

2014

**University of Maryland
Emergency Medicine
Residency**

ECG Competition

April 30, 2014

1. Which of the following statements is true regarding Q-waves?

- a. They are significant for myocardial infarction (MI) only if they are larger than 2 mm in depth.
- b. They are significant for MI only if they are at least 40 msec in duration (width).
- c. They take a minimum of 6 hours to develop after the onset of MI.
- d. Recent studies have shown that they will develop with anterior wall cardiac ischemia.

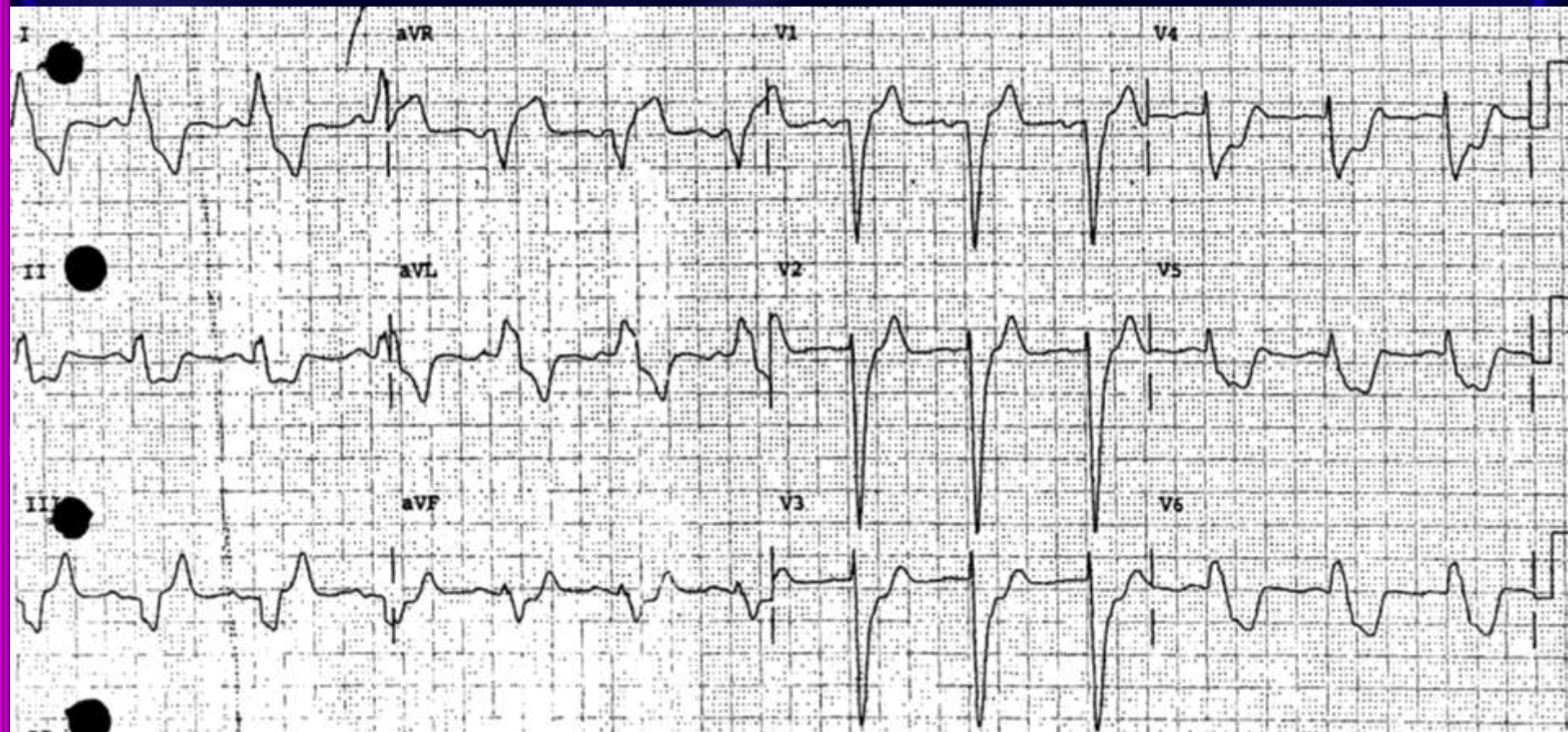
2. Which of the following statements is true regarding MI involving the right ventricle (RV) ?

- a. Up to 5% of all MIs are *isolated* RV MIs.
- b. Patients with RV MI usually have significantly more STE in lead II than in lead III.
- c. RV MI is usually associated with concurrent lateral wall MI.
- d. The presence of STE in leads II, III, aVF, and V1 with ST depression in lead V2 is highly suggestive of inferior + RV MI.

Note

For questions 2-20, answers to the questions are on the subsequent slide.

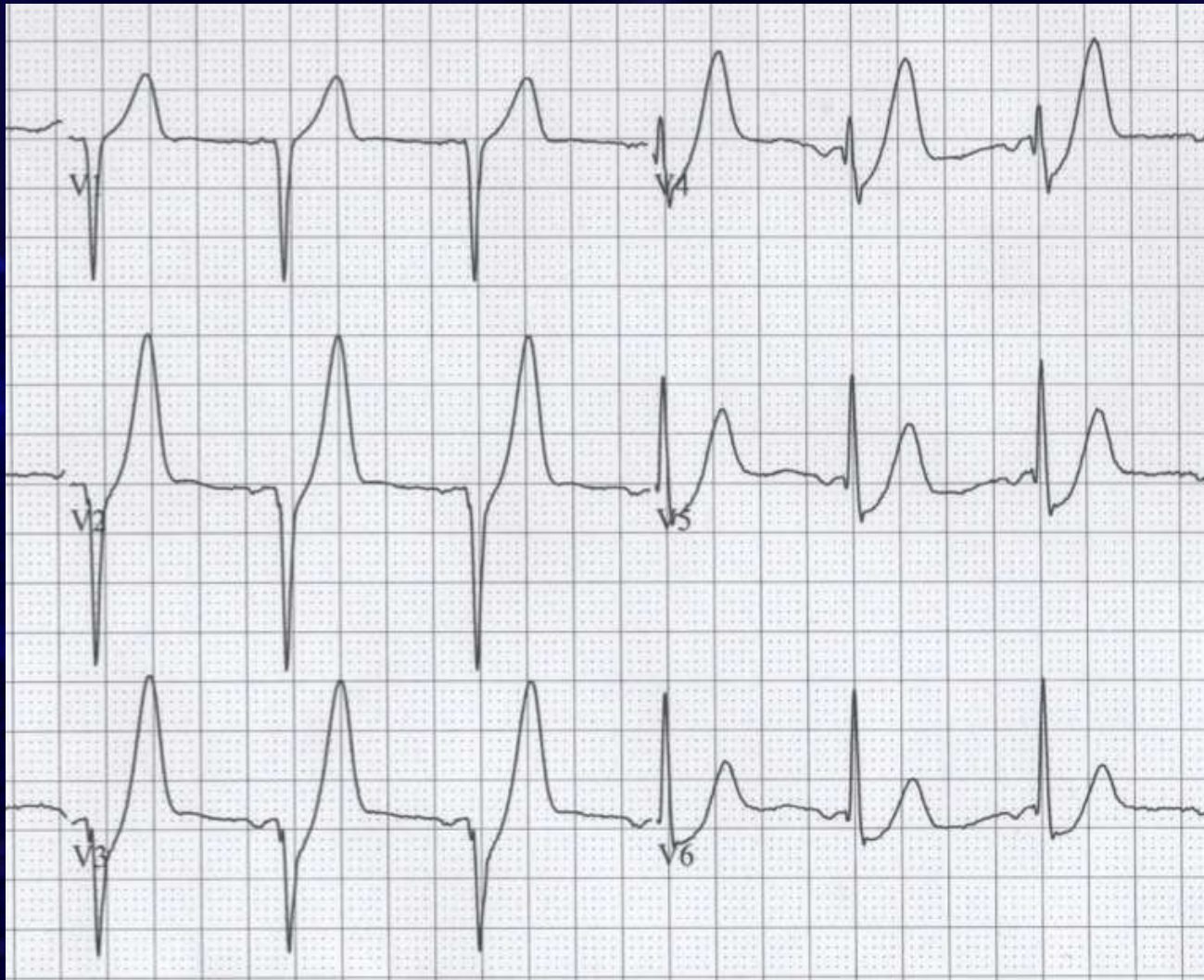
3. A patient with a known history of a left bundle branch block presents complaining of chest pressure and has the following ECG. What is the best treatment?



