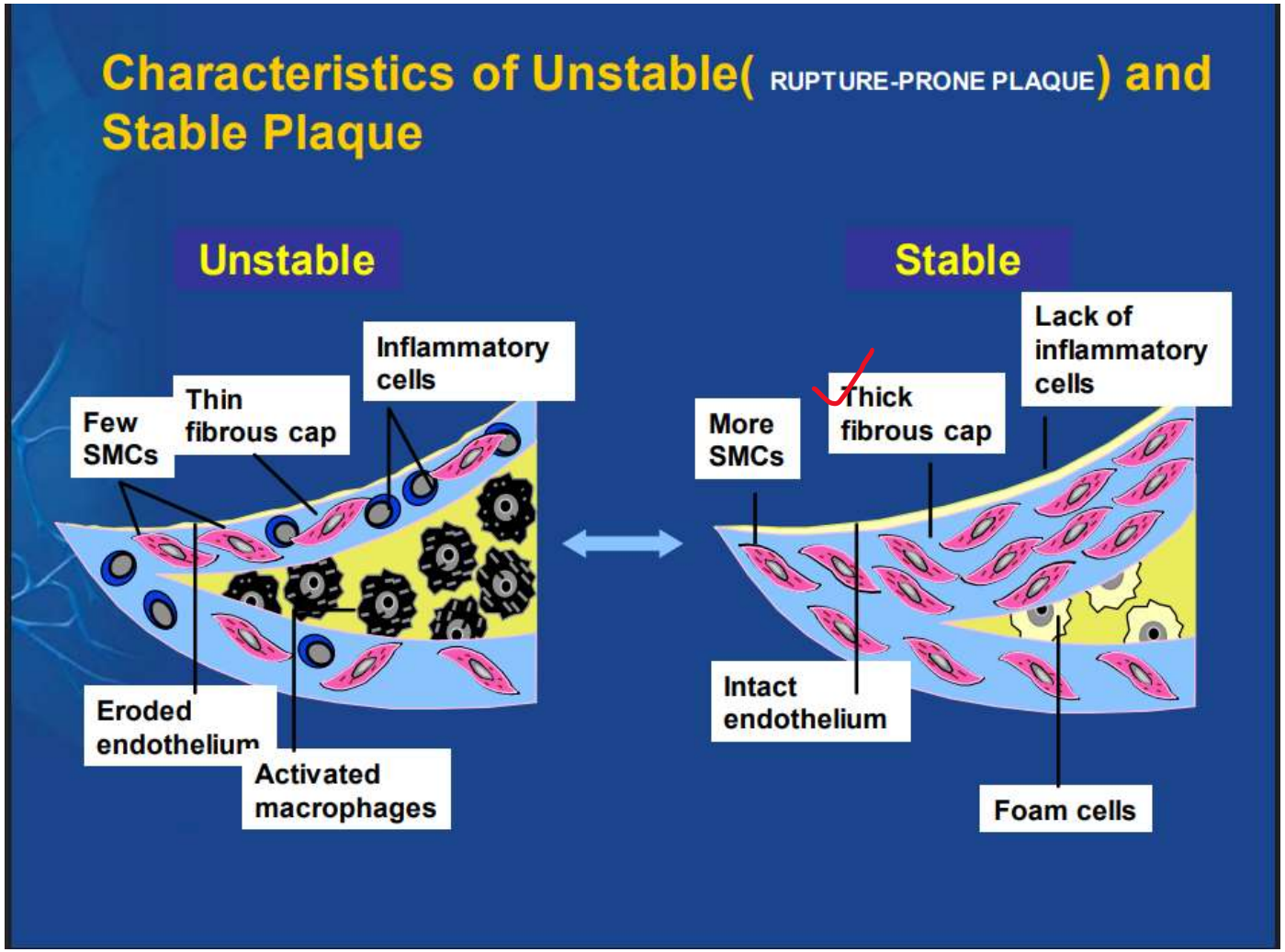


A character that makes the atheromatous plaque less likely to cause ACS:

Answer: high smooth cells

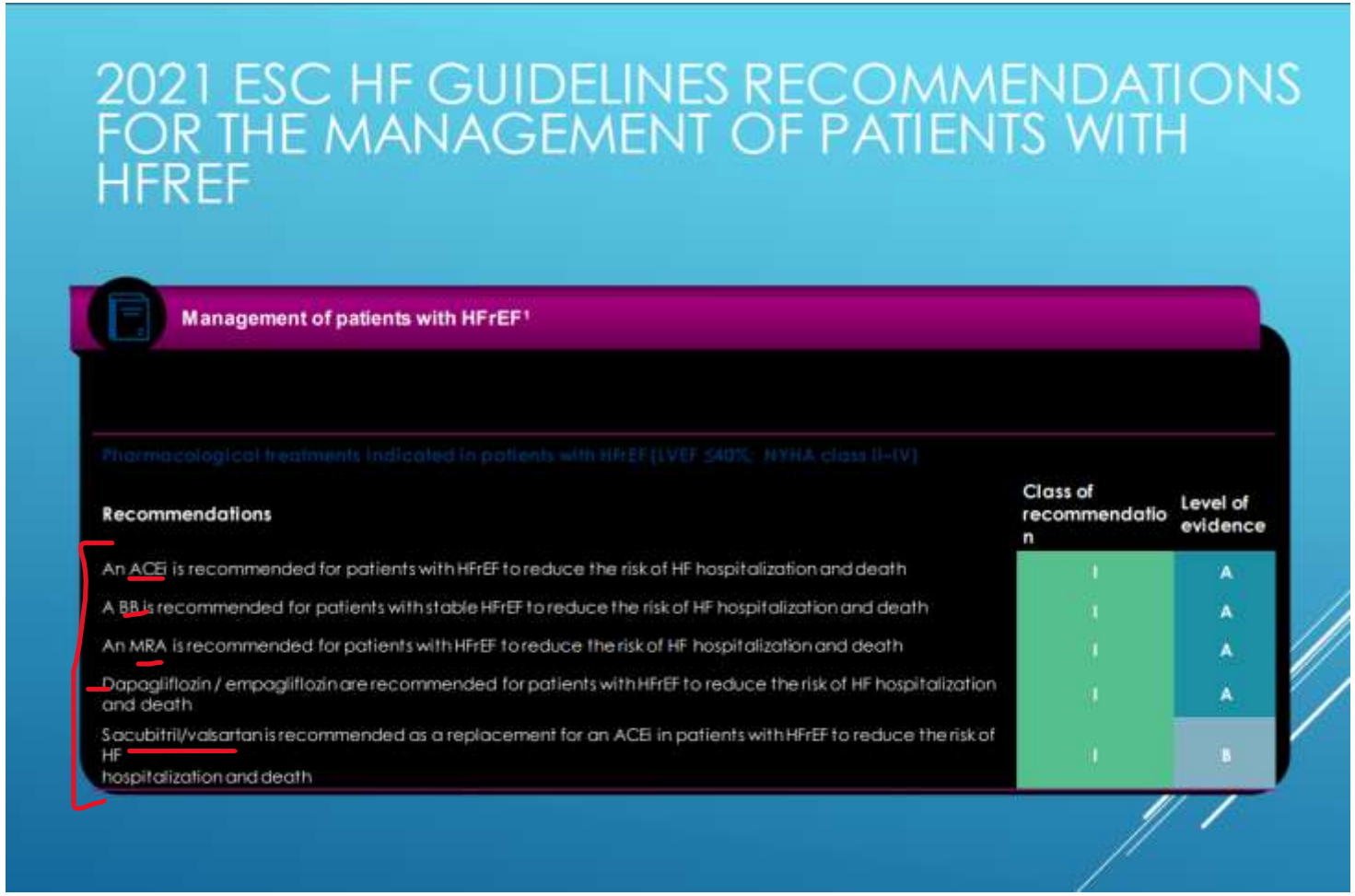
Thick fibrous cap means

high smooth muscle cells



Not a drug that reduces mortality in a patient with congestive heart failure:

Answer: Furosemide



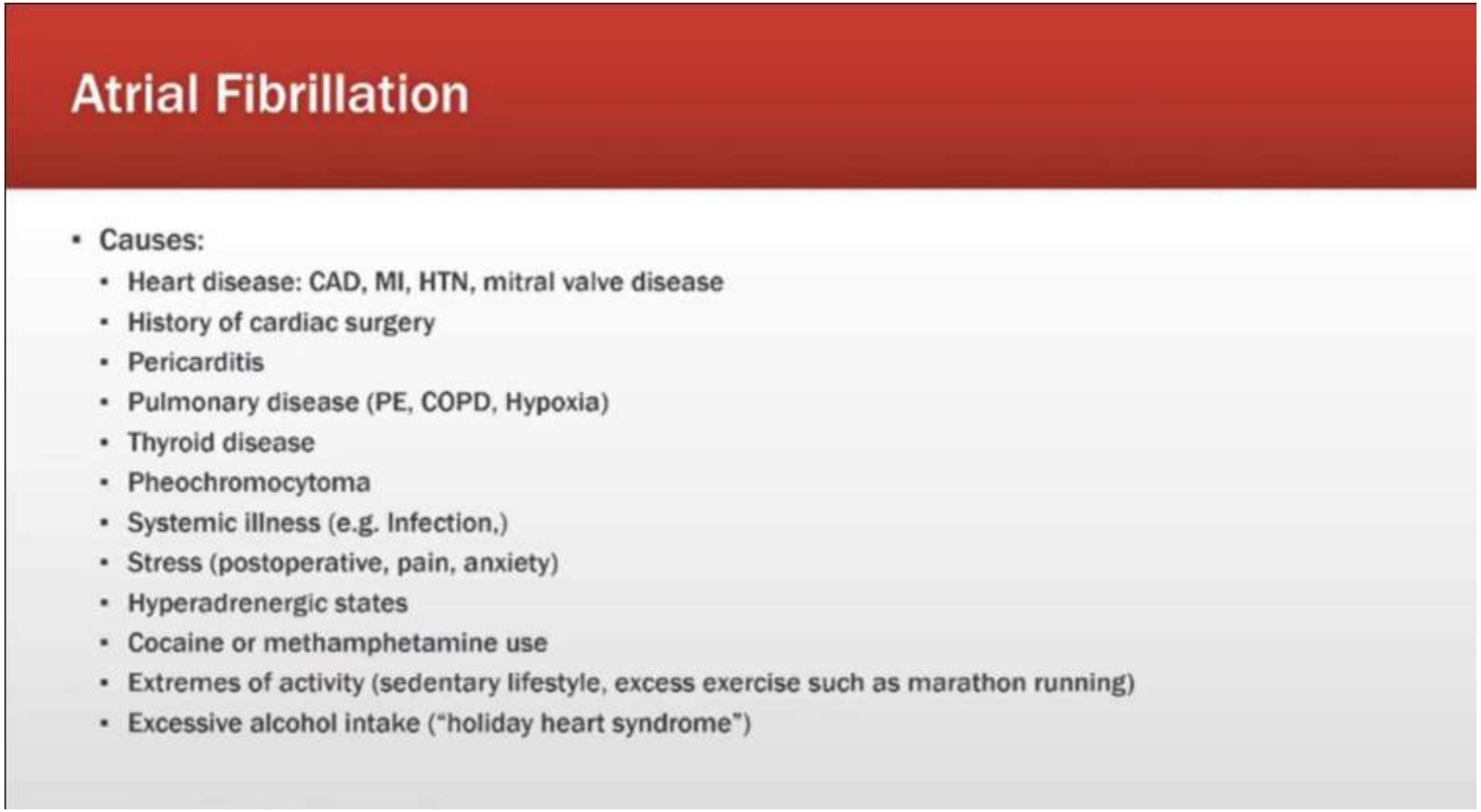
Least likely to cause systolic dysfunction:

Answer: severe mitral stenosis

Least likely to cause atrial fibrillation:

Answer: hypothyroidism (mostly)

This question is strange as thyroid diseases causes afib.



