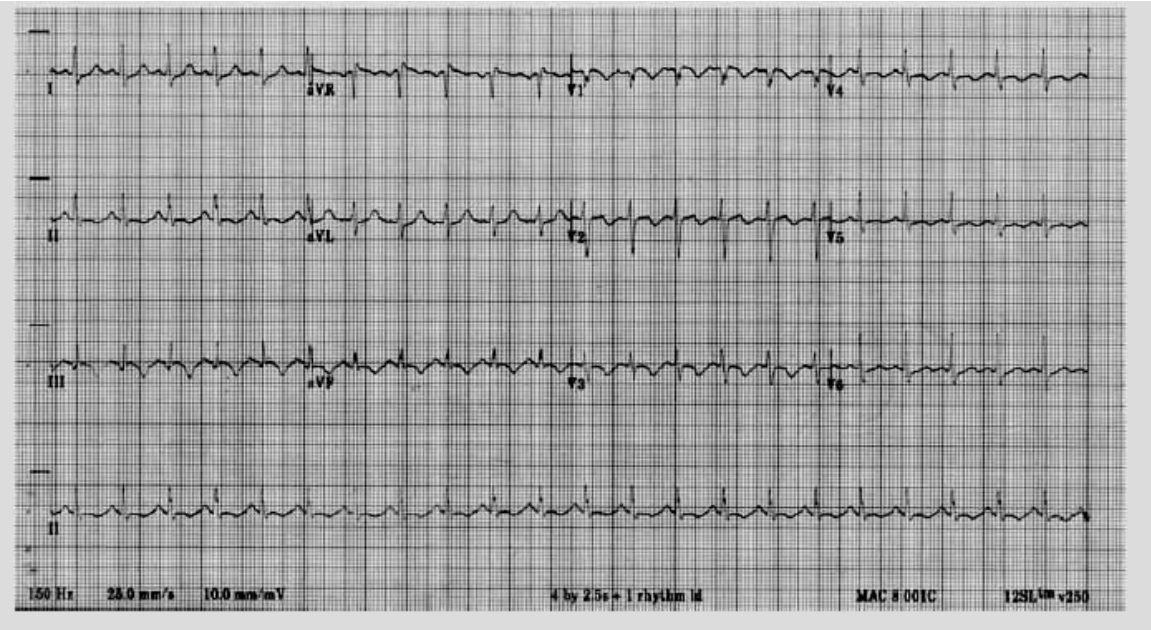
Question 24 - Cardiology

A 55 yo woman with T2DM develops acute onset of chest pain and dyspnoea. She has been discharged from hospital 5 days earlier after laproscopic cholecystectomy. The pain is described as a central heavy pain with no radiation. There are no aggravating or relieving factors. She has HT, hypercholesterolaemia and smokes 15-20 cigarettes a day. Her usual medications incude aspirin, simvastatin, enalapril and insulin. Examination is unremarkable apart from tachypnoea and sweating.

Her ECG is shown:



After administration of O2 and analgesia, the most appropriate therapy while awaiting the results of diagnostics tests is:

A. Streptokinase and a B blocker
B. Tissue plasminogen activator (tPA) followed by heparin
C. Heparin alone
D. Heparin, tirofiban and a B blocker
E. Heparin and a B blocker

Answer: C

ECG shows

- sinus tachycardia (HR 120)
- normal axis
- T wave inversion inferiorly III and aVF, anteriorly V1-V4

Main Ddx

1) **Non ST elevation acute coronary syndrome (NSTEMI/ Unstable Angina)**

- NSTEMI has cardiac enzyme elevation
- Multiple cardiac risk factors
- character of pain (heavy)
- T wave inversion
- Treatment:
    - **NO THROMBOLYSIS** (lesion is *platelet rich* vs fibrin rich in STEMI)

- **Antiplatelets**: Aspirin 300mg +/- clopidogrel +/- GP2b/3a inhibitor if high risk and planning PCI
- **Enoxaparin or heparin** for 48 hours (no evidence beyond)
- Analgesia (nitrates +/- morphine)
- Medications that improve mortality (**B blocker/ ACEi/ atorvastatin** 80mg: PROVE-IT-TIMI 22 in 2004 and MIRACL 2001)
- No trial demonstrates mortality benefit in early/ immediate **PTCA +/- stent** but this is recommended in all but low risk patients
- Note that in NSTEMI, immediate angio findings show no occlusion in 60-85% of infarct-related artery (? Clot lyisi/ microvessel disease/ vasospasm)

2) PE

- smoker
- recent surgery
- sinus tachycardia (commonest ECG finding in PE)
- Treatment:
  - **Anticoagulation** with heparin/ enoxaparin and warfarin till INR therapeutic 48 hours
  - **Thrombolysis**
    - no trial to demonstrate mortality benefit
    - but improves pulmonary perfusion and RV function
  - If contraindicated
    - **IVC filter**: no mortality benefit unless hypotensive
    - **Thrombolectomy** (catheter or surgical)

A. Wrong because streptokinase is a thrombolytic agent; not used in NSTEMI and definitely not 1st line in PE. A B blocker may be considered if NSTEMI but patient is a smoker and may have reversible airways obstruction

B. Heparin correct but not tPA (thrombolytic agent)

C. Heparin correct in either diagnosis. However enoxaparin has often been preferred unless renal impairement or CABGs planned in 24 hours.

D. Probably would not consider tirofiban (GP 2b/3a inhibitor) in this patient as with the given information, she is LOW risk (TIMI score 2)

TIMI score

- Method of early risk stratification
- 7 factors (each scoring 1)

1) Age ≥ 65
2) **Aspirin in last 7 days**
3) ≥ 2 episodes angina within last 24 hours
4) **≥ 3 risk factors (HT/ hyperchol/ smoker/ diabetes)**
5) Known coronary stenosis ≥ 50%
6) ST segment changes
7) Cardiac enzyme elevation

- **Low: 0-2**
- **Intermediate: 3-4**
- **High: >5**

- GP2b/3a inhibitors usually considered in high risk patients/ or ongoing ischaemia evidenced by symptoms or haemodynamic instability/ planned for PCI

Contraindications to B blockers in ACS

1) Bronchospasm
2) Bradycardia (HR <60)
3) Block
4) Left ventricular failure (moderate to severe)
5) Hypotension (sys BP <100)
6) Cocaine- induced AMI