3. A patient with a known history of a left bundle branch block presents complaining of chest pressure and has the following ECG. What is the best treatment?

- a. Aspirin, heparin, thrombolytics
- b. Aspirin, heparin, beta blockers, admit to intensive care unit (ICU)
- c. Aspirin, clopidogrel, admit to ICU
- d. Aspirin, pacemaker, admit to ICU

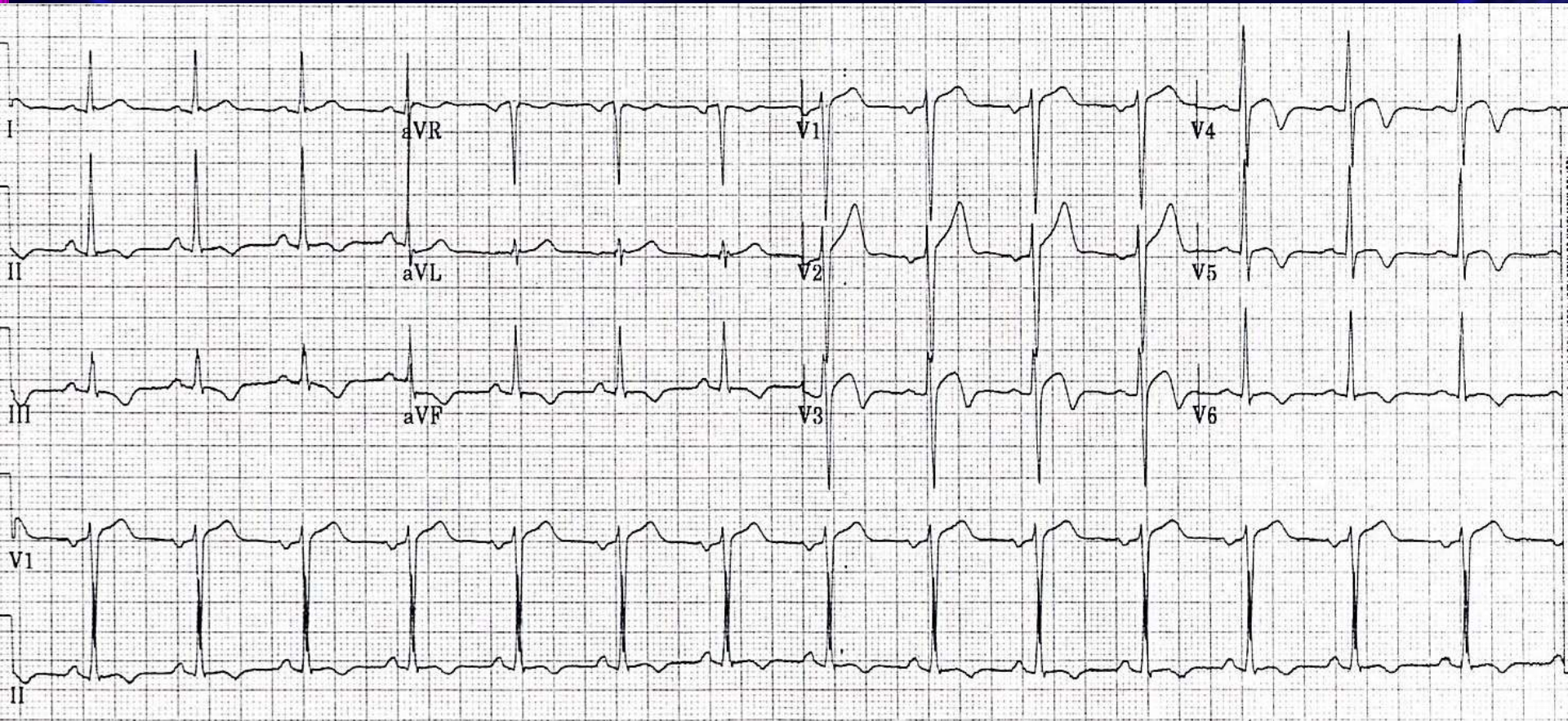
4. A patient demonstrates the ST-segment changes noted below during active chest pain. What is the most likely significance of the findings?



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- a. Acute left anterior descending artery occlusion
- b. Subacute left anterior descending artery occlusion
- c. Acute left main coronary artery occlusion
- d. Subacute left main coronary artery occlusion

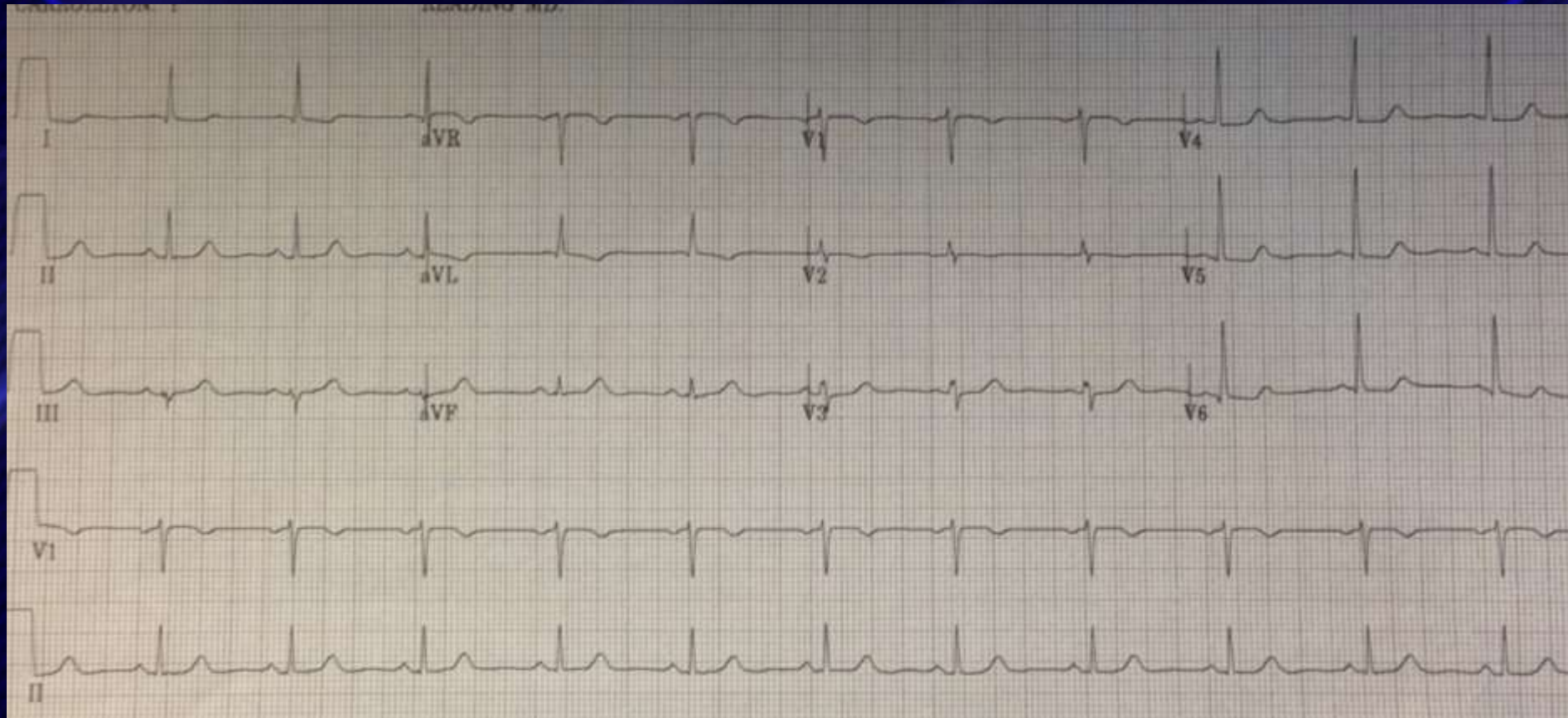
5. A 40 year old male smoker with a history of hypertension has an episode of chest pain at home. By the time he presents to the ED, he is asymptomatic. His ECG is shown. What is the best disposition?



5. A 40 year old male smoker with a history of hypertension has an episode of chest pain at home. By the time he presents to the ED, he is asymptomatic. His ECG is shown. What is the best disposition?