A patient receiving doxorubicin for their osteosarcoma, their heart failure grade is:

Answer: A

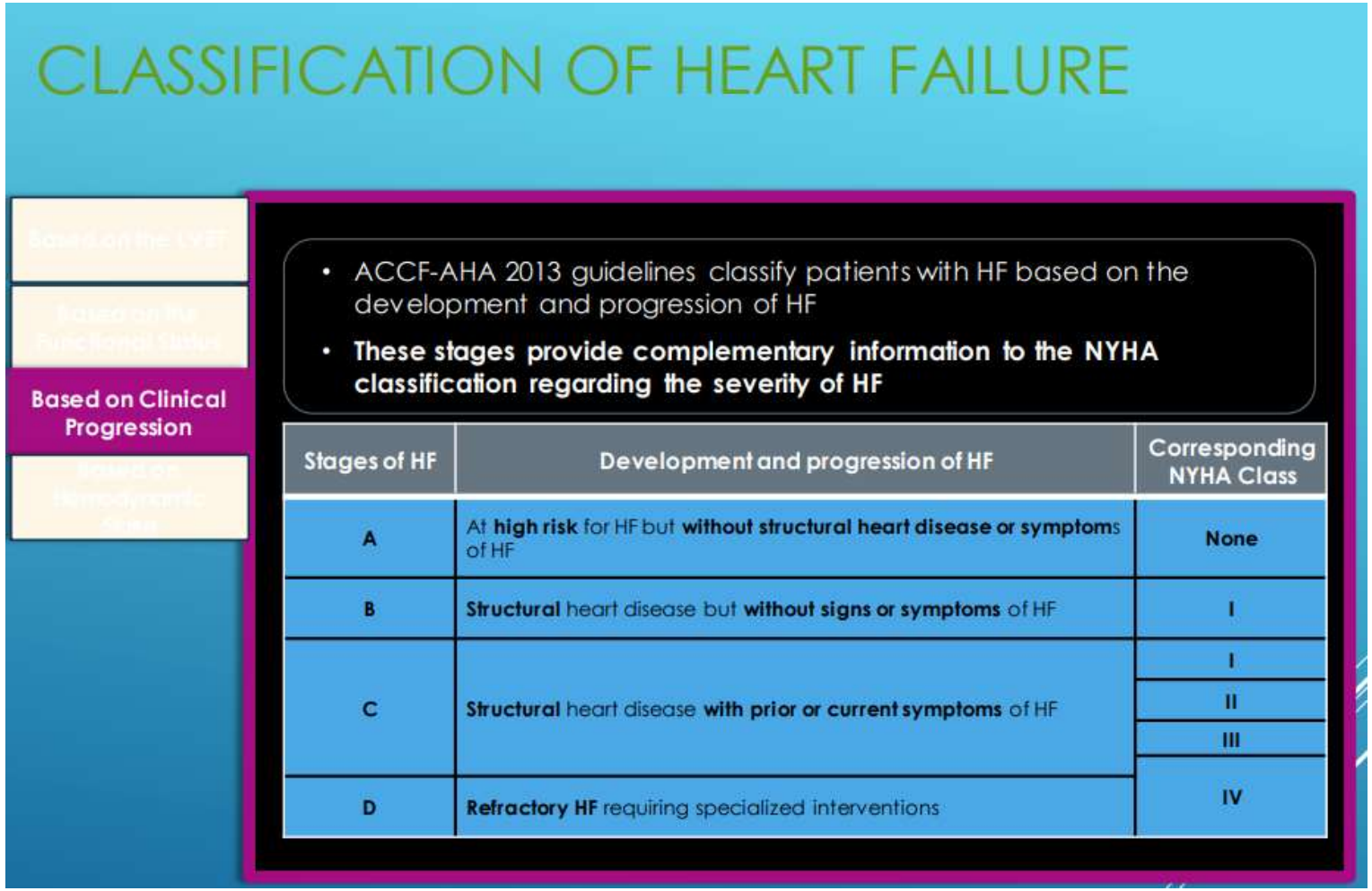
According to 020 explanation doxorubicin might cause a dilated cardiac muscle

(up to 9% of the cancer patients

treated

with this drug develop heart failure

at a later stage.)(1)



(1) https://www.nature.com/articles/s41514-024-00135-7#:~:text=However%2C%20cancer%20therapies%20often%20have,failure%20at%20a%20later%20stage.

A patient with left upper sternal border systolic murmur, ejection click, single S2 and a parasternal lift, most likely caused by:

Answer: pulmonic stenosis

Auscultation of the heart

Where to listen: **APT M**

(A) Aortic area:
Systolic murmur
- Aortic stenosis
- Flow murmur (eg, physiologic murmur)
- Aortic valve sclerosis

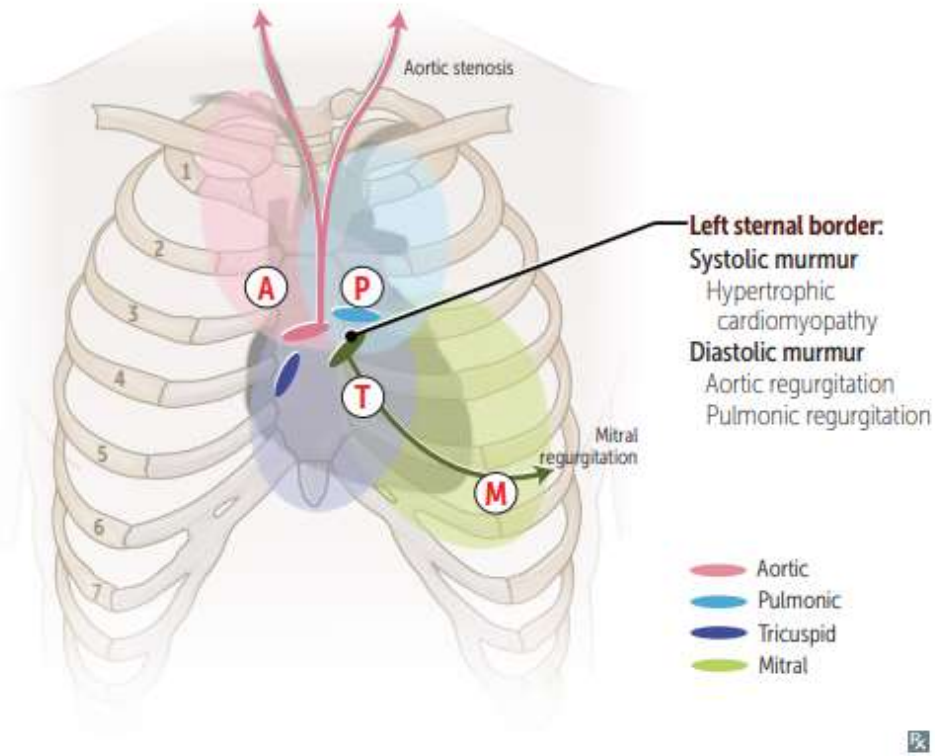
(P) Pulmonic area:
Systolic ejection murmur
- Pulmonic stenosis
- Atrial septal defect
- Flow murmur

(T) Tricuspid area:
Holosystolic murmur
- Tricuspid regurgitation
- Ventricular septal defect

Diastolic murmur
- Tricuspid stenosis

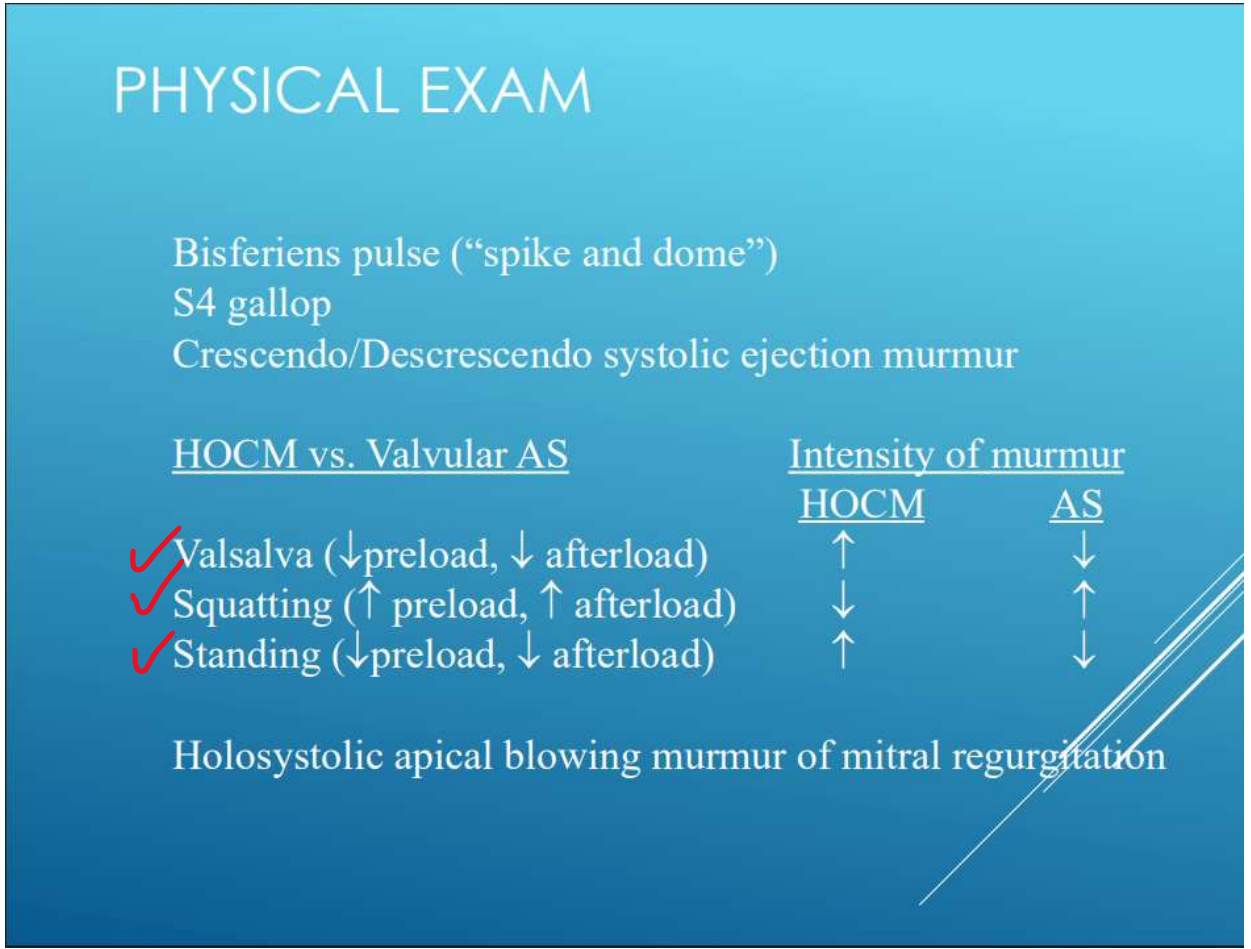
(M) Mitral area (apex):
Systolic murmur
- Mitral regurgitation
- Mitral valve prolapse

Diastolic murmur
- Mitral stenosis



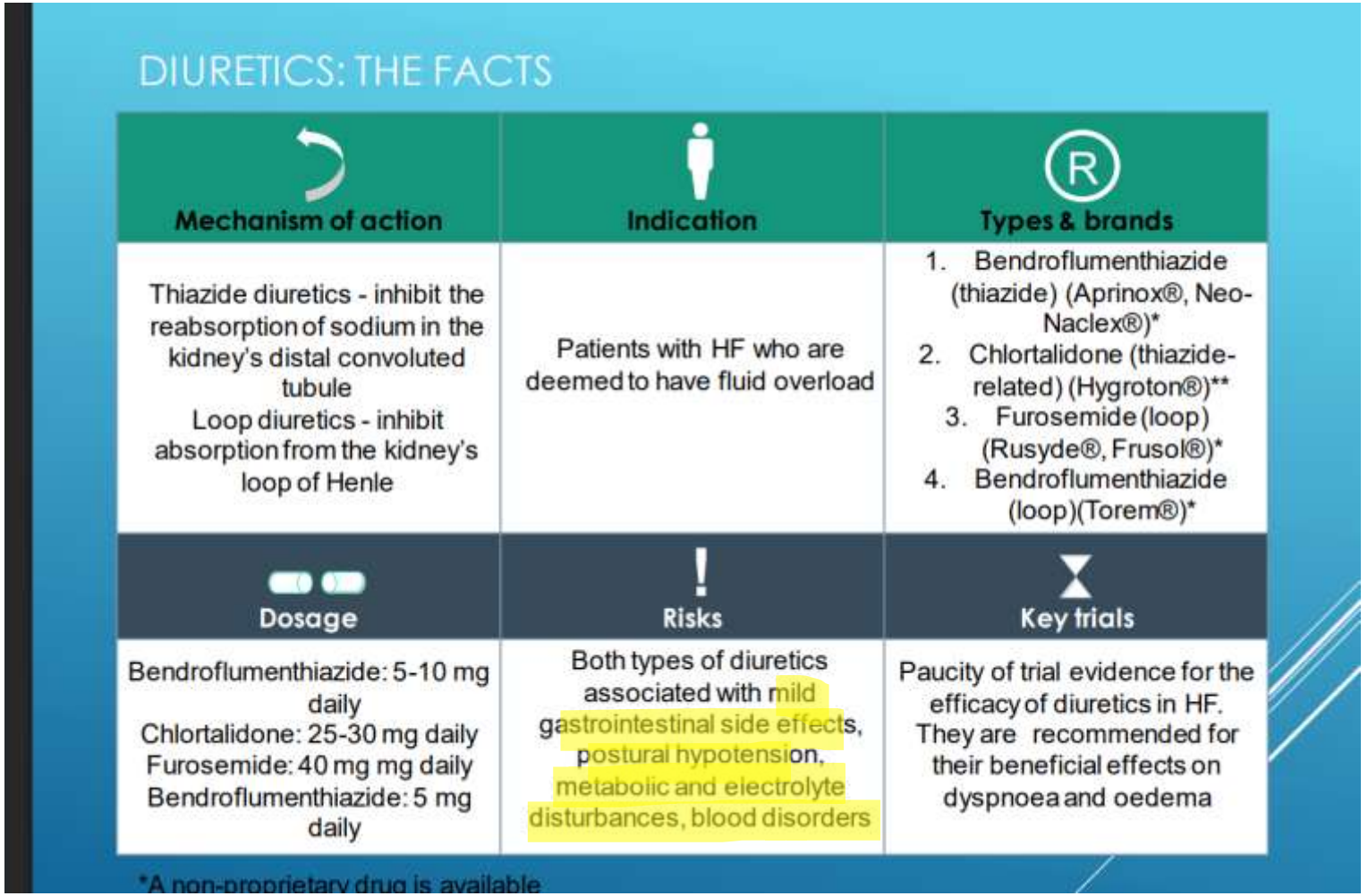
A patient with a systolic murmur that increases with standing and valsalva, and decreases with squatting, most likely cause:

Answer: hypertrophic obstructive cardiomyopathy



Thiazide does not cause:

