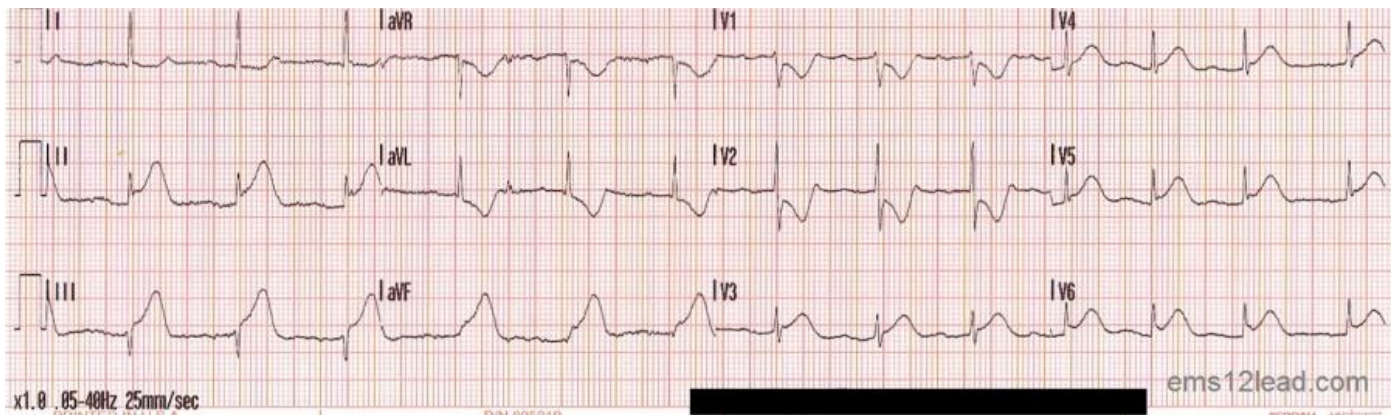


## Cardiology, IHD, lysis vs PCI, pericarditis and myocarditis - ANSWERS

### SAQ 1

A 64 year old male presents to your rural ED with 30 minutes of right arm pain. He is a smoker, has HTN and DM, but denies high cholesterol. His ECG is shown.



- a. List two abnormalities on the ECG and give your diagnosis. (3 marks)

*ST elevation in inferior (II, III, aVF) and lateral (V5/V6) leads – inferolateral STEMI*

- b. In which coronary artery is the culprit lesion? (1 mark)

*Left circumflex*

- c. You decide to thrombolyse. State the drug, dose, route, and rate of administration. (3 marks)

*tPA 0.9mg/kg, max 90mg. Give 10% over 10 mins, then rest over one hour.*

- d. List 6 absolute contraindications to thrombolysis. (6 marks)

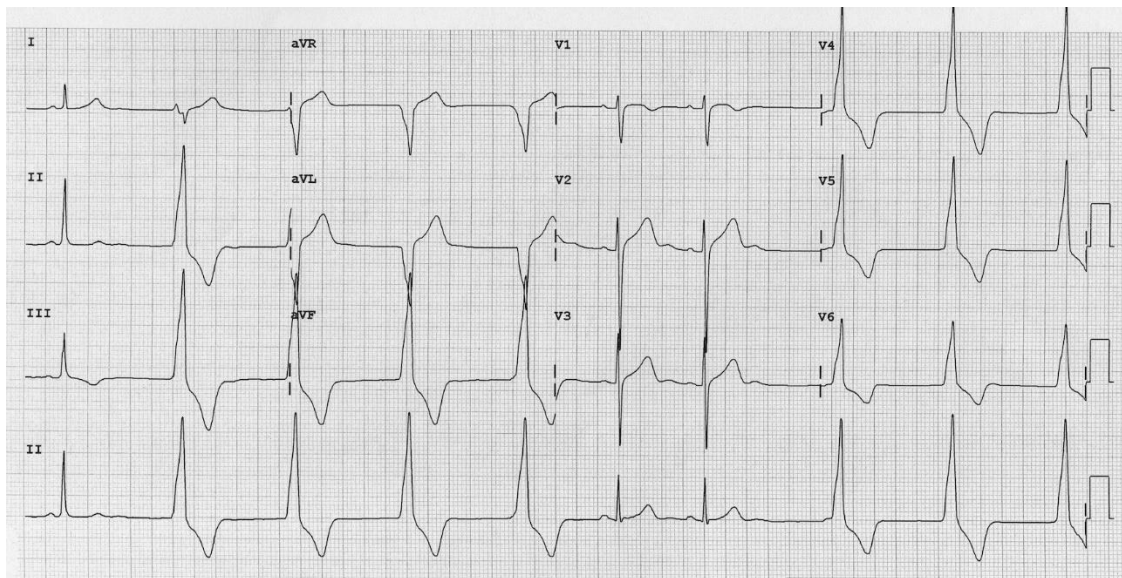
*Previous haemorrhagic stroke, ischemic stroke <3/12, active bleeding (not menses), aortic dissection, known intracranial vascular lesion, intracranial malignancy, head/facial trauma 3/12.*