- a. Obtain serial troponins; then discharge home after ruled-out for MI.
- b. Obtain serial troponins; then obtain treadmill stress test after ruled-out for MI.
- c. Admit for acute coronary syndrome and non-emergent catheterization.
- d. Activate catheterization lab for emergency percutaneous coronary intervention (PCI).

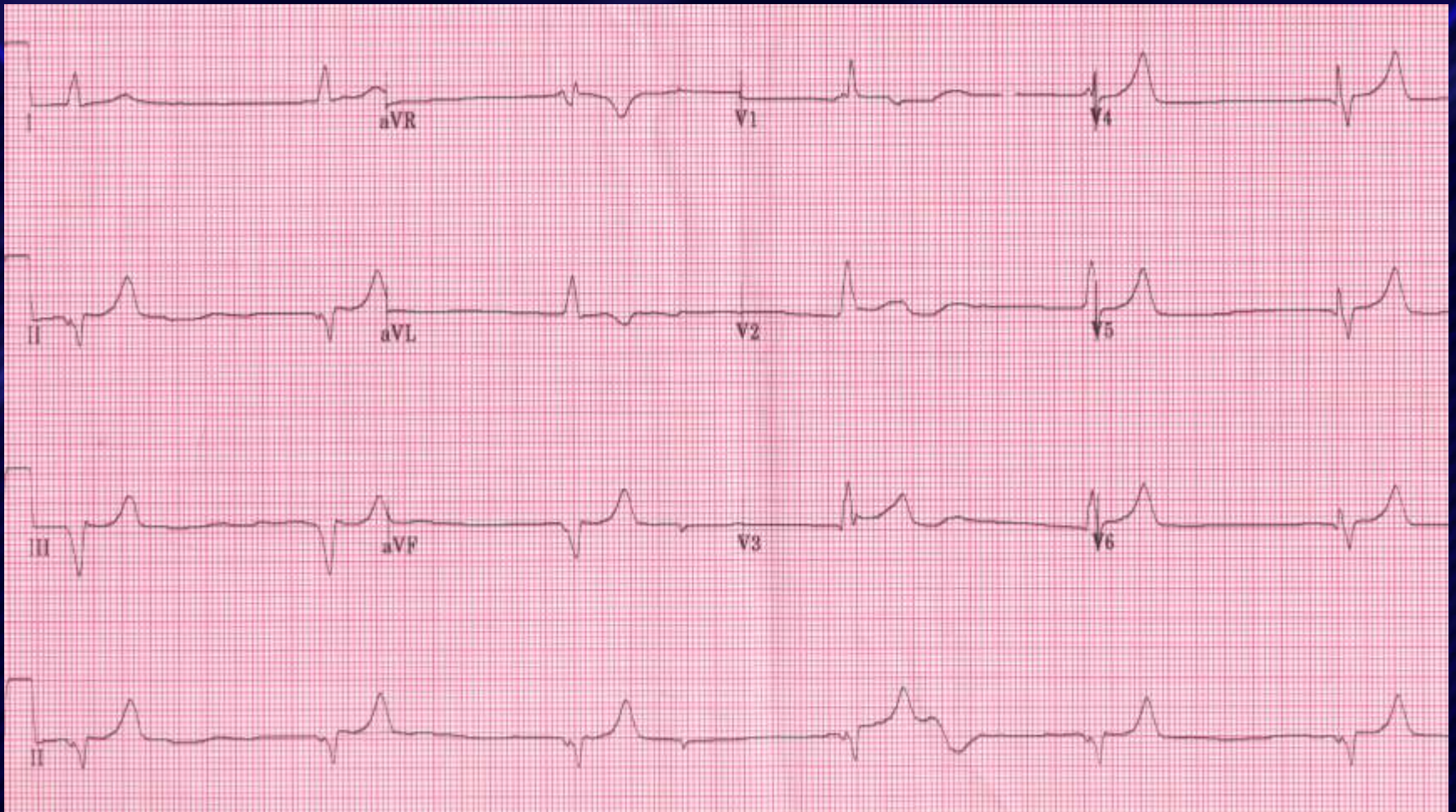
6. A patient presents with 30 min of chest pressure. Her initial ECG during pain is shown. A previous ECG obtained is completely normal. What diagnosis should be suspected?



6. A patient presents with 30 min of chest pressure. Her initial ECG is shown. A previous ECG obtained is completely normal. What diagnosis should be suspected?

- a. Non-specific T-wave abnormality
- b. Lateral wall ischemia
- c. Early posterior STEMI
- d. Early inferior STEMI

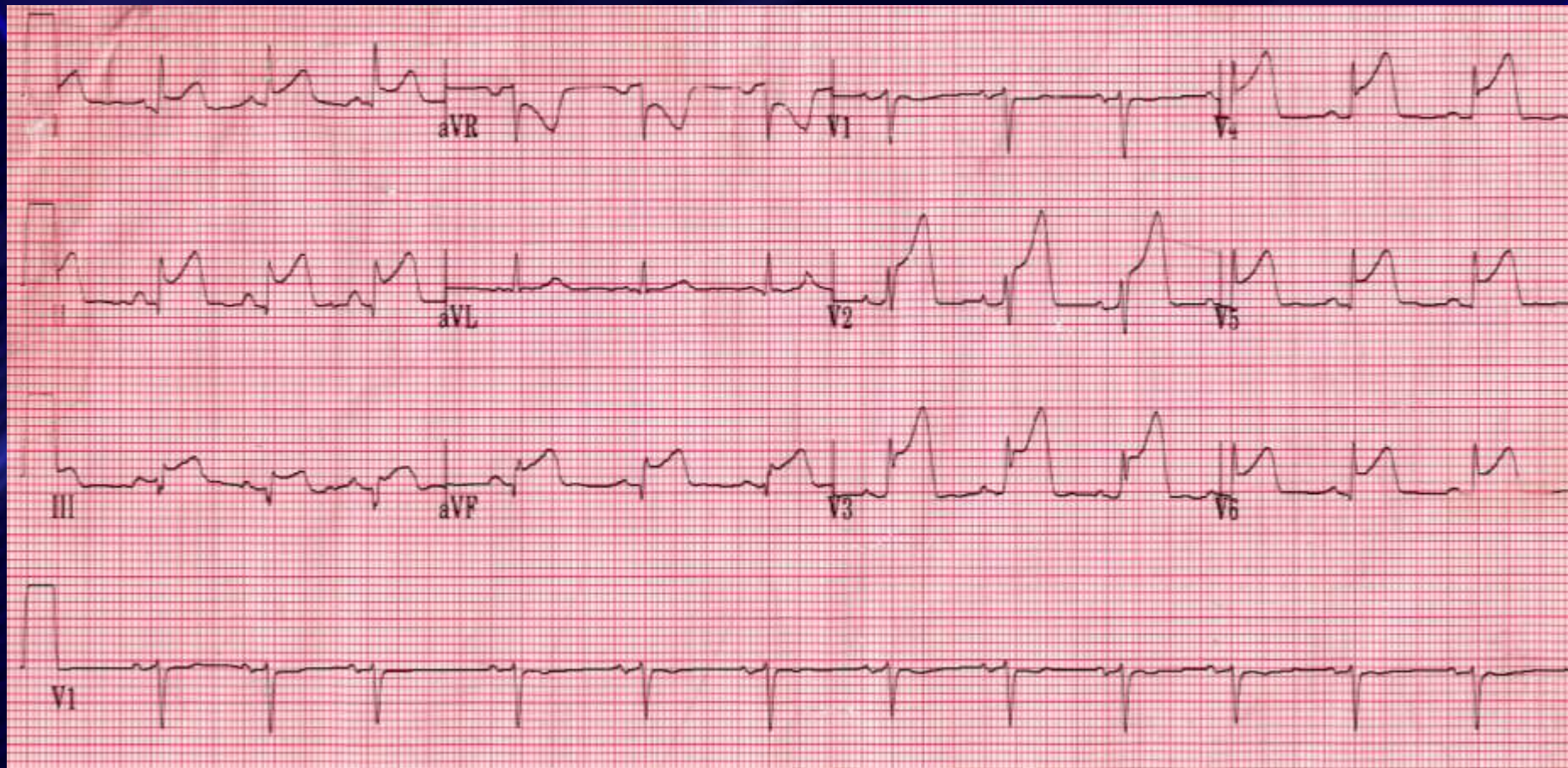
7. A 55 year old man presents with dyspnea and lightheadedness. The patient's BP is 90/45. What is the best immediate treatment?