Answer: hypouricemia



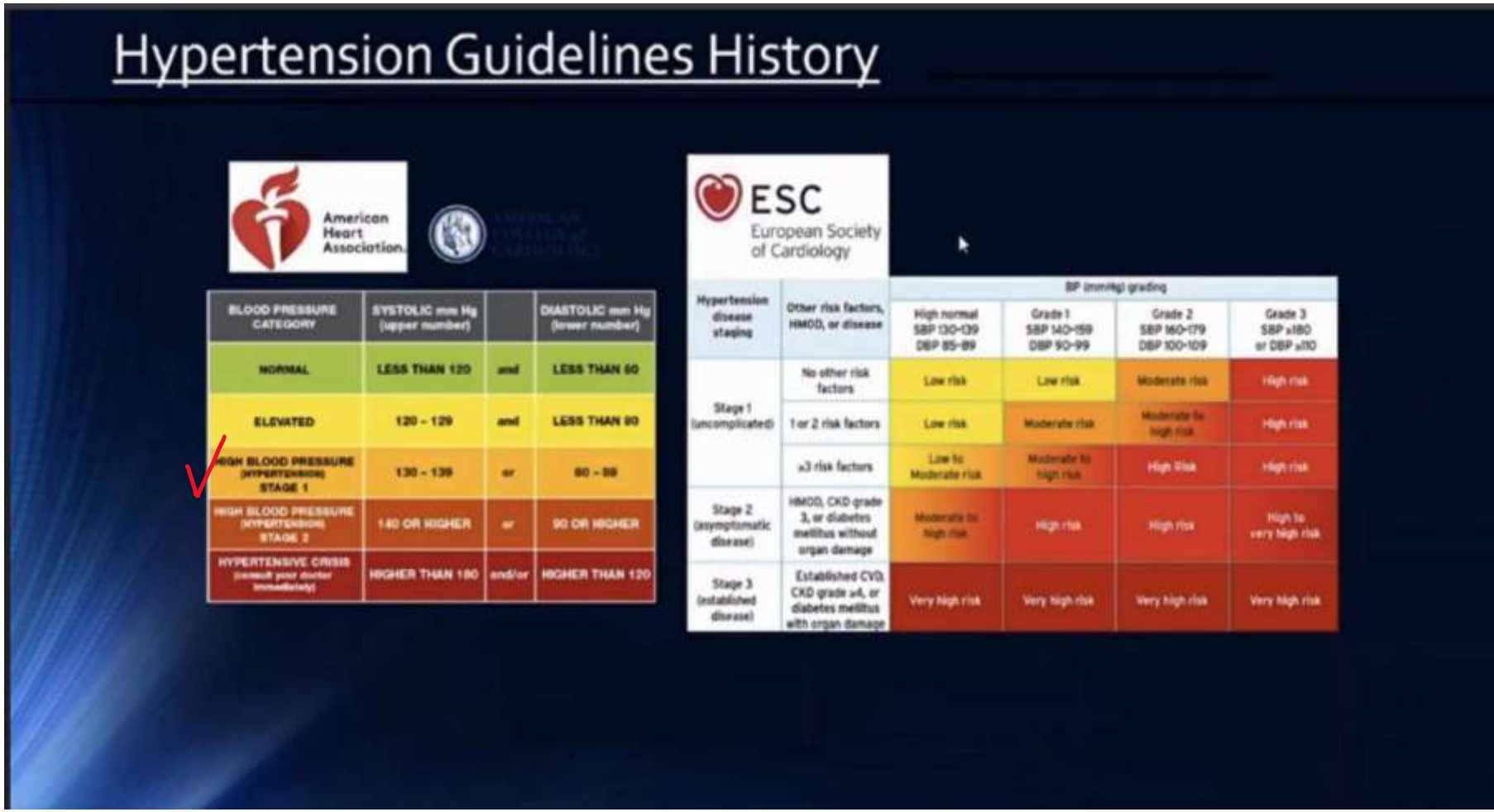
DIURETICS: THE FACTS

Mechanism of action	Indication	Types & brands
Thiazide diuretics - inhibit the reabsorption of sodium in the kidney's distal convoluted tubule Loop diuretics - inhibit absorption from the kidney's loop of Henle	Patients with HF who are deemed to have fluid overload	1. Bendroflumenthiazide (thiazide) (Aprinox®, Neo-Naclex®)* 2. Chlortalidone (thiazide-related) (Hygroton®)** 3. Furosemide (loop) (Rusyde®, Frusol®)* 4. Bendroflumenthiazide (loop)(Torem®)*
Dosage	**Risks**	**Key trials**
Bendroflumenthiazide: 5-10 mg daily Chlortalidone: 25-30 mg daily Furosemide: 40 mg mg daily Bendroflumenthiazide: 5 mg daily	Both types of diuretics associated with mild gastrointestinal side effects, postural hypotension, metabolic and electrolyte disturbances, blood disorders	Paucity of trial evidence for the efficacy of diuretics in HF. They are recommended for their beneficial effects on dyspnoea and oedema

*A non-proprietary drug is available

Blood pressure 135/92, stage of HTN is:

Answer: stage 1



A patient with hypertension, most likely cause of death is:

Answer: CAD (mostly)

A patient on sildenafil, contraindicated drug:

Answer: nitrate

Sildenafil citrate is contraindicated in patients who may require organic nitrates, such as nitroglycerin patches or sublingual tablets, because the combination may lower blood pressure

Source:

https://www.ahajournals.org/doi/10.1161/01.cir.102.20.2516#:~:text=Sildenafil%20citrate%20is%20contraindicated%20in,concomitant%20use%20of%20sildenafil%20citrate.

Next step in helping a gasping, unresponsive patient:

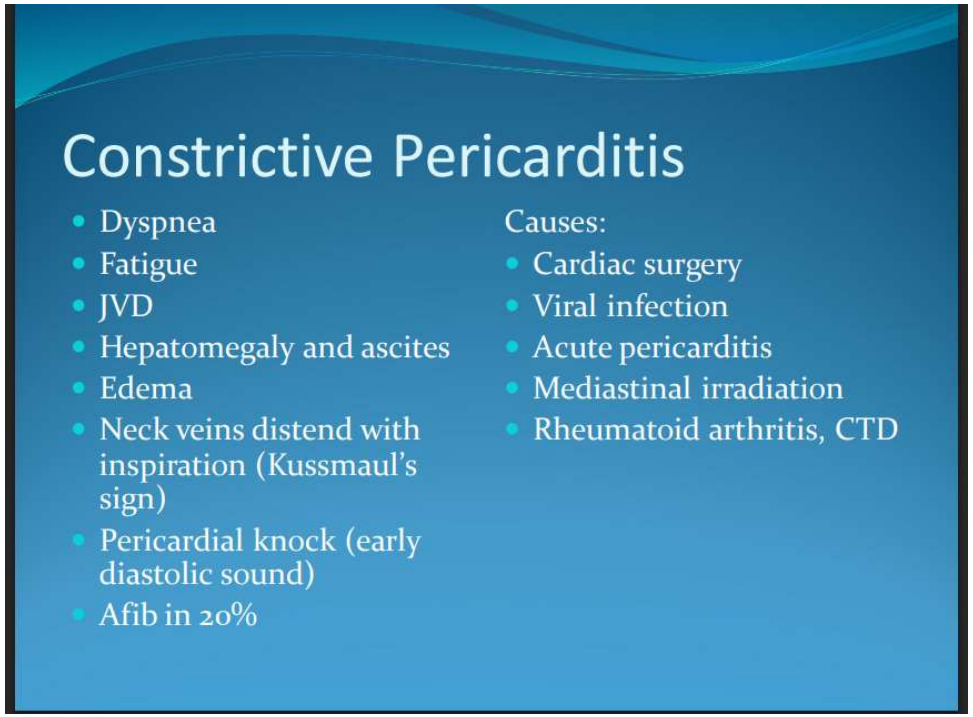
Answer: call 911

Most common cause of HF exacerbation:

Answer: Noncompliance to drugs and medications.

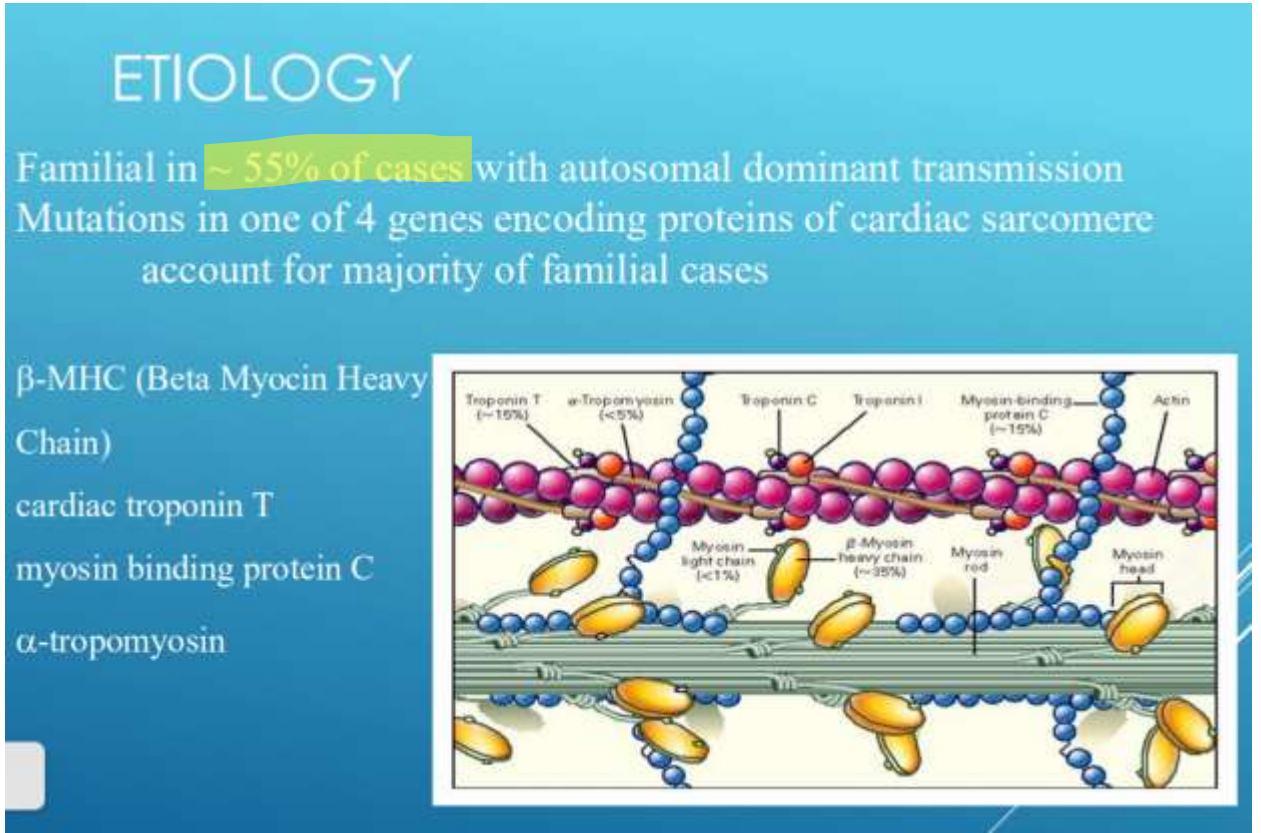
Which of the following signs is associated with constrictive pericarditis?

Answer: High JVP that increases with inspiration (Kussmal sign)



True about HOCM?

Answer: Autosomal dominant in 50% of cases



4- Not associated with ST elevation?