- e. Ninety minutes after thrombolysis, the patient is still in 8/10 pain with persistent ST elevation on his ECG. What is your next step? Justify your choice. (2 marks)

*Transfer to nearest PCI centre for angio. Failed thrombolysis, so needs rescue PCI. Repeat thrombolysis won't do anything.*

### SAQ 2 (follows on from SAQ 1)

Whilst preparing the patient for transfer, the nurse repeats the ECG (shown).



- a. What is the rhythm shown? (1 mark)

*Accelerated idioventricular rhythm – regular, rate 50-110, 3 or more ventricular complexes, wide QRS complexes, fusion and capture beats.*

- b. The patient remains haemodynamically stable. What actions do you take given the ECG changes? Justify your answer. (2 marks)

*None – this rhythm is common after thrombolysis and has no prognostic value.*

- c. Two years after being treated for his MI, the patient presents with three angina attacks at rest over the past 24 hours. He is now on aspirin, metoprolol, and a statin and has been compliant. His ECG and troponin are normal. What is his TIMI score? (2 marks)

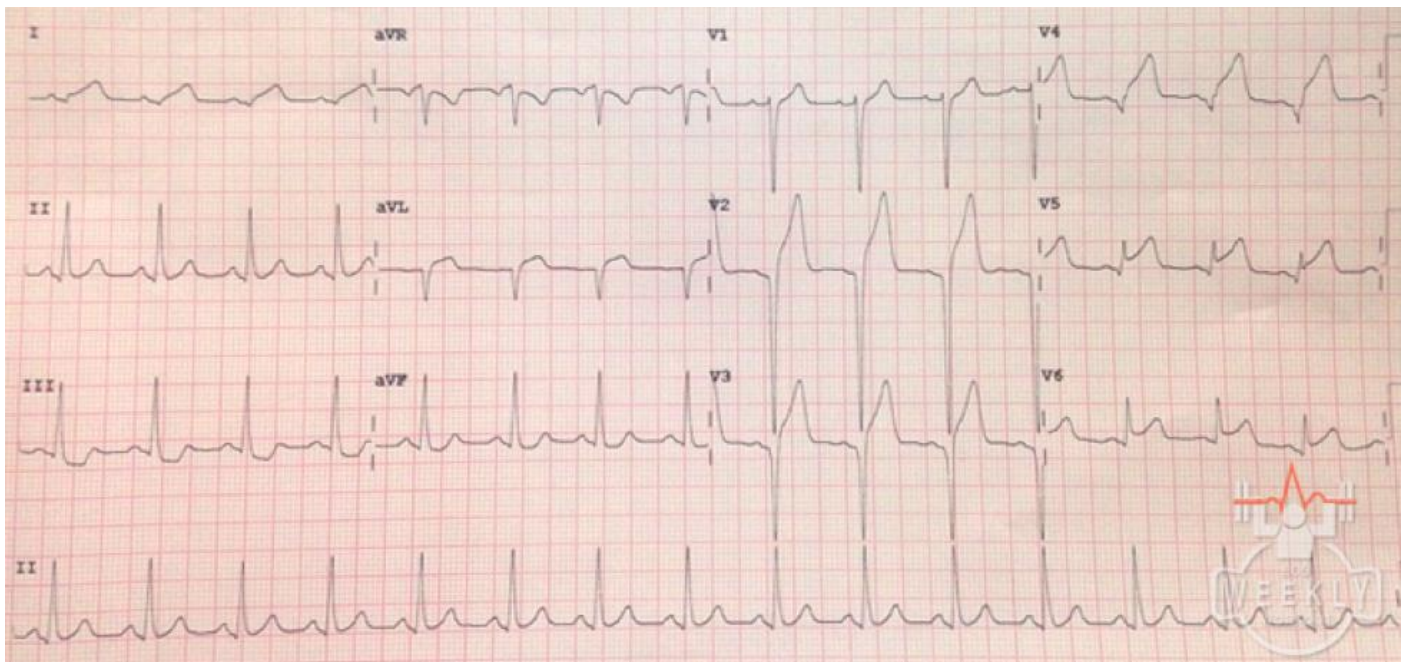
*TIMI score is 5 (age >65, known IHD, use of aspirin, 2 or more attacks angina, >3 risk factors for IHD)*