7. A 55 year old man presents with dyspnea and lightheadedness. The patient's BP is 90/45. What is the best immediate treatment?

- a. Atropine
- b. Transthoracic pacing
- c. Epinephrine
- d. Calcium

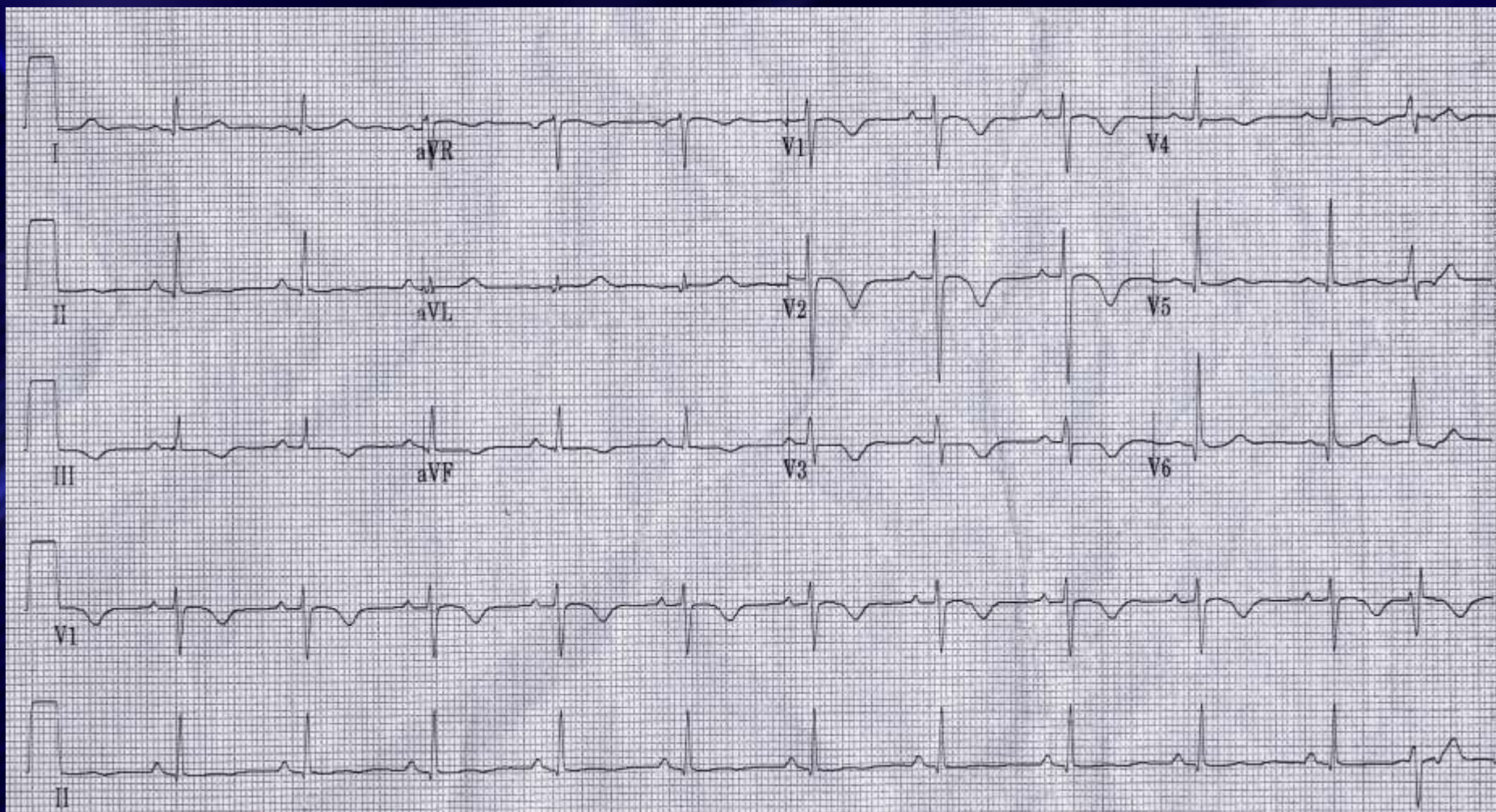
8. A 35 year old man presents with midsternal chest pain and dyspnea. His ECG is shown. What is the best immediate treatment?



8. A 35 year old man presents with midsternal chest pain and dyspnea. His ECG is shown. What is the best immediate treatment?

- a. Aspirin, heparin, activate catheterization lab for emergency PCI
- b. Heparin
- c. Beta-blockers, nitroprusside, cardiothoracic surgery consultation
- d. High-dose ibuprofen and colchicine

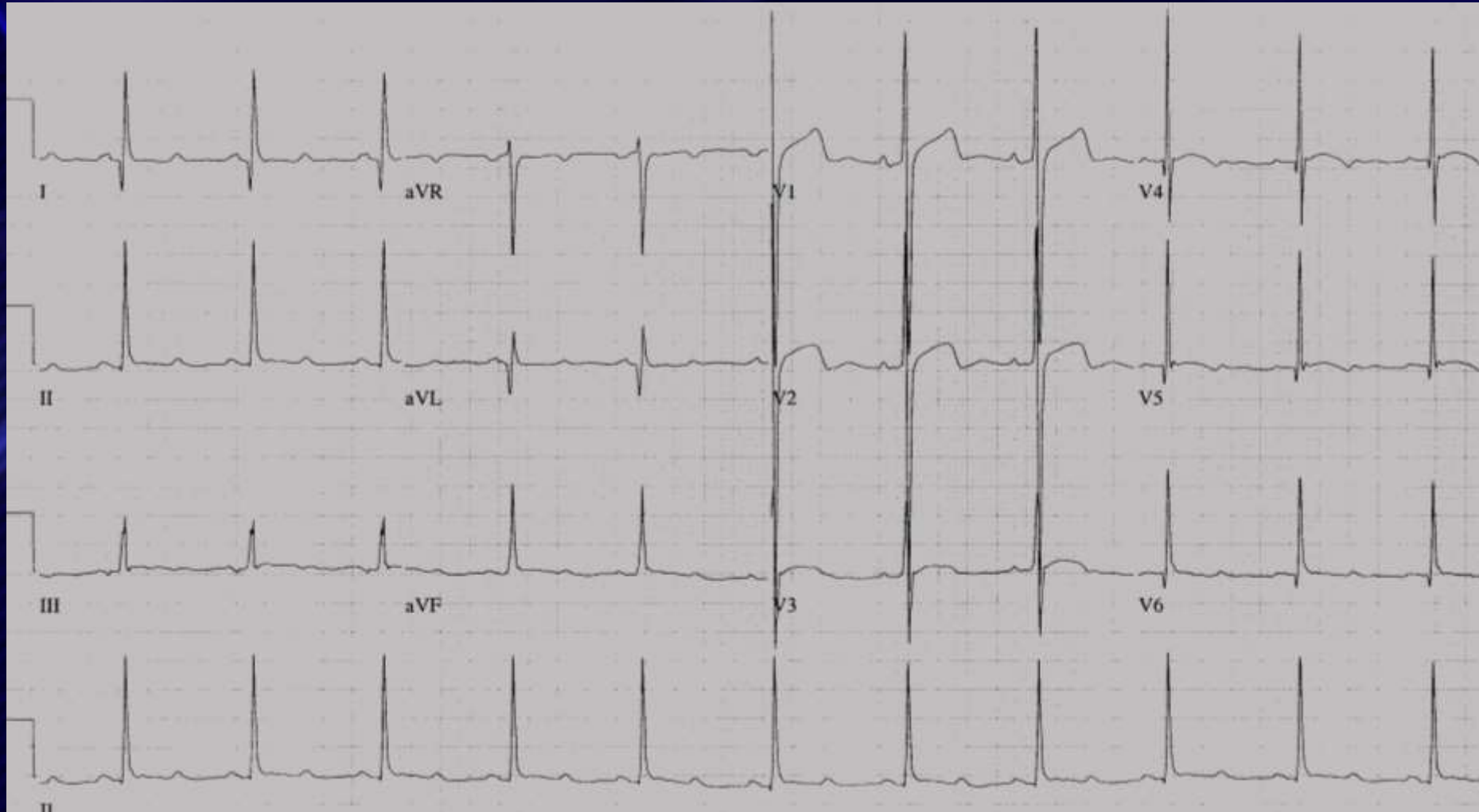
9. A 49 year old woman presents with severe chest pain and dyspnea. Her ECG is shown. What is the best immediate treatment?