Answer: Constrictive pericarditis

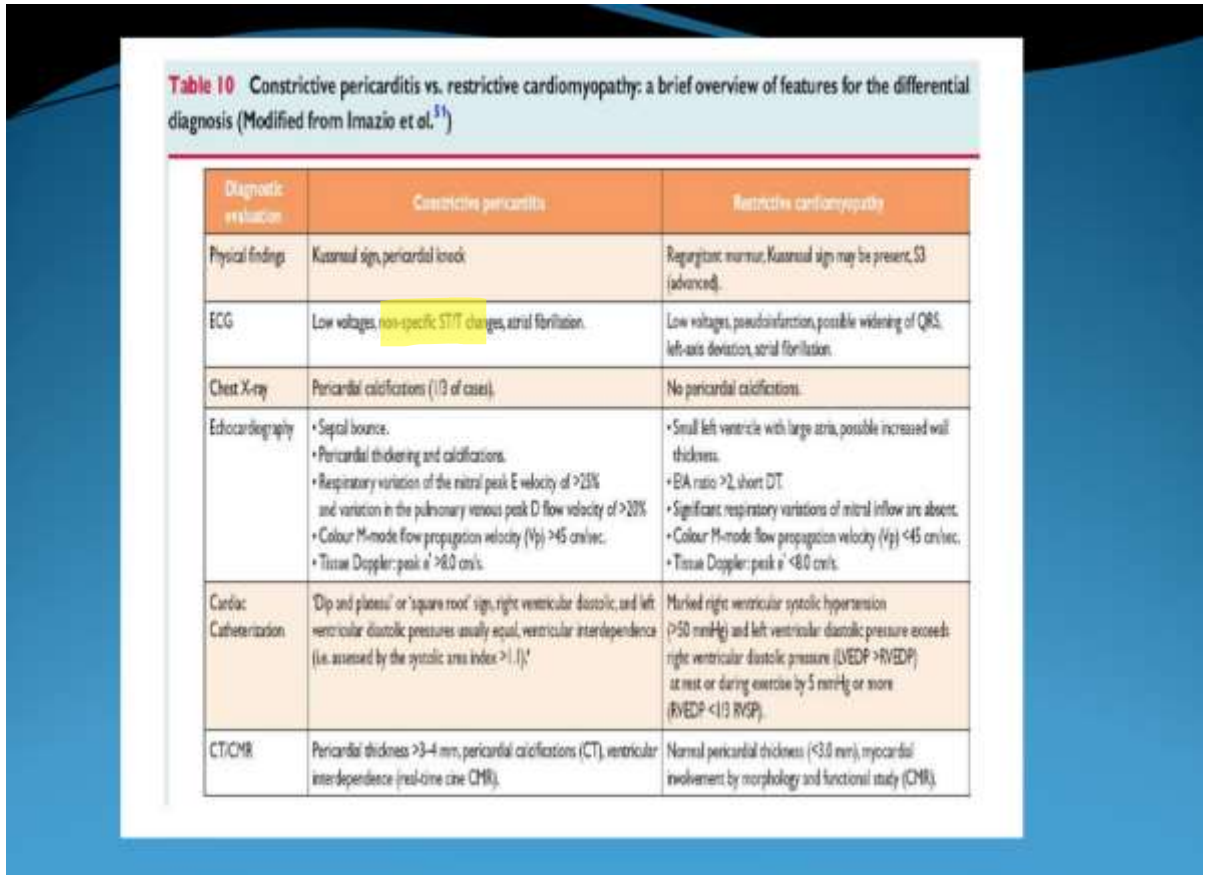
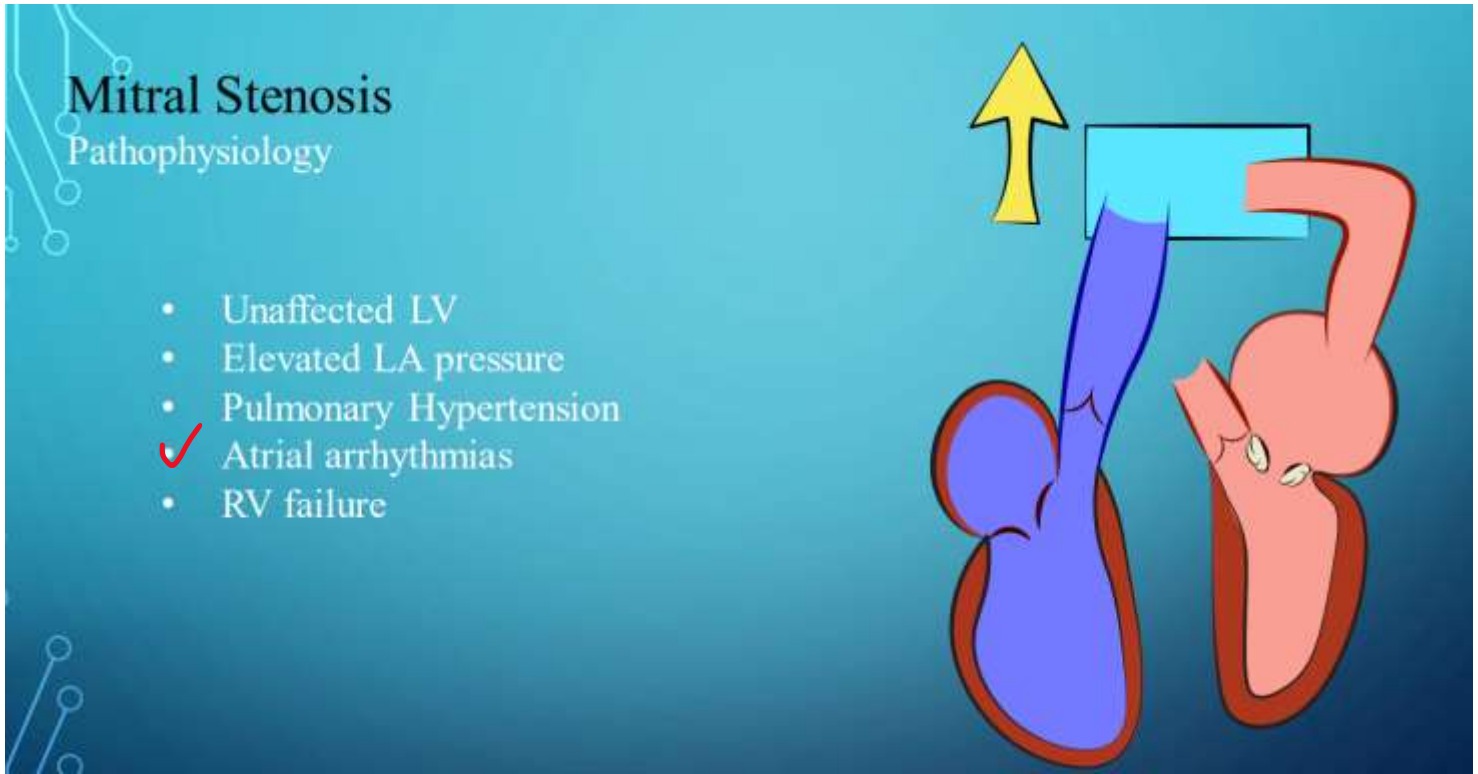


Table 10 Constrictive pericarditis vs. restrictive cardiomyopathy: a brief overview of features for the differential diagnosis (Modified from Imazio et al.[51])

Diagnostic evaluation	Constrictive pericarditis	Restrictive cardiomyopathy
Physical findings	Kussmaul sign, pericardial knock	Regurgitant murmur, Kussmaul sign may be present, S3 (advanced).
ECG	Low voltages, non-specific ST/T changes, atrial fibrillation.	Low voltages, pseudoinfarction, possible widening of QRS, left-axis deviation, atrial fibrillation.
Chest X-ray	Pericardial calcifications (1/3 of cases).	No pericardial calcifications.
Echocardiography	• Septal bounce. • Pericardial thickening and calcifications. • Respiratory variation of the mitral peak E velocity of >25% and variation in the pulmonary venous peak D flow velocity of >20% • Colour M-mode flow propagation velocity (Vp) >45 cm/sec. • Tissue Doppler: peak e' >8.0 cm/s.	• Small left ventricle with large atria, possible increased wall thickness. • E/A ratio >2, short DT. • Significant respiratory variations of mitral inflow are absent. • Colour M-mode flow propagation velocity (Vp) <45 cm/sec. • Tissue Doppler: peak e' <8.0 cm/s.
Cardiac Catheterization	'Dip and plateau' or 'square root' sign, right ventricular diastolic, and left ventricular diastolic pressures usually equal, ventricular interdependence (i.e. assessed by the systolic area index >1.1).*	Marked right ventricular systolic hypertension (>50 mmHg) and left ventricular diastolic pressure exceeds right ventricular diastolic pressure (LVEDP >RVEDP) at rest or during exercise by 5 mmHg or more (RVEDP <1/3 RVSP).
CT/CMR	Pericardial thickness >3–4 mm, pericardial calcifications (CT), ventricular interdependence (real-time cine CMR).	Normal pericardial thickness (<3.0 mm), myocardial involvement by morphology and functional study (CMR).

A case of mitral stenosis (diastolic murmur with opening snap), which is true?

Answer: Atrial fibrillation is commonly associated with it.



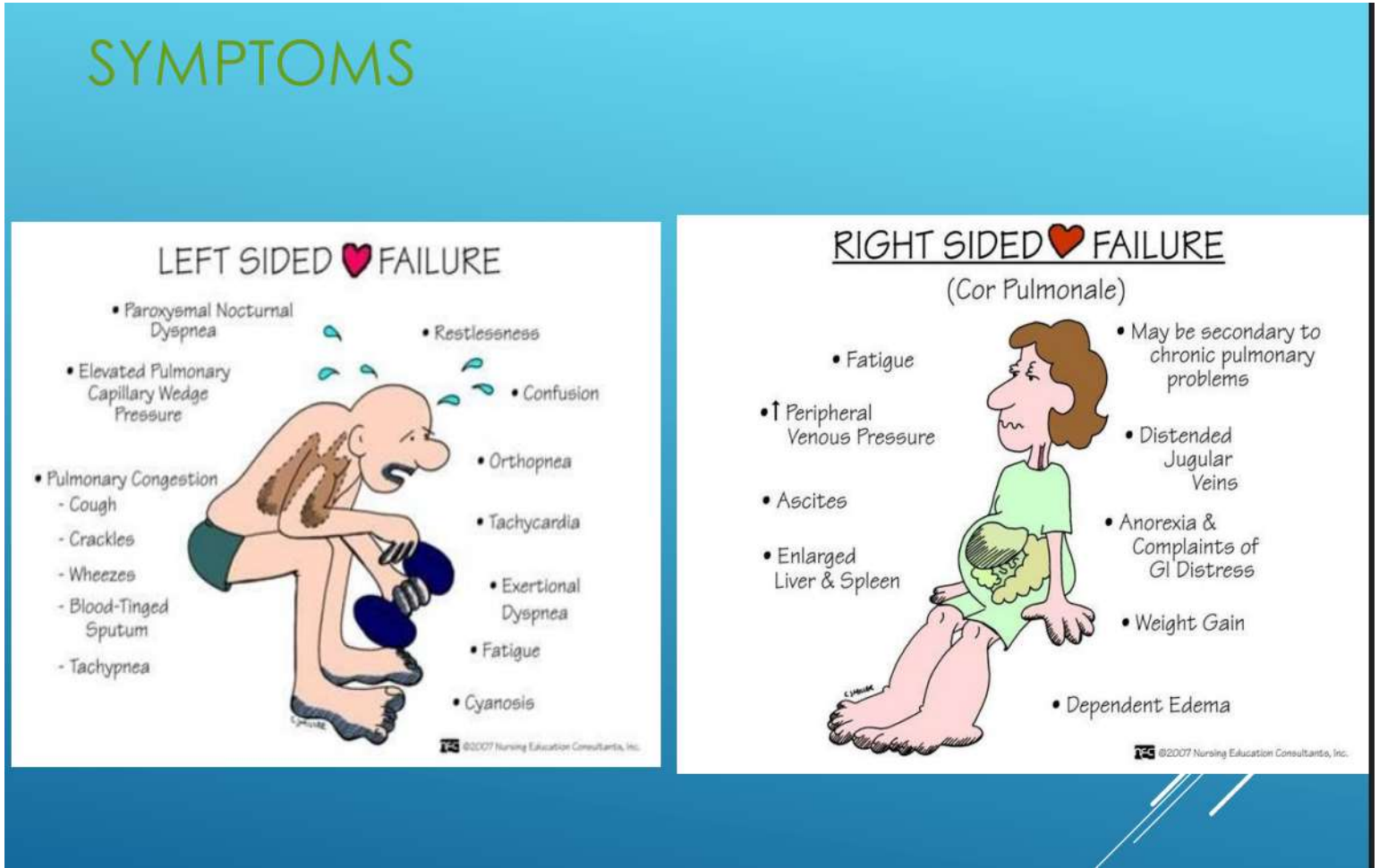
Patient with DM and HTN, both controlled, what to do?

Answer: Measure urine albumin

020 explanation (we don’t give ACEI or ARB to diabetics unless they have diabetic nephropathy).

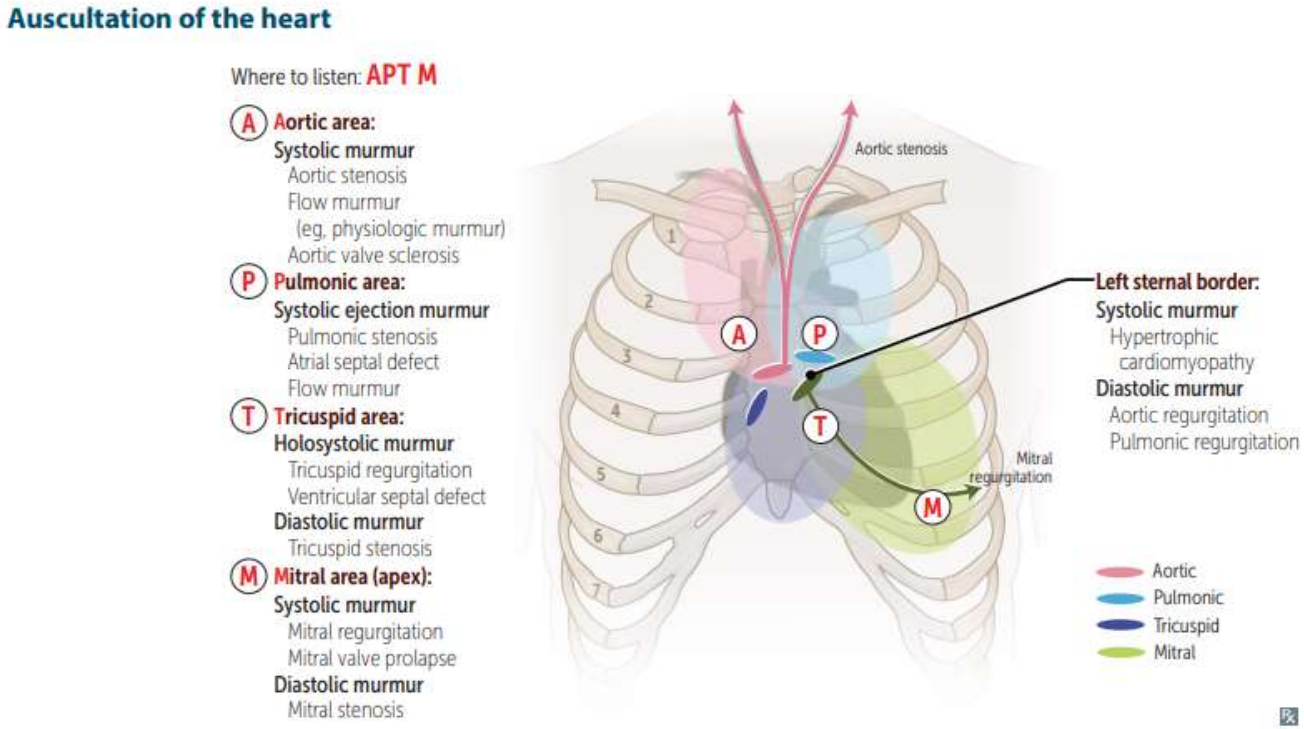
Patient with bilateral lower limb edema and high JVP, most likely cause?