- d. States his disposition and justify your reasoning. (2 marks)

*Likely unstable angina. Needs cardiology admission for this, even if troponins negative. May need urgent PCI.*

### SAQ 3

A 46 year old female presents to ED with chest pain for 24 hours. She is a smoker and has hypothyroidism. The pain is described as sharp chest pain, radiating to the left arm and neck, and is associated with dyspnoea. Her sats are 94% on RA. Her ECG is shown.



- a. State the likely diagnosis, giving two features of the ECG that support your diagnosis. (3 marks)

*Widespread concave ST elevation, PR depression evident. Likely pericarditis.*

- b. List four likely causes of this diagnosis in THIS patient. (4 marks)

*Hypothyroid – immune related pericarditis, infectious, systemic rheumatic disease, myxoedema, idiopathic.*

- c. How can the ST/T ratio be used to differentiate between pericarditis and benign early repolarisation?

*ST/T ratio high in pericarditis ( $>0.25-0.5$ ), low in BER.*

- d. The patient remains in pain despite analgesia. Her troponin is 46. A CXR is ordered (shown). What is the likely diagnosis, and how does this change disposition? (2 marks)



*Cardiomegaly and cephalisation of pulmonary vessels, heart failure. Patient has myopericarditis with dilated cardiomyopathy and needs admission for management.*

#### SAQ 4

- a. Based on current guidelines, what is the recommended timeframe for each of the following interventions in STEMI? (3 marks)
- Time to first ECG in suspected STEMI *10 mins maximum*
  - Time from patient arrival to PCI *90 minutes max (poss up to 120mins – Euro guidelines)*
  - Time to thrombolysis *<6-12 hrs if PCI not available in <90 mins*
- b. For each of the following patients, indicate whether PCI, thrombolysis, or both are appropriate if said patient presents with an acute STEMI. Use a tick to indicate appropriate, a cross to indicate not appropriate. (9 marks)

|                                          | PCI                                 | Thrombolysis                                                         |
|------------------------------------------|-------------------------------------|----------------------------------------------------------------------|
| Postpartum 2/52 after LSCS               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                  |
| BP 160/90                                | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                  |
| On warfarin, INR 2.5                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                  |
| 36/40 pregnant                           | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                  |
| Under CPR for <10 mins                   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                  |
| Previous thrombolysis with streptokinase | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> <i>not streptokinase, though</i> |
| Dressler's syndrome                      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                  |
| THR 2/52 ago                             | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/>                                  |
| 86 year old with GORD                    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> ?                                |