9. A 49 year old woman presents with severe chest pain and dyspnea. Her ECG is shown. What is the best immediate treatment?

- a. Aspirin, heparin, nitroglycerin, admit for acute coronary syndrome
- b. Heparin
- c. Beta-blockers, nitroprusside, cardiothoracic surgery consultation
- d. High-dose ibuprofen

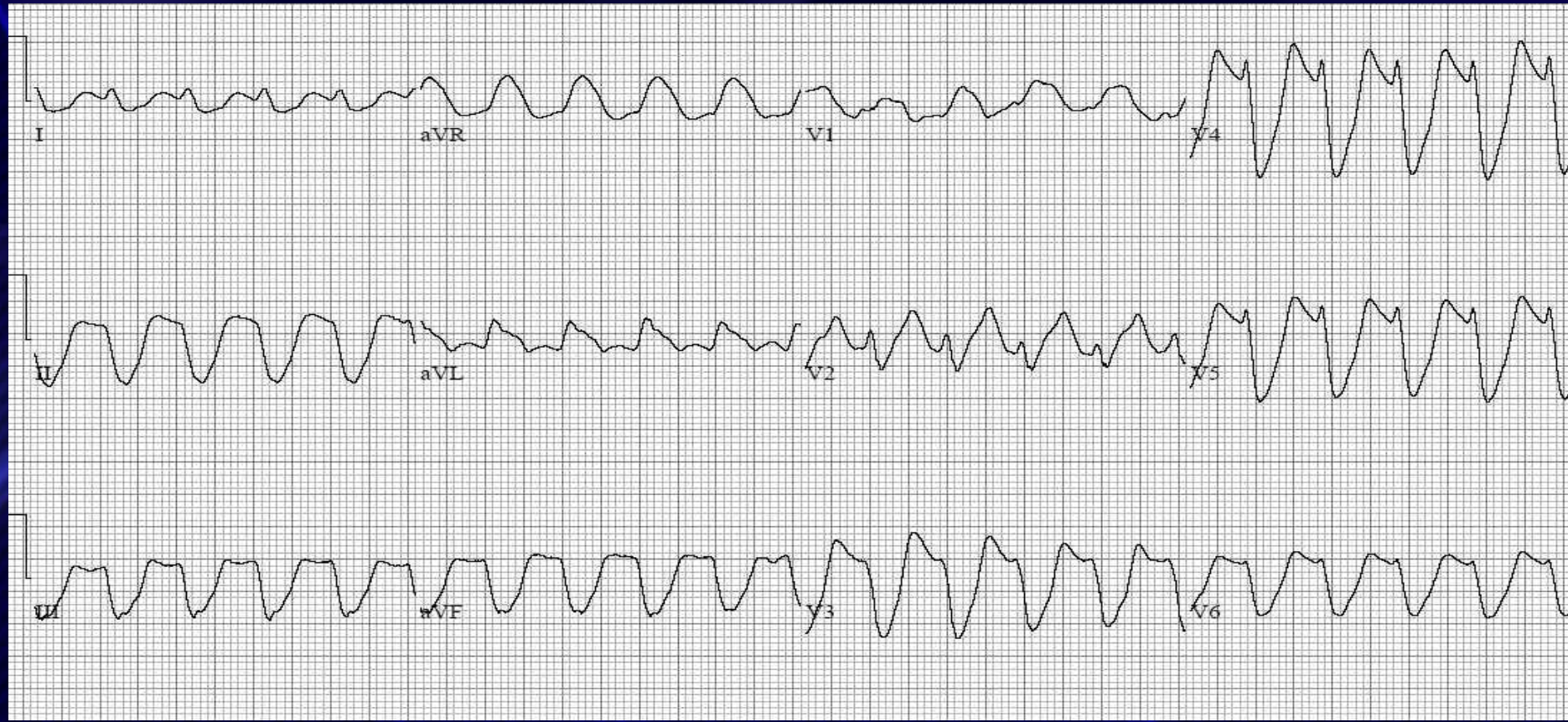
10. A 36 year old man presents after experiencing a syncopal episode. He is now asymptomatic. What is the best initial diagnostic test?



10. A 36 year old man presents after experiencing a syncopal episode. He is now asymptomatic. What is the best initial diagnostic test?

- a. Cardiac catheterization
- b. Doppler echocardiogram
- c. Electrophysiology testing
- d. Computerized tomography

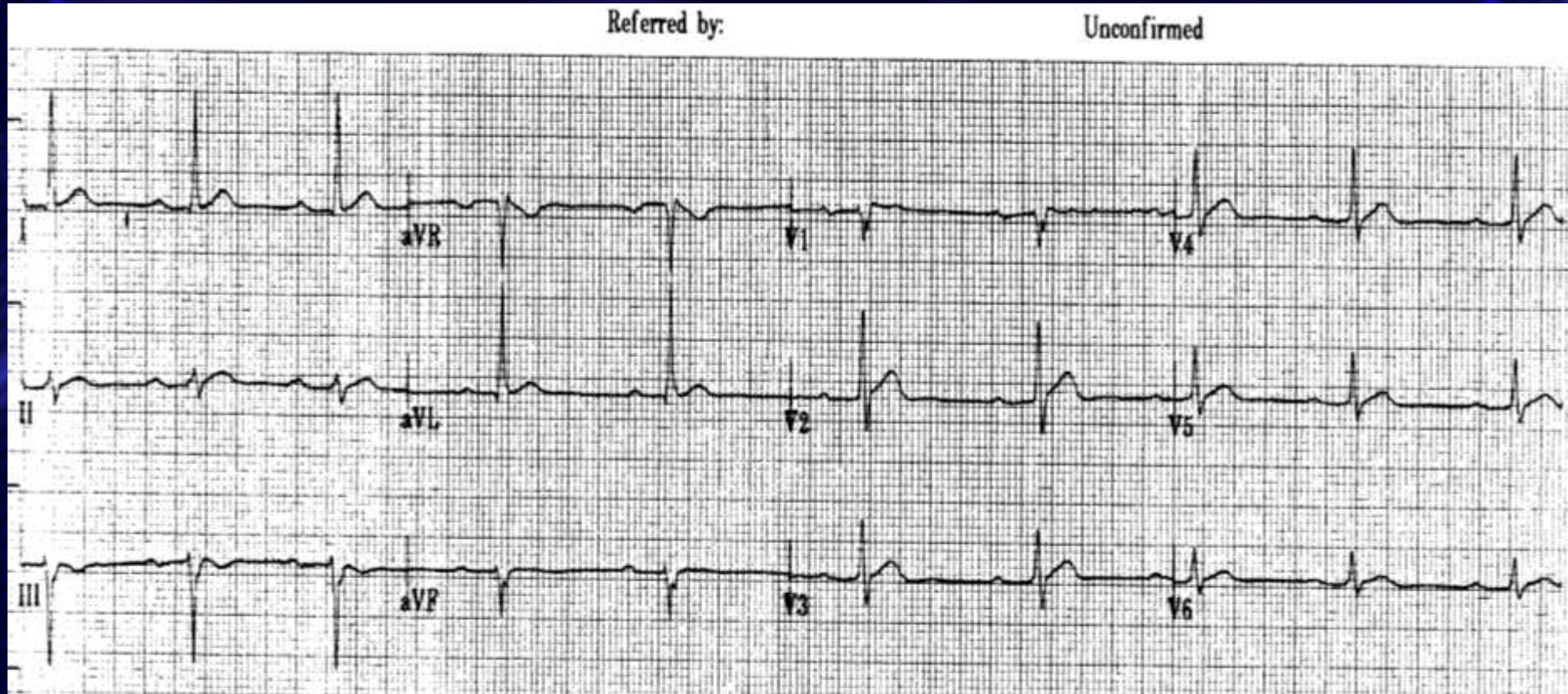
11. A 36 year old woman presents with lethargy and BP 115/60. Which of the following is the best immediate treatment?