Answer: Right-sided heart failure



Systolic murmus, heard best at left sternal border 2nd intercostal space, with ejection click is:

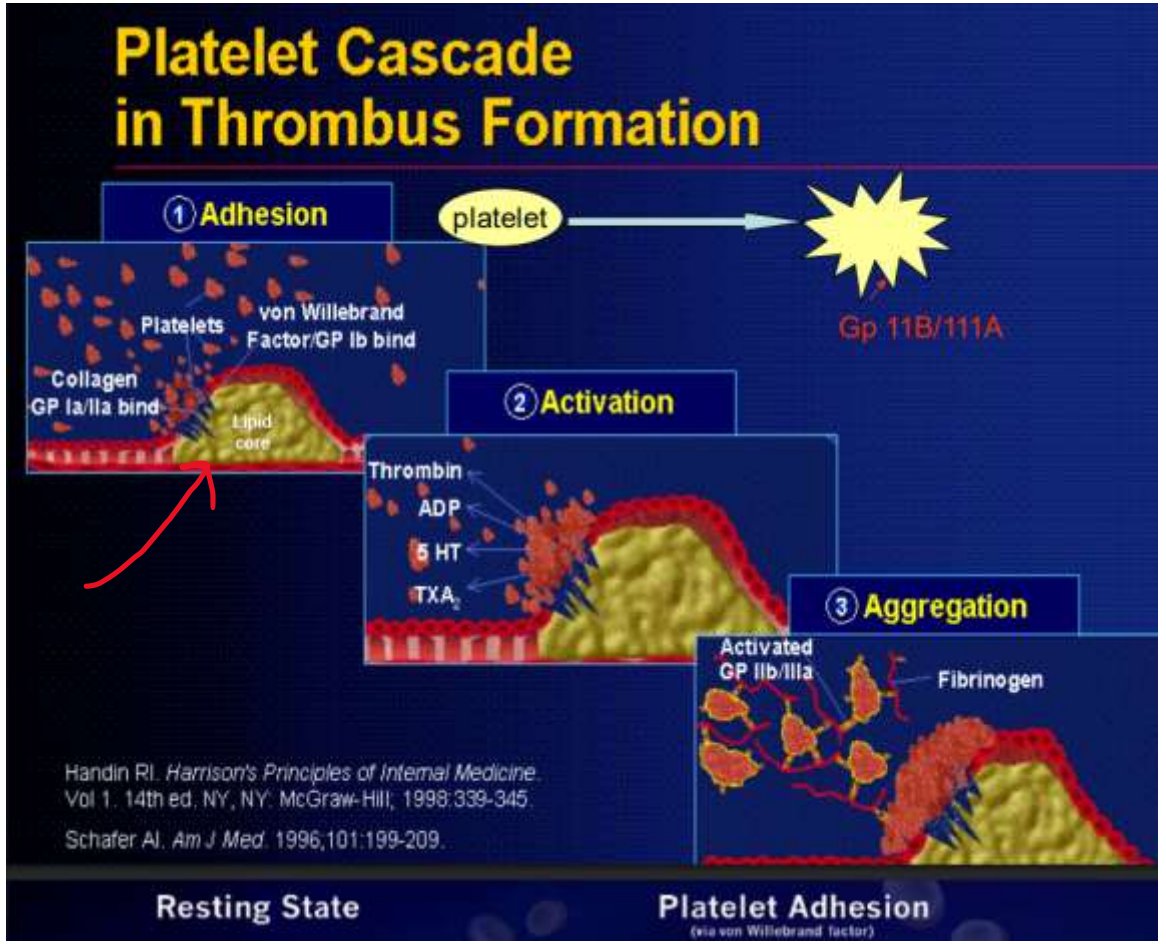
Answer: Pulmonic stenosis



Feature of vulnerable plaque?

Answer: Large lipid core

(causes plaque rupture)

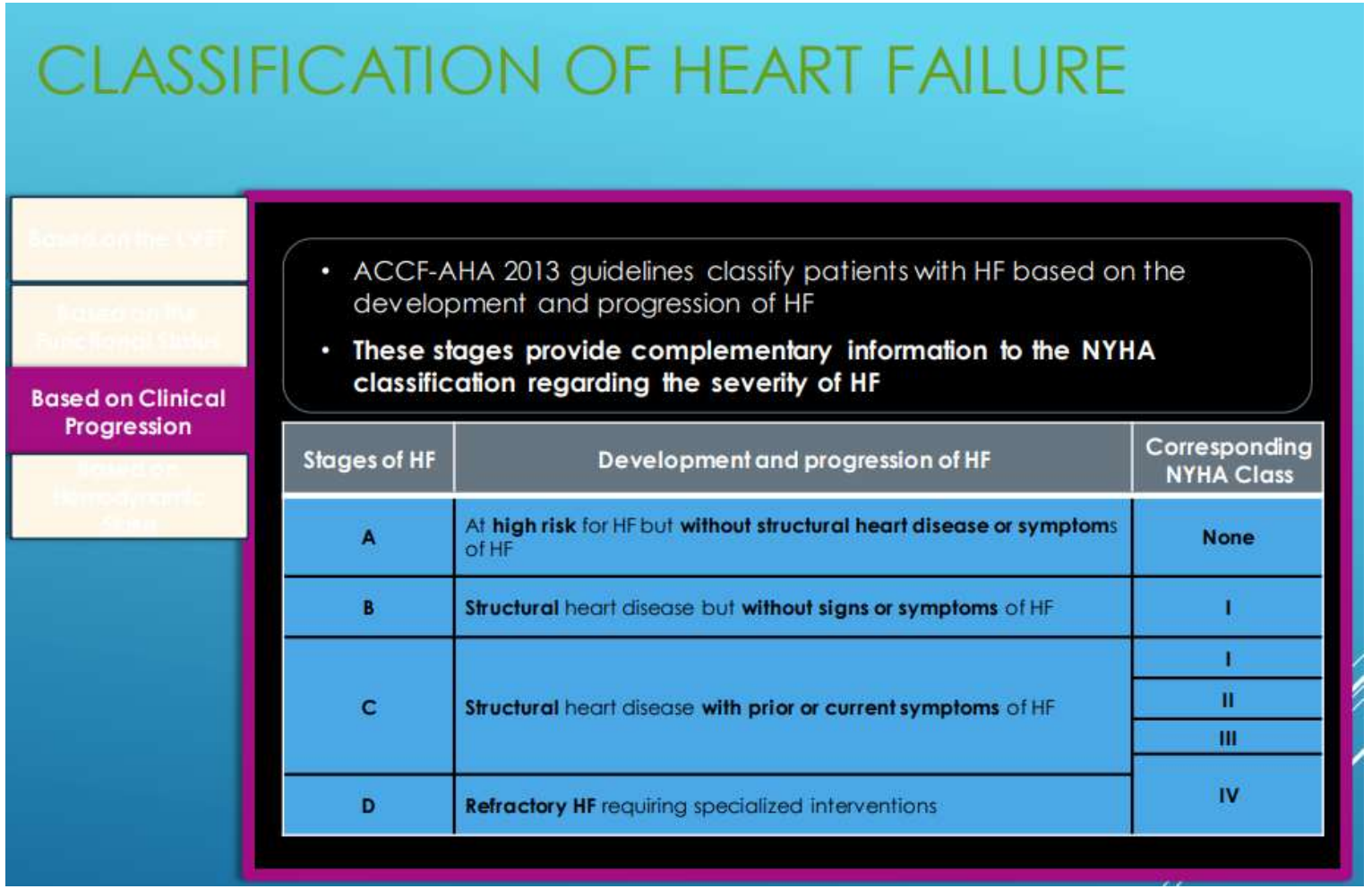


A prognostic factor for mortality post-MI:

Answer: diabetes (most likely)

A patient with DM and HTN but no other cardiac symptoms, which stage of HF?

Answer: Stage A



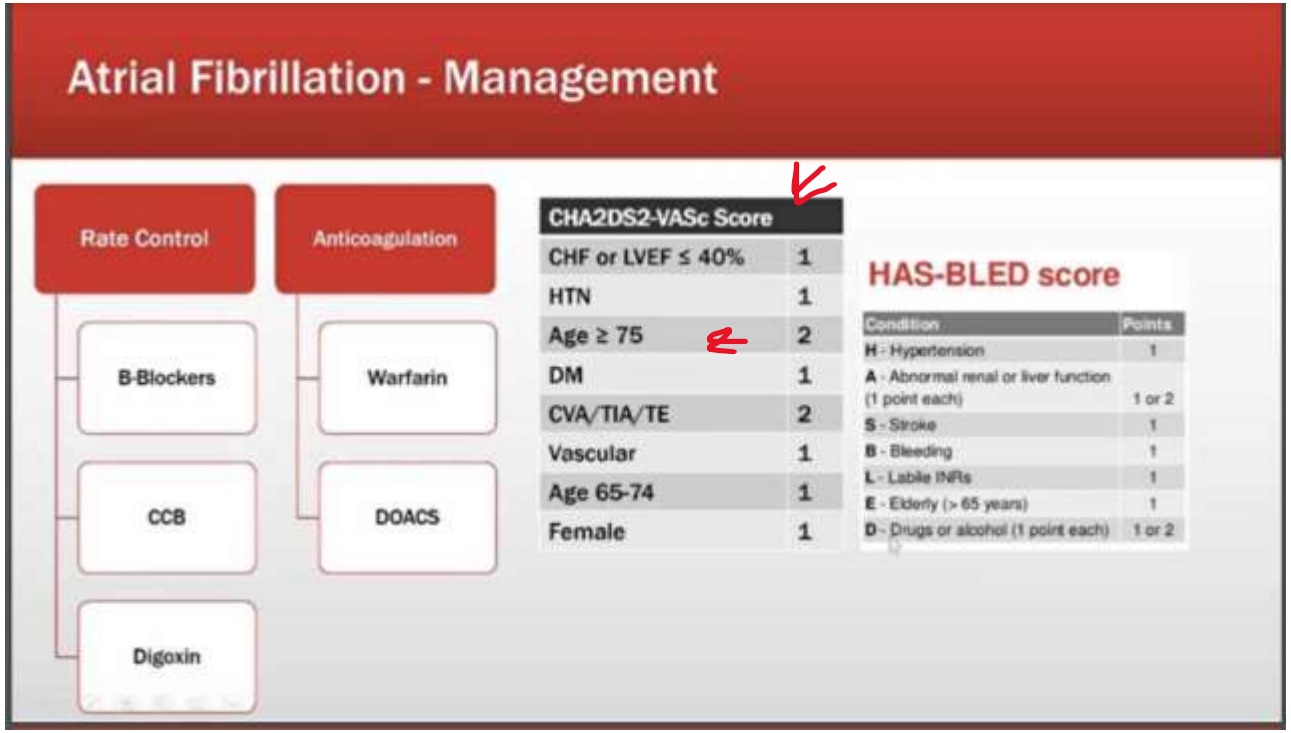
Patient with typical chest pain, in the last 2 weeks, normal ECG, Dx?

Answer: Unstable angina

According to 020 it’s a new-onset angina that’s why its unstable.

One of the following is a risk factor of stroke in non-valvular atrial fibrillation:

Answer: age above 75

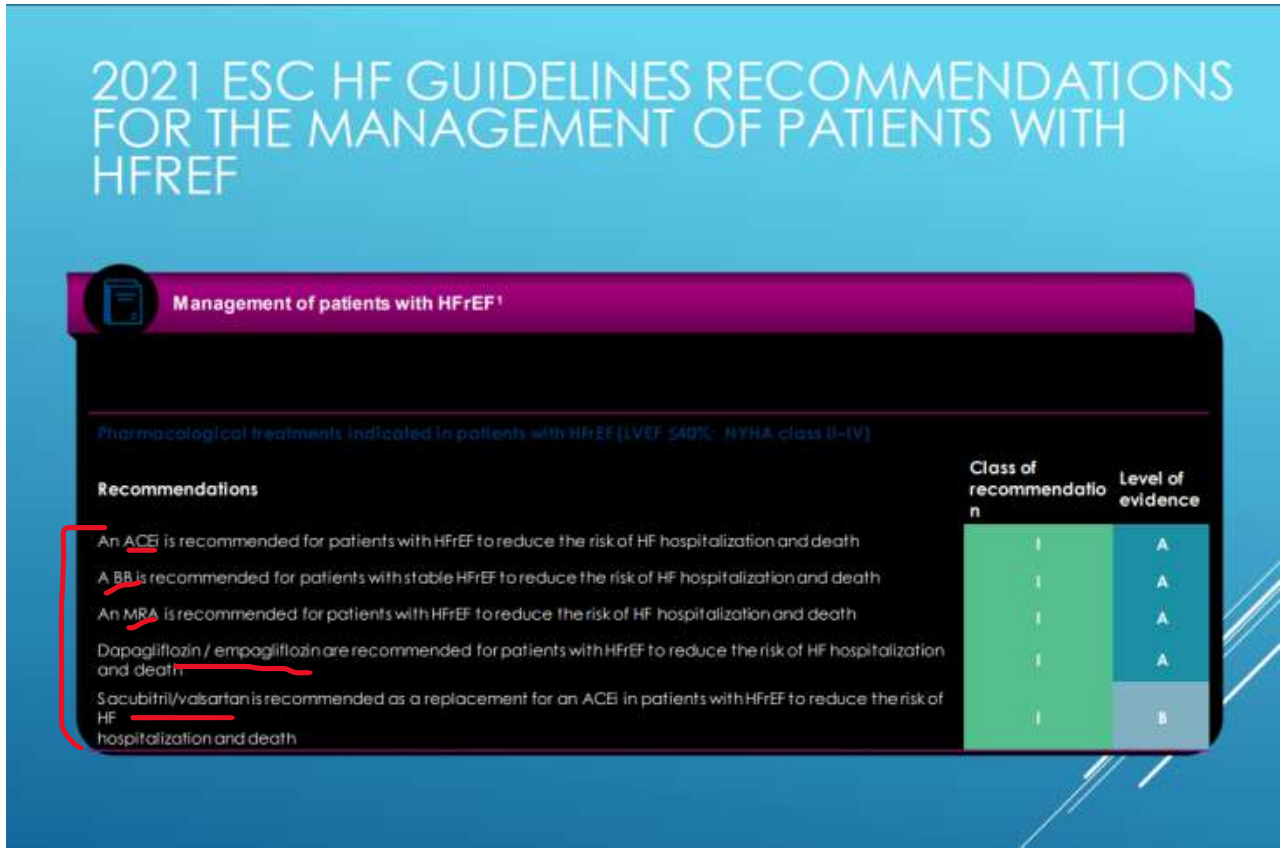


Case scenario of bradycardia, chest pain, and hypotension.. what to give ?