- c. For a patient with acute STEMI and no heart failure or contraindications, list five medications that are given acutely with a brief description of their mechanism of action. (5 marks)

*Aspirin – antiplatelet action*

*Clopidogrel/ticagrelor – antiplatelet action*

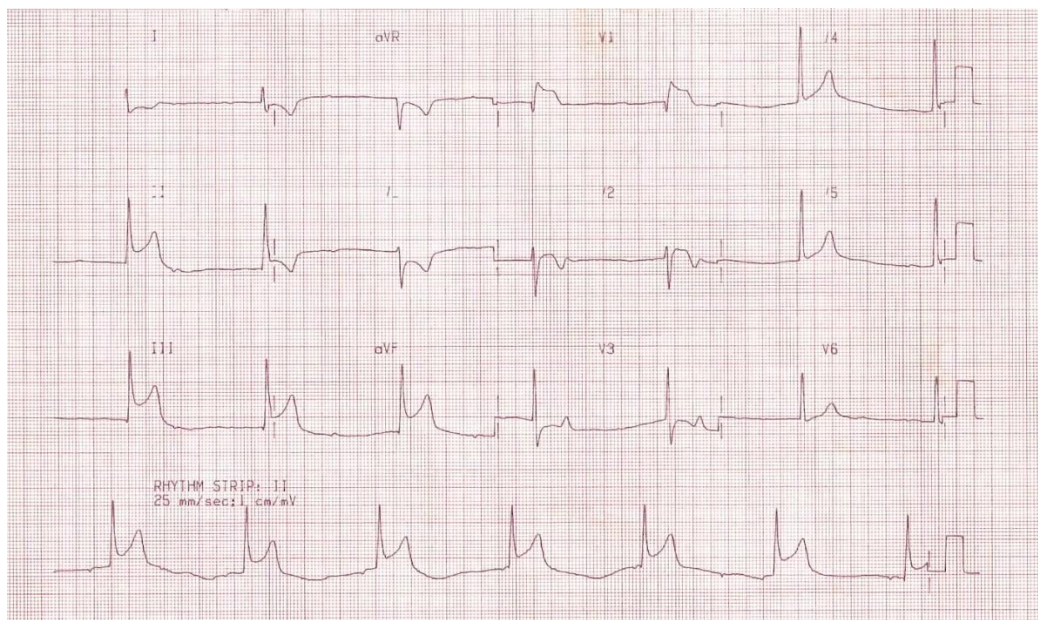
*GTN – vasodilation, reduce myocardial work etc*

*Beta blockers – reduce heart rate etc*

*Antithrombin – heparin etc – thrombin exposed by fibrinolysis etc*

#### SAQ 5

A 56 year old male presents with right arm pain for two hours. He complains of nausea and dizziness. His BP is 100/60 and his pulse rate 40bpm. His ECG is shown.



- a. State two abnormalities on his ECG and give the likely diagnosis. (2 marks)

*Inferior STEMI – STE in inferior leads, STE V1, STD V2. Reciprocal changes.*

- b. State two possible causes of his bradycardia. (2 marks)

*Ischaemia of SA node secondary to MI*

*Bezold-Jarisch reflex – vagal response to MI.*

- c. List a pharmacological and a non-pharmacological treatment for his bradycardia. Give doses where appropriate. (2 marks)

*Atropine 0.5mg IV. Pacing – either transcutaneous or transvenous*

- d. The medication for bradycardia fails to have a meaningful result. Briefly outline how you would perform pacing in this patient. (6 marks)

*\*Analgesia/mild sedation – painful process*

*Pads on – preferably AP, but sternal/lateral would be acceptable*

*Start at 10mA – increase by 10 until electrical capture – indicated by pacing spike followed by QRS*

*Look for perfusion as marker of mechanical capture – start at 80bpm and increase until adequate perfusion of patient.*