11. A 36 year old woman presents with lethargy and BP 115/60. Which of the following is the best immediate treatment?

- a. Amiodarone
- b. Procainamide
- c. Magnesium
- d. Calcium

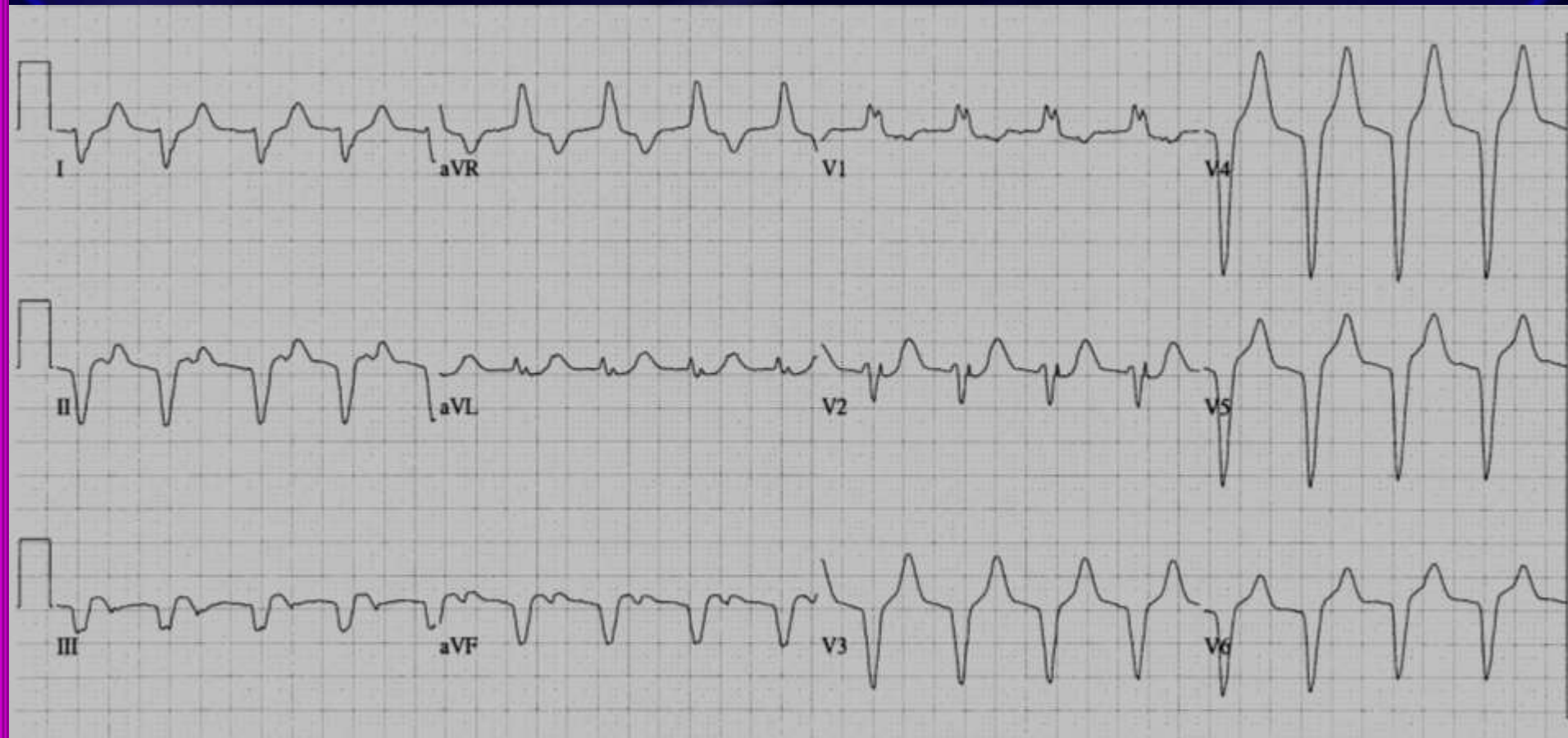
12. A 45 year old man presents feeling nausea, malaise, and generalized aches. He has no CP, SOB, or sweats. BP is 110/60. What is the best treatment?



12. A 45 year old man presents feeling nausea, malaise, and generalized aches. He has no CP, SOB, or sweats. BP is 110/60. What is the best treatment?

- a. IV fluids
- b. Atropine
- c. Magnesium
- d. Calcium

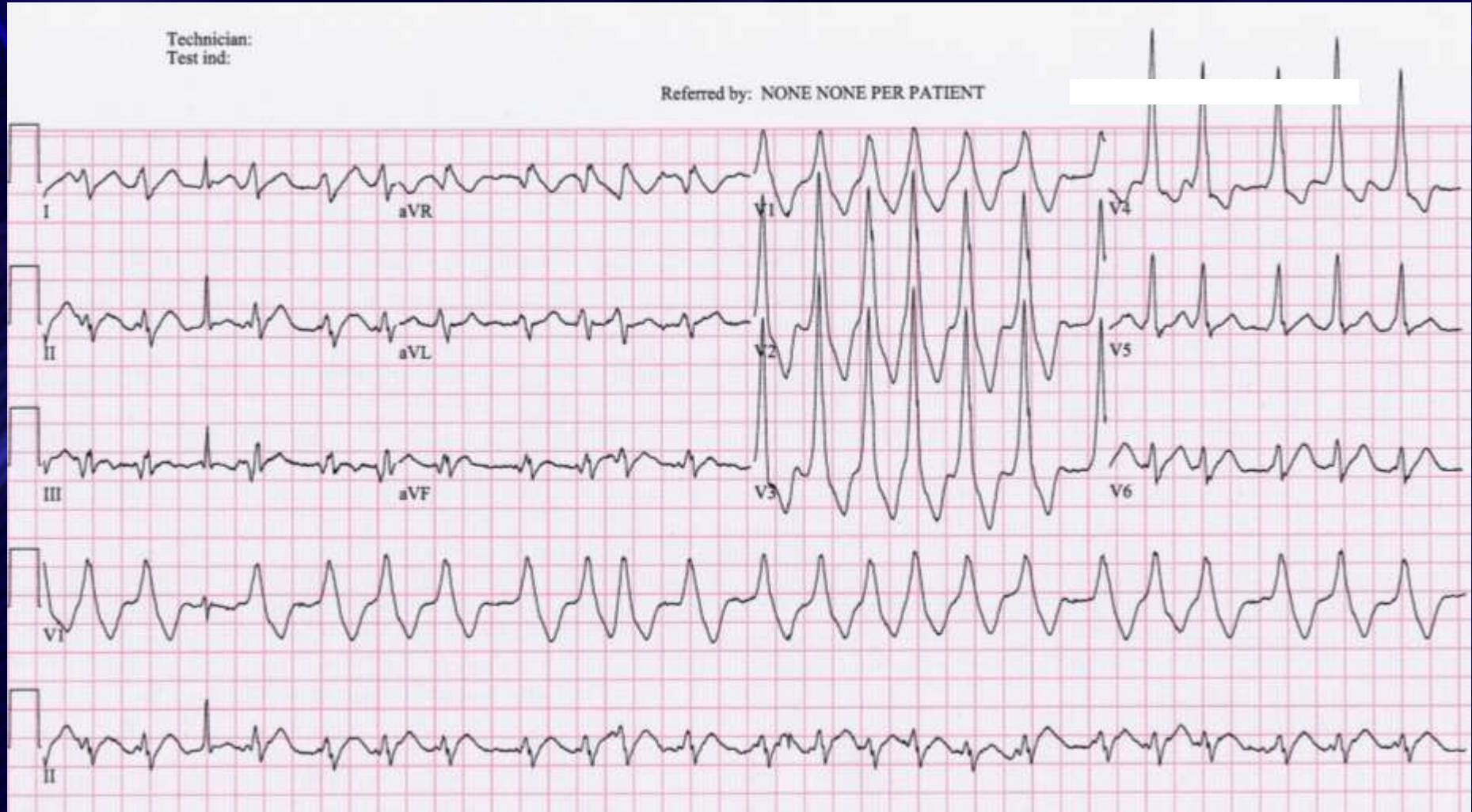
13. A 55 year old man was diagnosed with an anterior STEMI and given thrombolytics 1 hour ago. He has been doing well but now develops the tachydysrhythmia shown. He is asymptomatic. What is the best immediate therapy?



13. A 55 year old man was diagnosed with an anterior STEMI and given thrombolytics 1 hour ago. He has been doing well but now develops the tachydysrhythmia shown. He is asymptomatic. What is the best immediate therapy?