Answer: IV adenosine

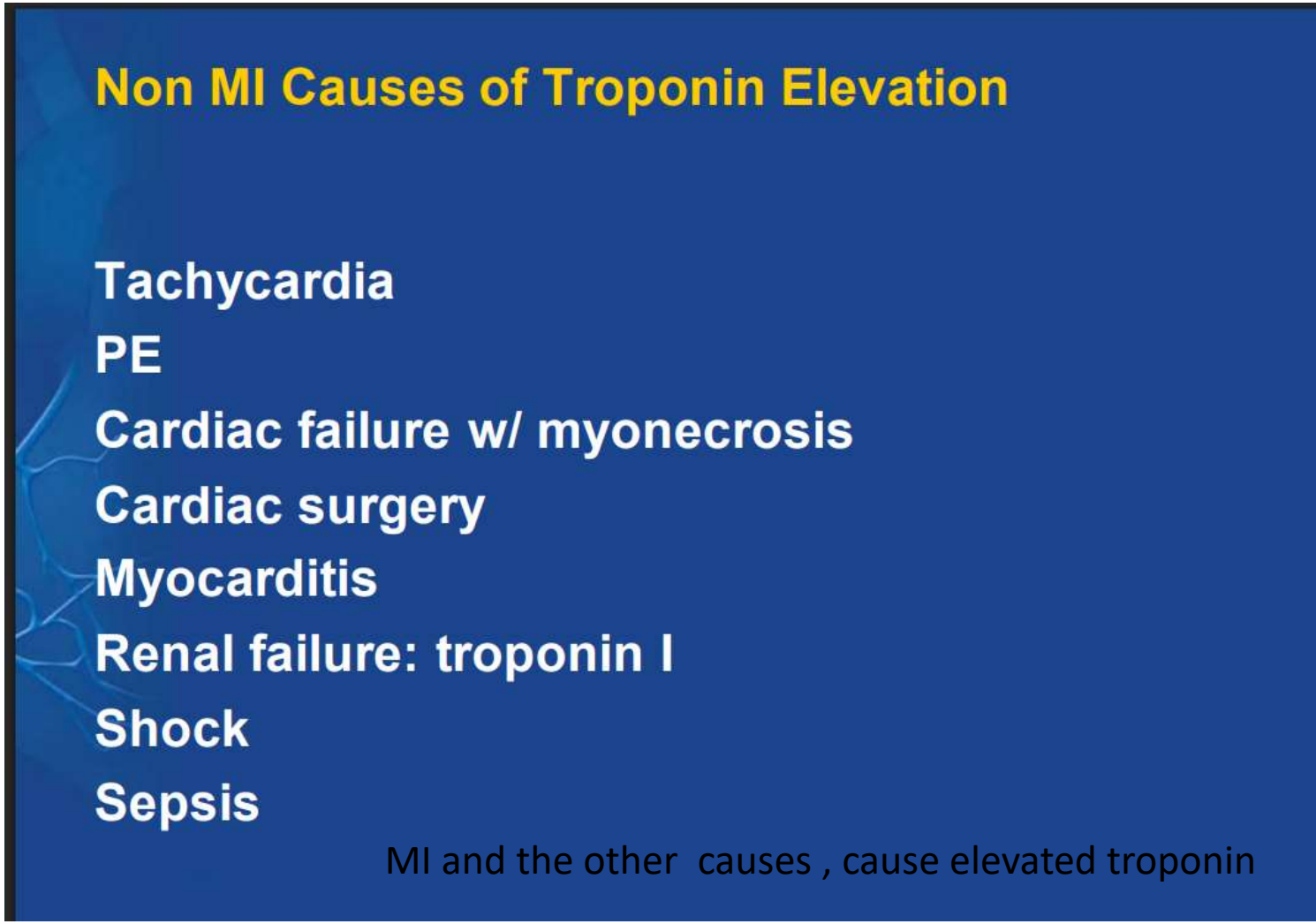
Does not incease the survival in HF?

Answer: Digoxin



Doesn’t increase troponin?

Answer: Pericarditis



Regarding cardiac enzymes, which is wrong?

Answer: Troponin can be used 8 days after MI to reveal re-infarction

Patient with signs of right heart failure, clear lungs, was treated with radiation for Hodgkin?

Answer: Constrictive pericarditis

Constrictive Pericarditis

- Evidence of right heart failure
- Kussmaul sign: no fall or even elevation JVP with inspiration
- Abnormal echo

Constrictive Pericarditis

- Dyspnea
- Fatigue
- JVD
- Hepatomegaly and ascites
- Edema
- Neck veins distend with inspiration (Kussmaul's sign)
- Pericardial knock (early diastolic sound)
- Afib in 20%

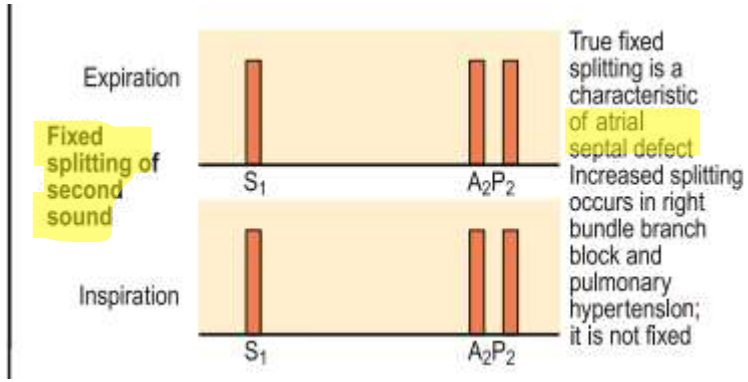
Causes:

- Cardiac surgery
- Viral infection
- Acute pericarditis
- Mediastinal irradiation
- Rheumatoid arthritis, CTD

Fixed splitting of S2 throughout the respiratory cycle, Dx?

Answer: ASD

From macleods

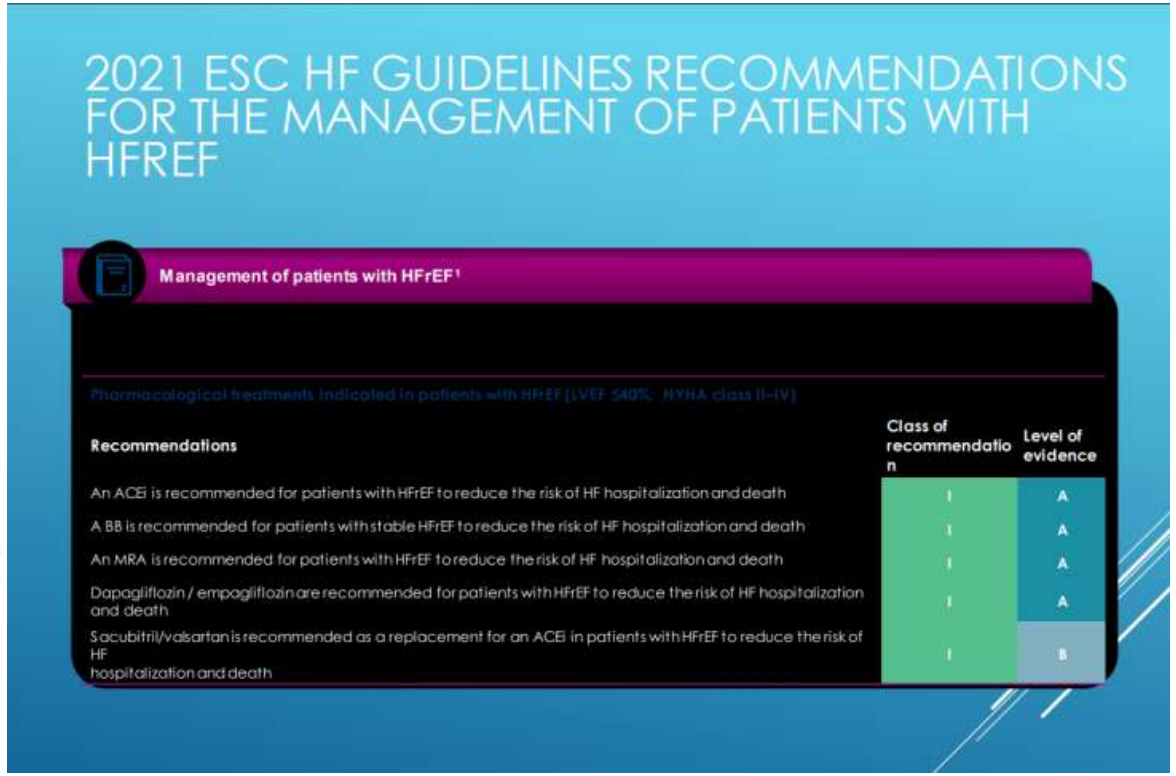


- Which of the following doesn’t improve mortality in heart failure:

Answer: Furosemide

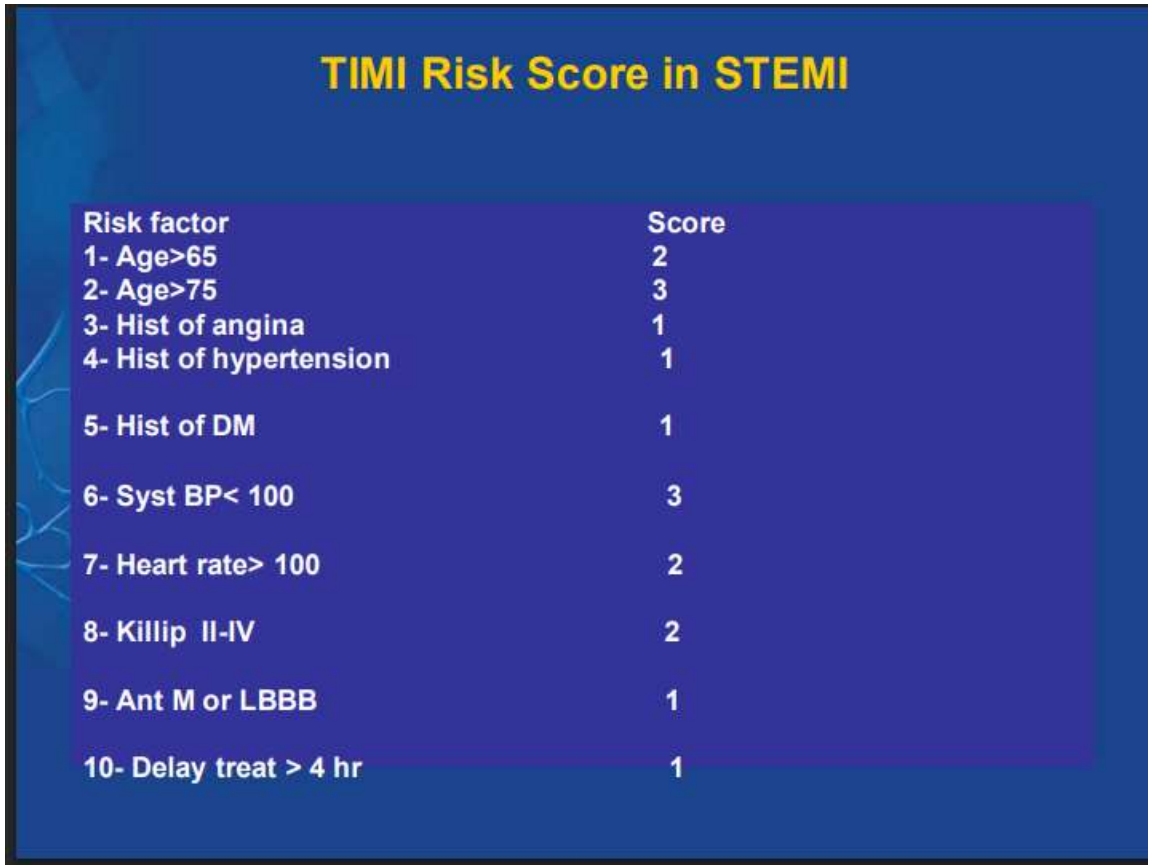
Book step up

b. Diuretics
- Most effective means of providing *symptomatic* relief to patients with moderate to severe CHF
- Recommended for patients with systolic failure and volume overload
- *Have not been shown to reduce mortality or improve prognosis, just for symptom control. Goal is relief of signs and symptoms of volume overload*



- Which of the following does increase mortality in myocardial infarction:

- Answer: Female gender

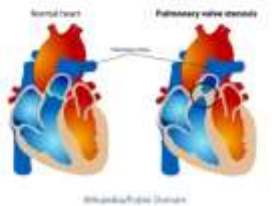


A patient with ejection click on upper left sternal border with 4/6 systolic murmur with suprasternal notch thrill:

Answer: Pulmonic stenosis

Pulmonic Stenosis

- **Congenital defect** in children
  - Fused commissures with thickened leaflets
- Carcinoid heart disease
- Systolic crescendo-decrescendo murmur at left upper sternal border



Boards&Beyond

Systolic Murmurs

- Occur when heart contracts/squeezes
- Between S1-S2
- Flow murmur (benign)
- Aortic stenosis
- Mitral regurgitation
- Pulmonic stenosis
- Tricuspid regurgitation
- Hypertrophic cardiomyopathy
- Ventricular septal defect (VSD)

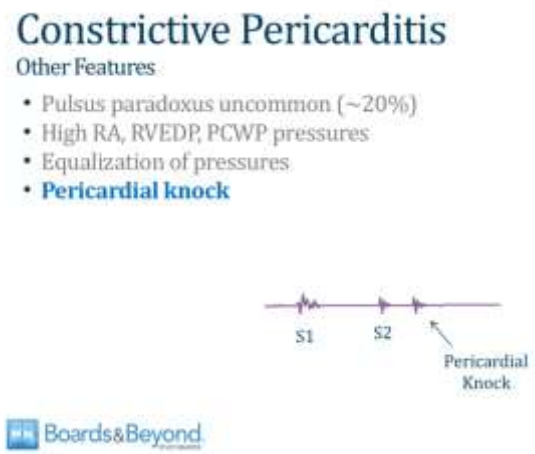
Which of the following does not have pulsus paradoxas?

Answer: Hypertrophic cardiomyopathy*

- It happens in constrictive pericarditis & tamponade

- What is wrong about Constrictive pericarditis:

Answer: Pulsus alrernans is a feature



Which of the following does not increase the risk of thromboembolic events in A.fib patients

Hypertension:

- Answer: High LDL

High LDL does not directly increase the risk of thromboembolic events in A-fib patients. It is more closely associated with atherosclerosis and CAD rather than the blood stasis and clot formation that lead to thromboembolic complications in A-fib.

- All decrease HDL except:

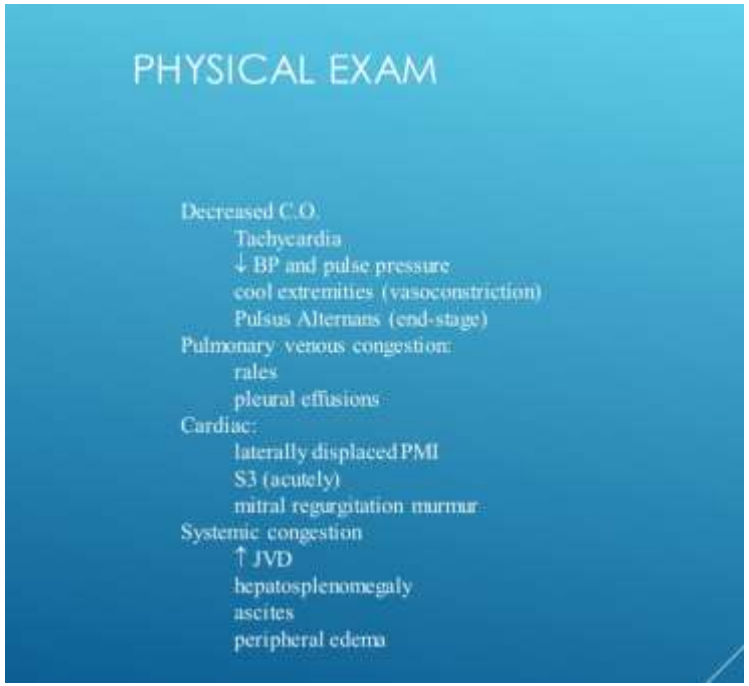
Answer: Low carbohydrate intake

It increases it not decrease it

ما لقيت عنه شي بالسلايدات او الأماكن التانية

Which is not consistent with JVP of 4 cm above the neck with lower limb edema:

Answer: Right heart failure



Most common causative organism of infective endocarditis in IV drug users:

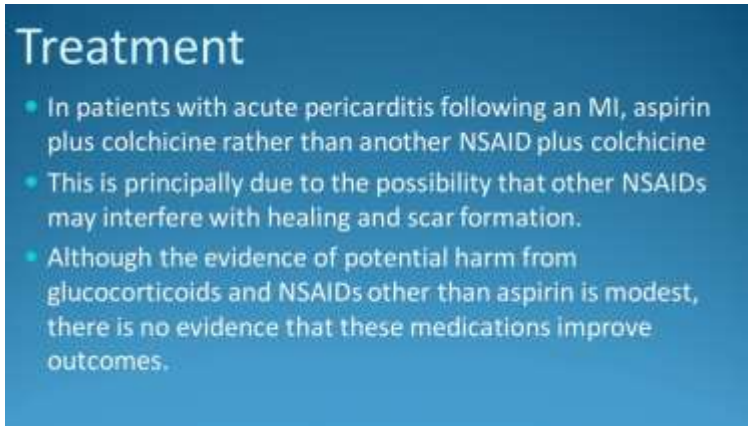
- Answer: Staph aureus

c. Endocarditis in IV drug users
  - Frequently presents with right-sided endocarditis.
  - *Staphylococcus aureus* is the most common cause.

book → Step up

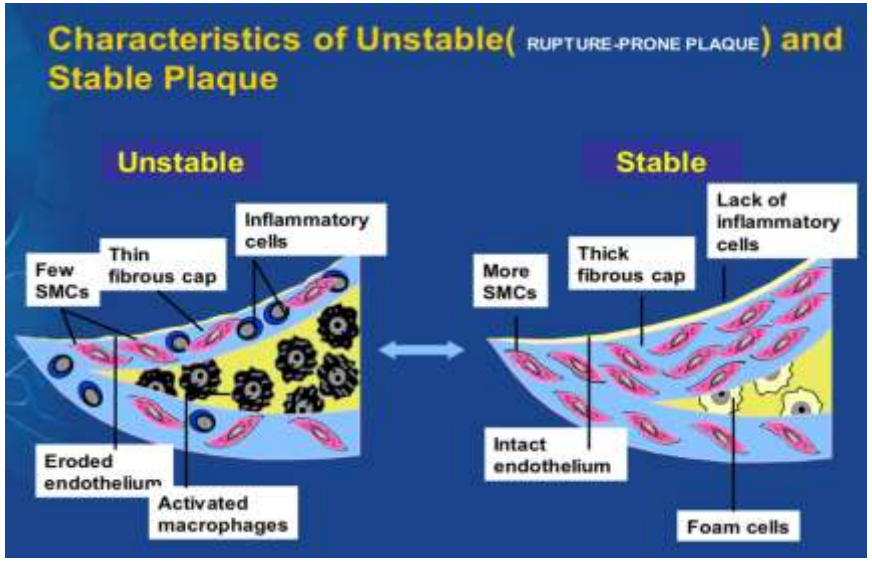
- A patient with hx suggesting pericarditis (chest pain decrease by leaning forward), which of the following is wrong:

- Answer: Steroids are 1st line therapy



All increase the risk of rupture of atheroma except:

- Answer: High smooth muscle cell content



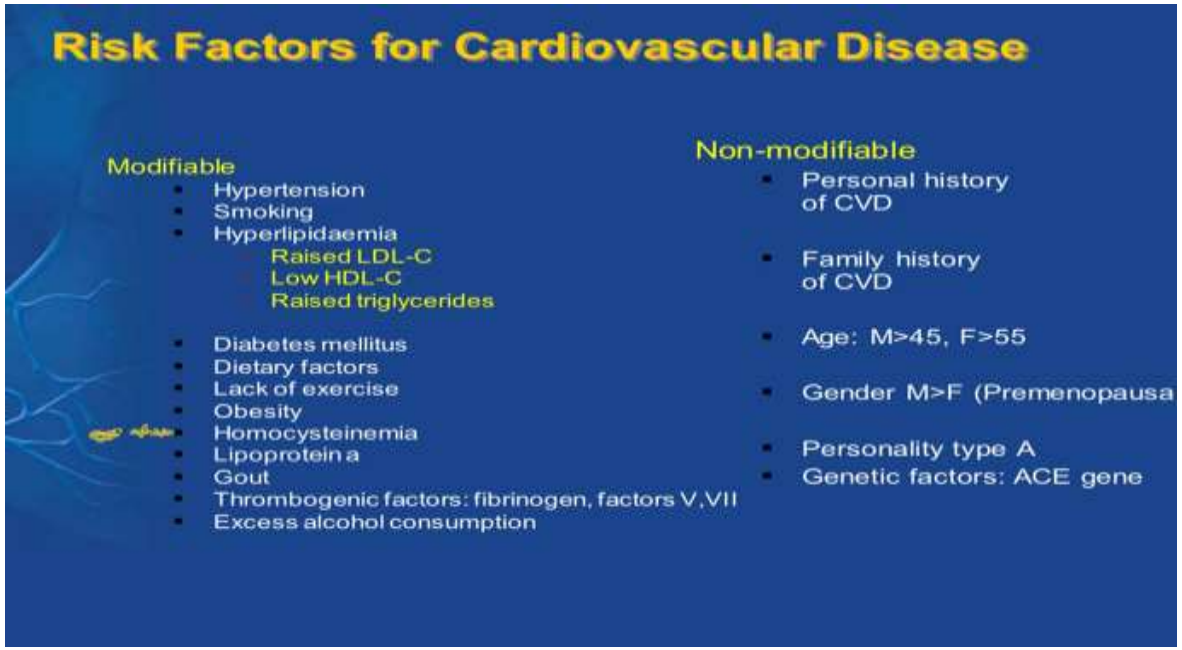
All have a risk of thromboembolism except:

- Answer: Constrictive pericarditis

All are risk factors for CAD except:

Answer: Low homocystine

•



A patient with bilateral lower limb edema, JVP 4cm above sternum ... All can cause his condition except:

a. Right side heart failure

b. Cirrhosis

c. Nephroticd.

- d. Pelvic venous fibrosis

Ans a

) A Patient with acute right lower limb pain, all can cause this except:

a. Constructive pericarditis

b. A fib

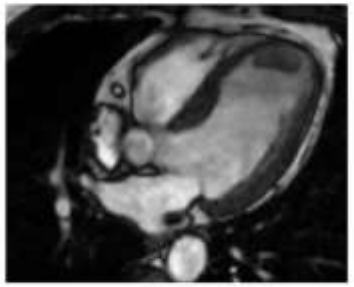
c. Paroxysmal SVT

d. Bacterial endocarditis

Ans a

Acute Limb Ischemia

- Sudden decrease in limb perfusion
- High risk of amputation
- **Thrombosis**
  - At site of atherosclerotic plaque
  - At aneurysm
  - Hypercoagulable state
- **Cardiac embolism**
  - Left atrial appendage in atrial fibrillation
  - Left ventricle in patients with anterior infarction



Boards&Beyond

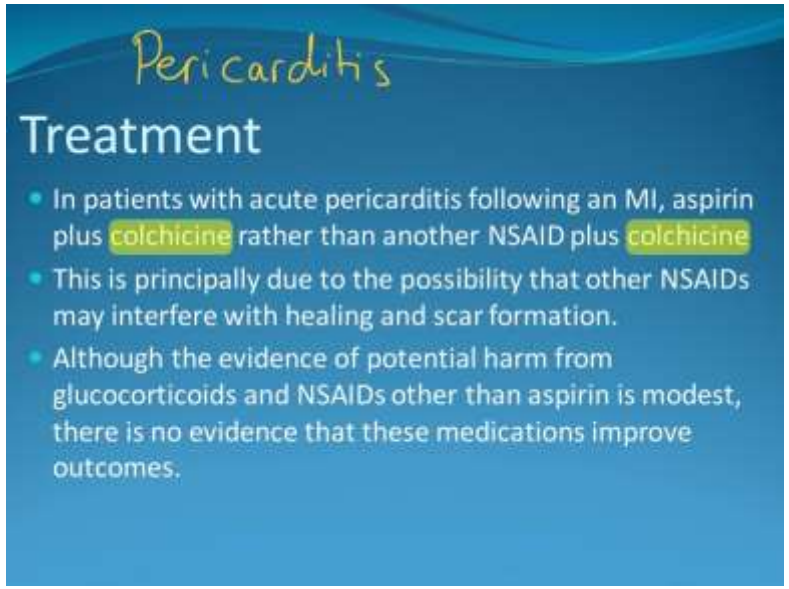
Otherwise healthy 21 year old patient with ST elevation in more than 7 leads, What is the best treatment:

a. Aspirin and heparin

b. Prednisone

c. Colchicine

Ans c


Pericarditis
Treatment
In patients with acute pericarditis following an MI, aspirin plus colchicine rather than another NSAID plus colchicine
This is principally due to the possibility that other NSAIDs may interfere with healing and scar formation.
Although the evidence of potential harm from glucocorticoids and NSAIDs other than aspirin is modest, there is no evidence that these medications improve outcomes.