- a. Amiodarone
- b. Procainamide
- c. Electrical cardioversion
- d. None of the above

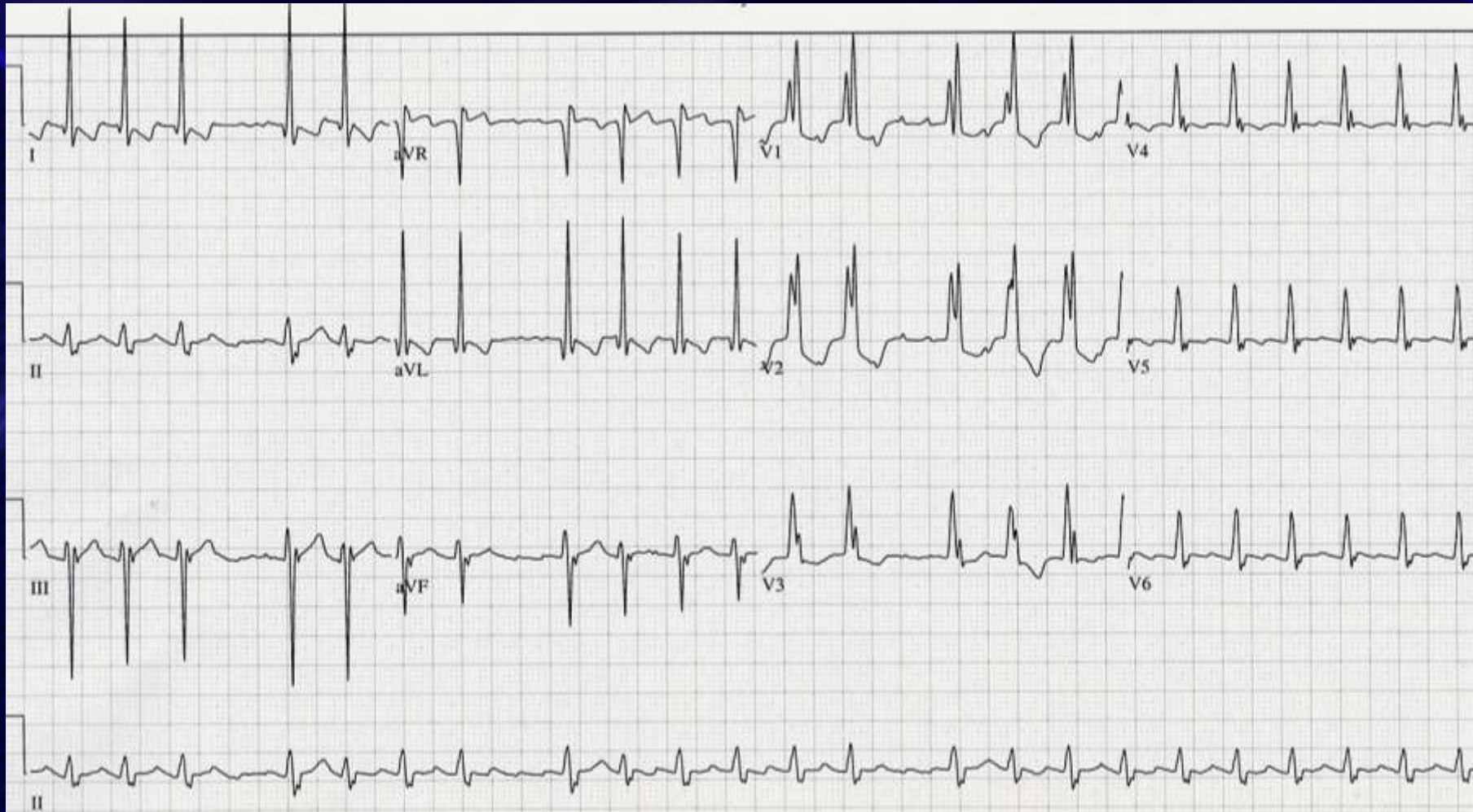
14. A 40 year old man presents complaining of intermittent episodes of near-syncope. This ECG was obtained during such an episode. His blood pressure is 135/70. What is the best medication for acute treatment?



14. A 40 year old man presents complaining of intermittent episodes of near-syncope. This ECG was obtained during such an episode. His blood pressure is 135/70. What is the best medication for acute treatment?

- a. Magnesium
- b. Beta-blockers
- c. Amiodarone
- d. Procainamide

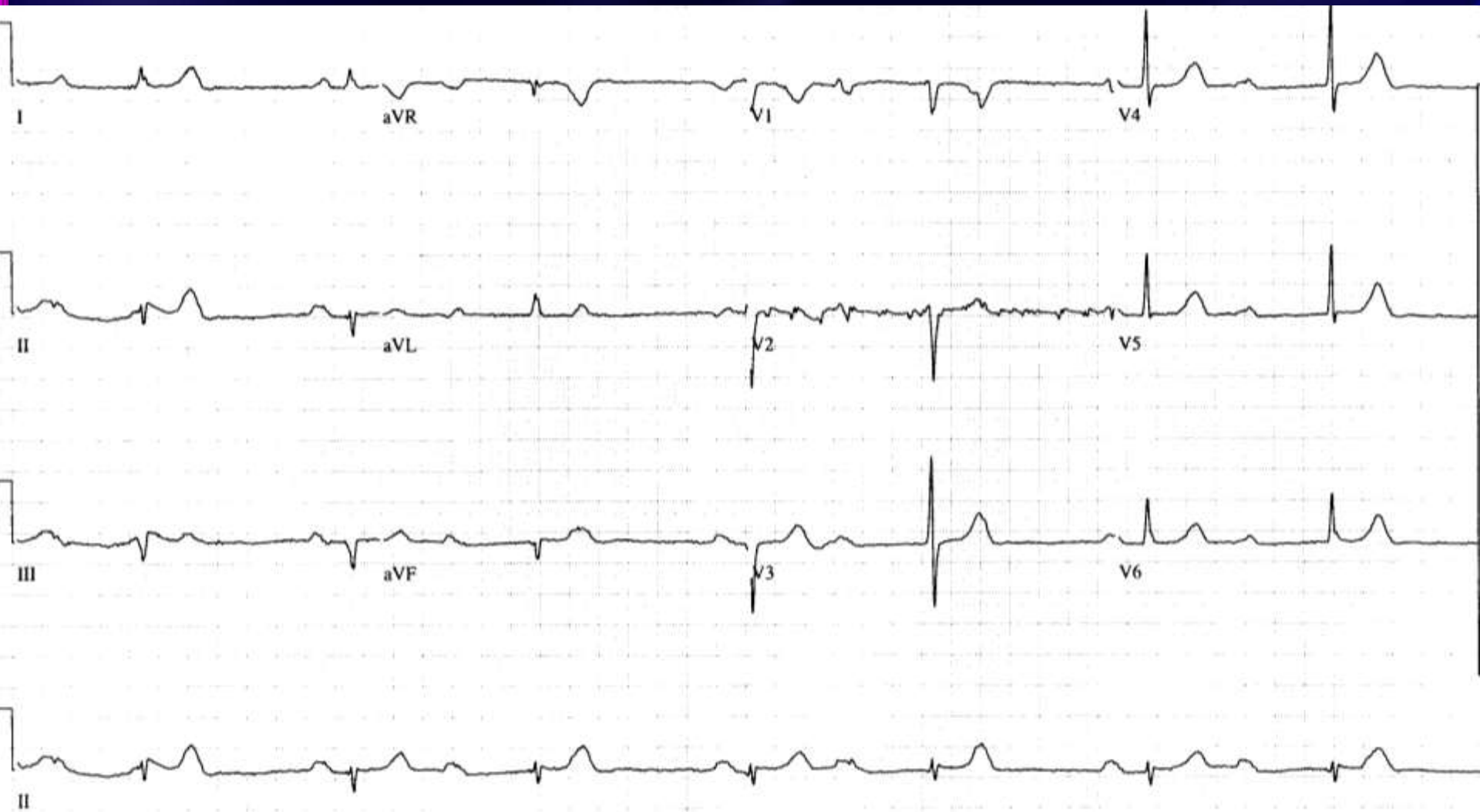
15. A 45 year old woman presents complaining of a 2 hour history of lightheadedness and palpitations. Which of the following is the best description of the rhythm shown?



15. A 45 year old woman presents complaining of a 2 hour history of lightheadedness and palpitations. Which of the following is the best description of the rhythm shown?