Echocardiogram can show all of the following except:

a. Aortic stenosis

b. ASD

c. Coronary artery calcification

d. Mitral incompetence

Ans c

All can cause ST elevation except:

a. Coronary spasm

b. Constrictive pericarditis

c. Hyperkalemia

d. Ventricular aneurysm

Ans b

Myocardial Infarction

A. General Characteristics

1. MI is due to necrosis of myocardium as a result of an interruption of blood supply (after a thrombotic occlusion of a coronary artery previously narrowed by atherosclerosis).
   a. Most cases are due to acute coronary thrombosis: Atheromatous plaque ruptures into the vessel lumen, and thrombus forms on top of this lesion, which causes occlusion of the vessel.
   b. *MI is associated with a 30% mortality rate; half of the deaths are prehospital.*
   c. Most patients with MI have history of angina, risk factors for CAD, or history of arrhythmias.

Ventricular Aneurysm

Weeks to months after MI

- More common **anterior infarction**
- Risk of thrombus → stroke, peripheral embolism
- Causes persistent ST elevations

Boards&Beyond

A Patient on Digoxin developed loss of appetite, vomiting, ... Which of the following might

have caused his symptoms:

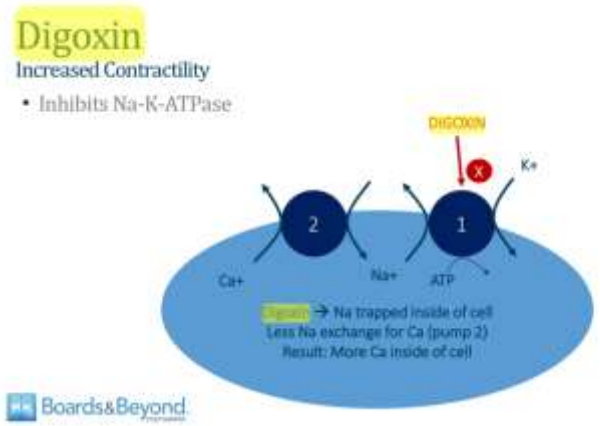
a. hypocalcemia

b. hypoxia

c. hypothyroidism

d. hypokalemia

Ans d


Digoxin
Increased Contractility
• Inhibits Na-K-ATPase
DIGOXIN
K+
2
1
Ca+
Na+
ATP
→ Na trapped inside of cell
Less Na exchange for Ca (pump 2)
Result: More Ca inside of cell
Boards&Beyond

All of the following are associated with cardiac constrictive pericarditis except:

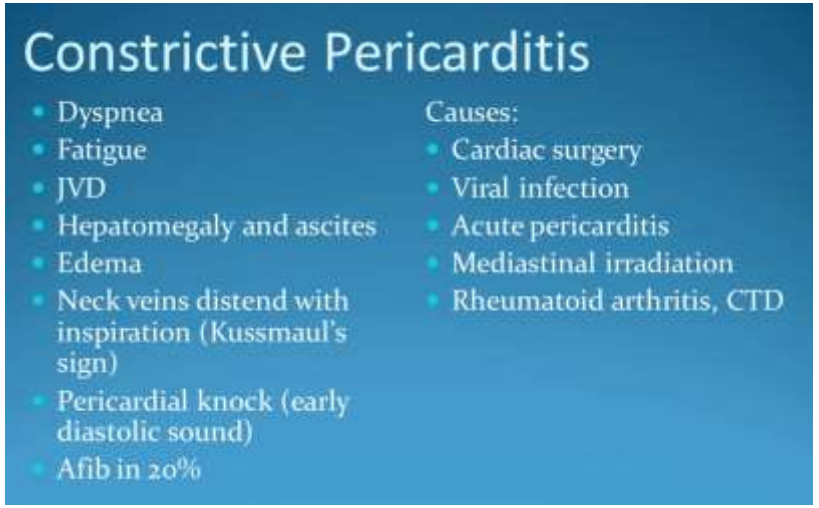
a. Edema

b. Ascites

c. Hepatomegaly

d. Pulsus alternanus

Ans d


Constrictive Pericarditis
Dyspnea
Fatigue
JVD
Hepatomegaly and ascites
Edema
Neck veins distend with inspiration (Kussmaul's sign)
Pericardial knock (early diastolic sound)
Afib in 20%
Causes:
Cardiac surgery
Viral infection
Acute pericarditis
Mediastinal irradiation
Rheumatoid arthritis, CTD

A Patient with suprasternal thrills, ejection click after 51, flow ejection systolic murmur,

single S2, systolic heave in the left supra-sternal fossa, what would be the cause:

a. Aortic valve stenosis

b. Pulmonic valve stenosis

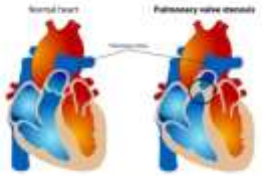
c. Coarcutation of aorta

d. PDA

Ans b

Pulmonic Stenosis

- **Congenital defect** in children
  - Fused commissures with thickened leaflets
- Carcinoid heart disease
- Systolic crescendo-decrescendo murmur at left upper sternal border



Boards&Beyond

Systolic Murmurs

- Occur when heart contracts/squeezes
- Between S1-S2
- Flow murmur (benign)
- Aortic stenosis
- Mitral regurgitation
- Pulmonic stenosis
- Tricuspid regurgitation
- Hypertrophic cardiomyopathy
- Ventricular septal defect (VSD)

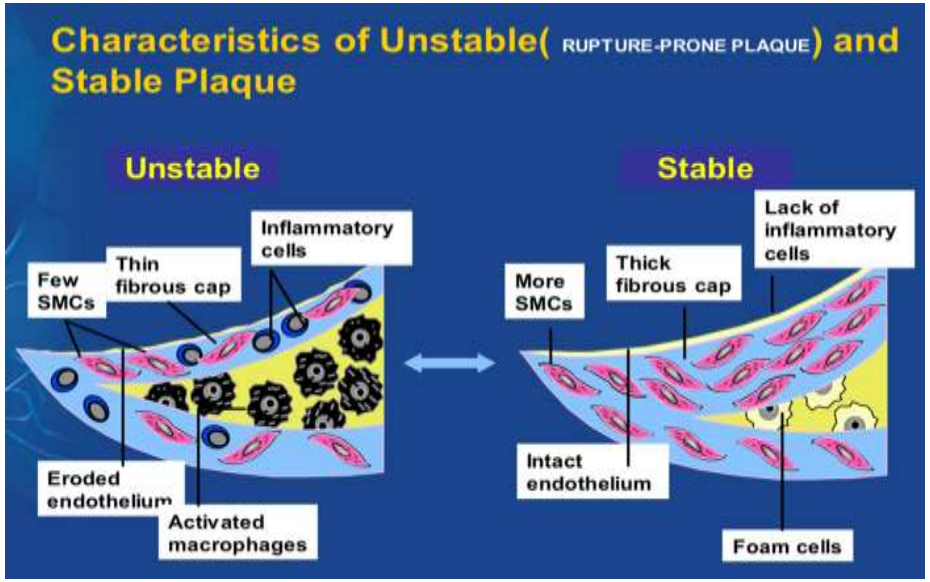
Which of the following doesn't support plaque rupture in atherosclerosis:

a. Low fibroblast

b. High inflammatory cells

c. Abundant smooth muscles

Ans c


Characteristics of Unstable(RUPTURE-PRONE PLAQUE) and Stable Plaque
Unstable
Stable
Few SMCs
Thin fibrous cap
Inflammatory cells
Eroded endothelium
Activated macrophages
More SMCs
Thick fibrous cap
Lack of inflammatory cells
Intact endothelium
Foam cells

All can be associated with endocarditis except:

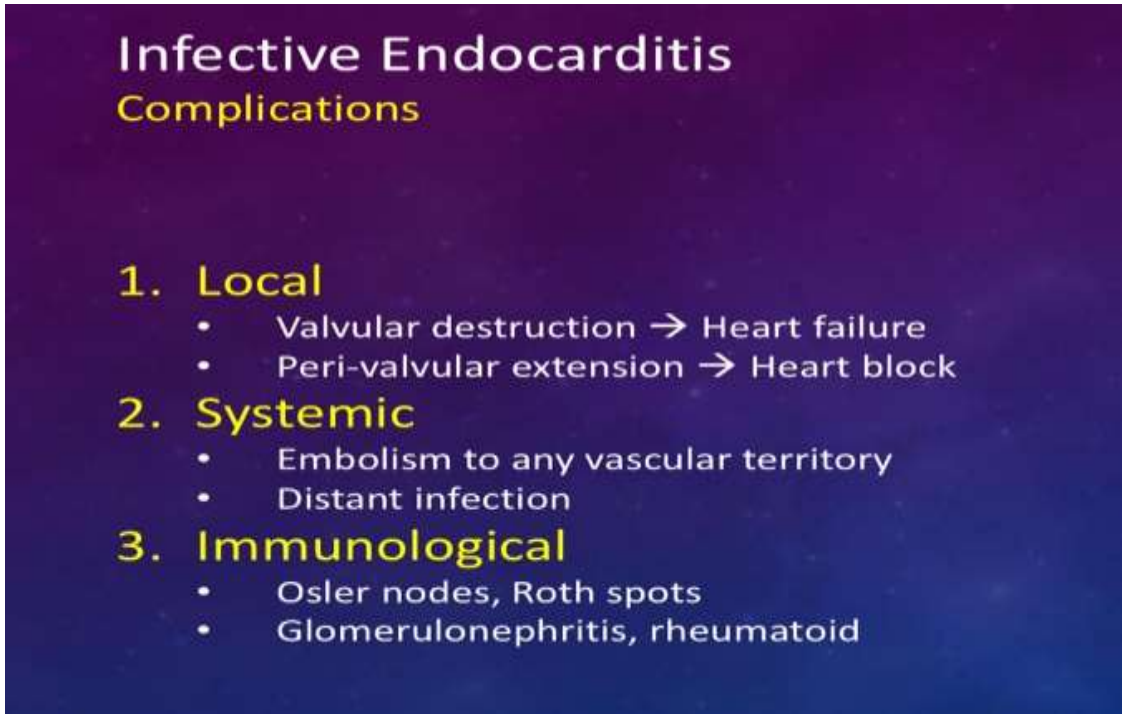
a. Anti A50

b. Hematuria

c. A fib

d.Rheumatoid factor

Ans a


Infective Endocarditis
Complications
1. Local
• Valvular destruction → Heart failure
• Peri-valvular extension → Heart block
2. Systemic
• Embolism to any vascular territory
• Distant infection
3. Immunological
• Osler nodes, Roth spots
• Glomerulonephritis, rheumatoid

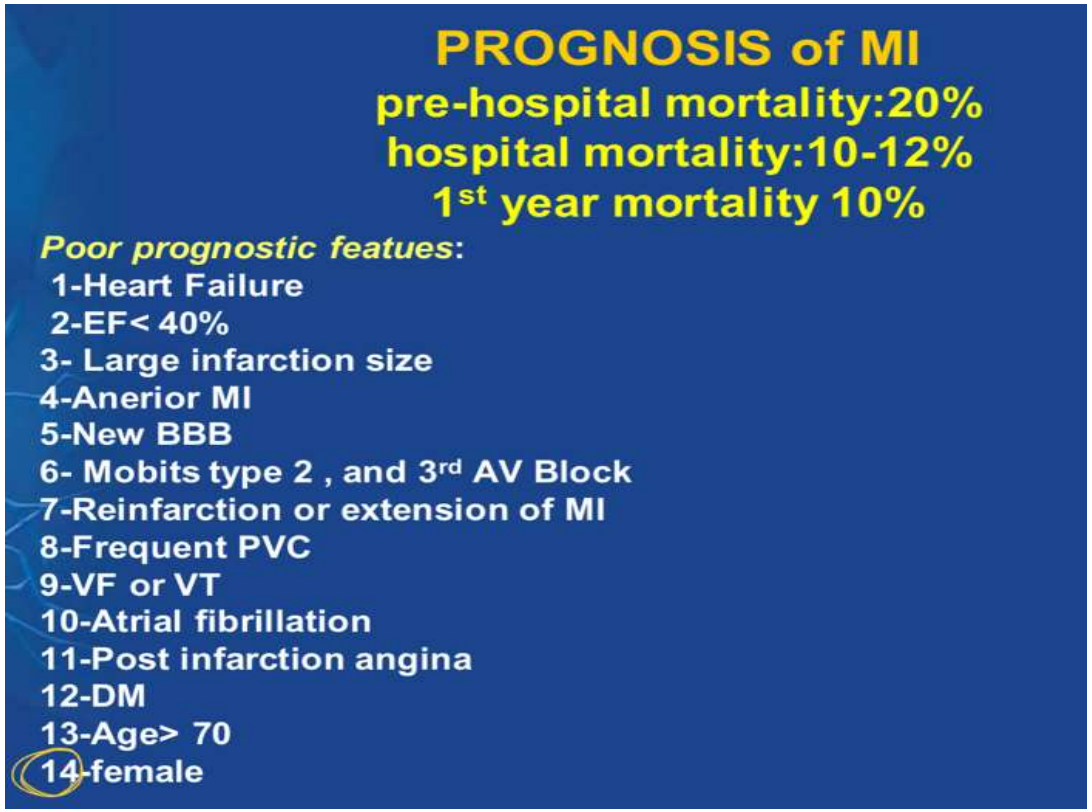
All of the following is considered a poor prognostic indicator in anterior Ml except:

a. Being a female

b. Sinus tachycardia

c. Persistent hypertension

Ans a


PROGNOSIS of MI
pre-hospital mortality:20%
hospital mortality:10-12%
1st year mortality 10%
Poor prognostic featues:
1-Heart Failure
2-EF< 40%
3- Large infarction size
4-Anerior MI
5-New BBB
6- Mobits type 2 , and 3rd AV Block
7-Reinfarction or extension of MI
8-Frequent PVC
9-VF or VT
10-Atrial fibrillation
11-Post infarction angina
12-DM
13-Age> 70
14-female

Good luck