- a. Sinus tachycardia
- b. Supraventricular tachycardia
- c. Atrial flutter
- d. Atrial fibrillation

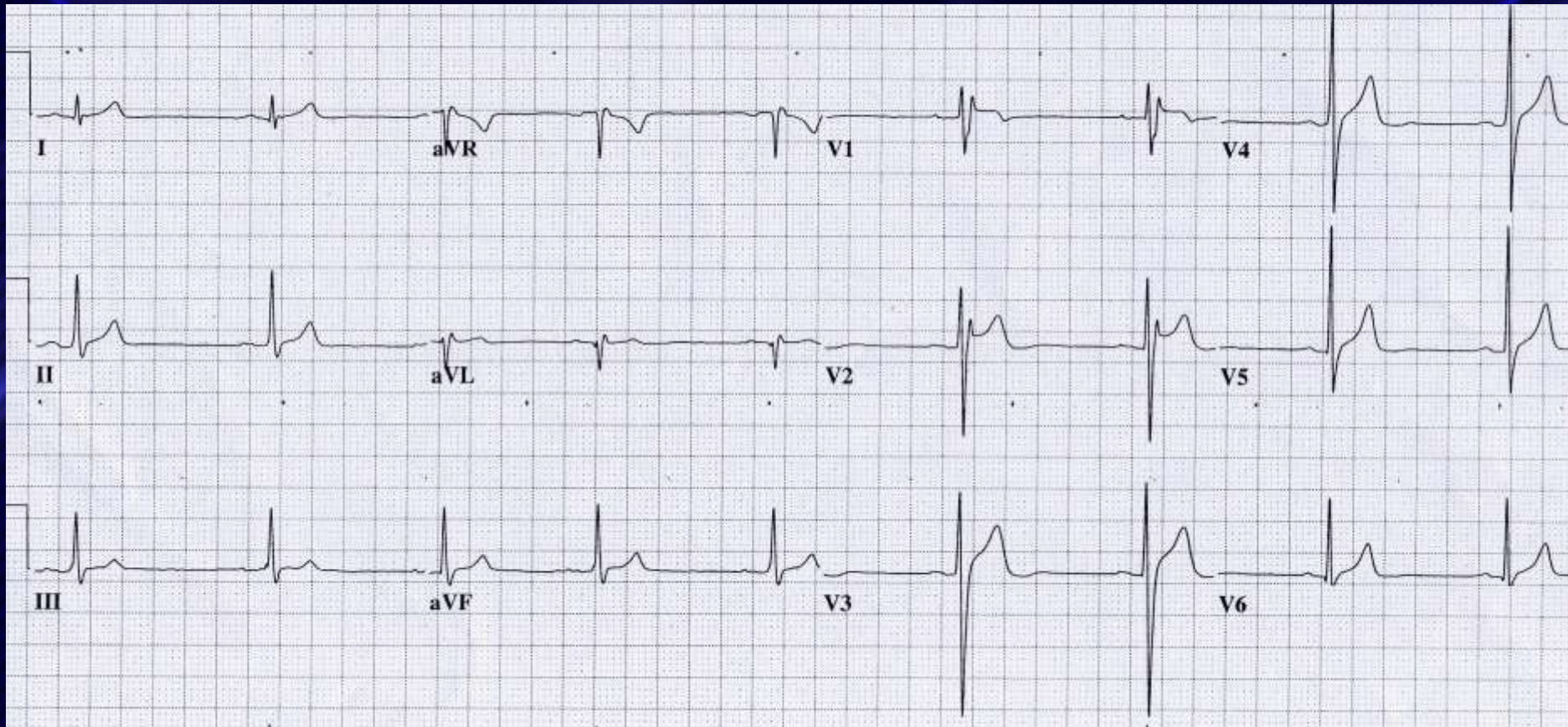
16. A 50 year old man presents after a syncopal episode. He is now awake with a BP of 80/40. His ECG is shown. What is the best description of the ECG rhythm and most appropriate immediate treatment?



16. A 50 year old man presents after a syncopal episode. He is now awake with a BP of 80/40. His ECG is shown. What is the best description of the ECG rhythm and most appropriate immediate treatment?

- a. 1st degree AV block and sinus bradycardia → atropine
- b. Mobitz I → atropine
- c. Mobitz II → electrical pacemaker
- d. 3rd degree AV block → electrical pacemaker

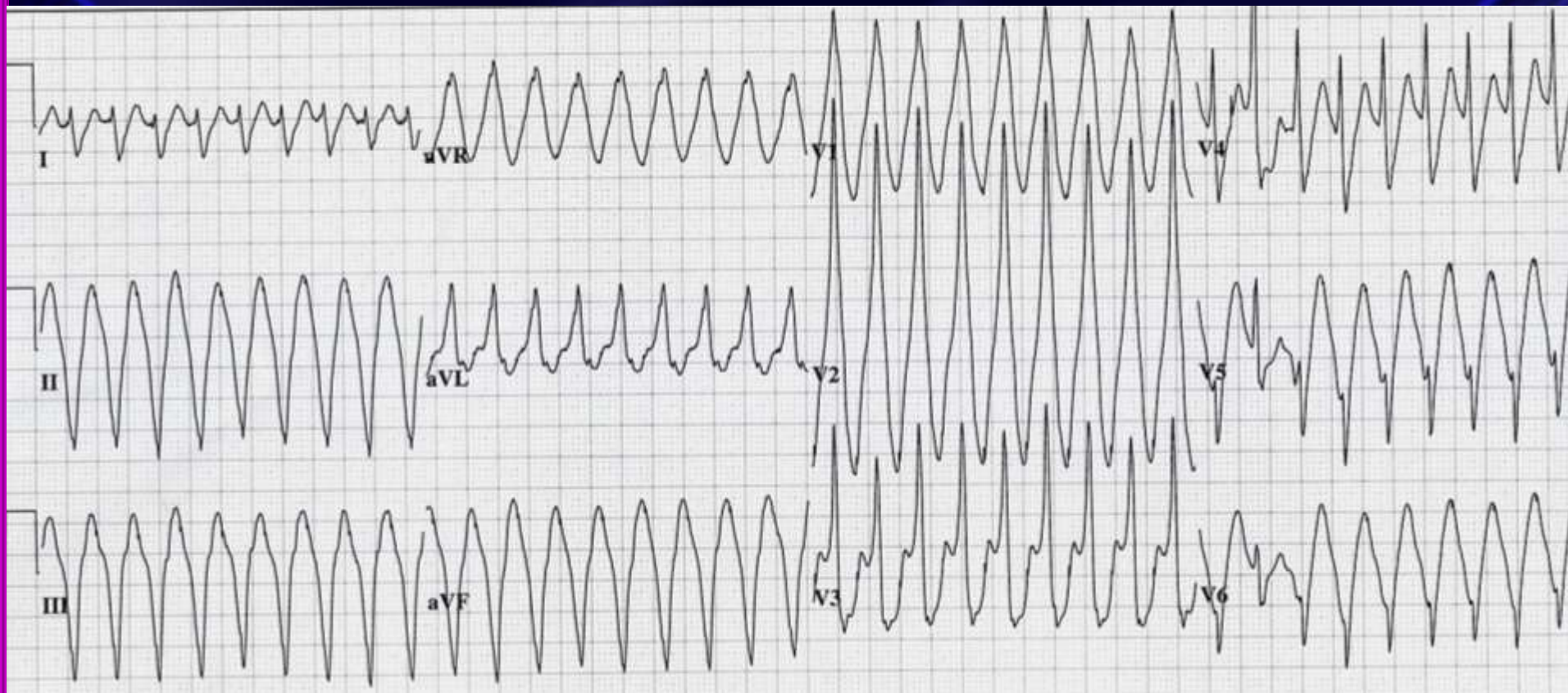
17. A 26 year old male comes to the emergency department after a reported syncopal episode. He is now asymptomatic, and his ECG is shown below. Based on the most likely diagnosis, which of the following is the best course of action?



17. A 26 year old male comes to the emergency department after a reported syncopal episode. He is now asymptomatic, and his ECG is shown below. Based on the most likely diagnosis, which of the following is the best course of action?

- a. Obtain Doppler echocardiogram
- b. Admit for electrophysiologic testing with a sodium channel blocker
- c. Admit for electrophysiologic ablation therapy
- d. Obtain cardiac MRI

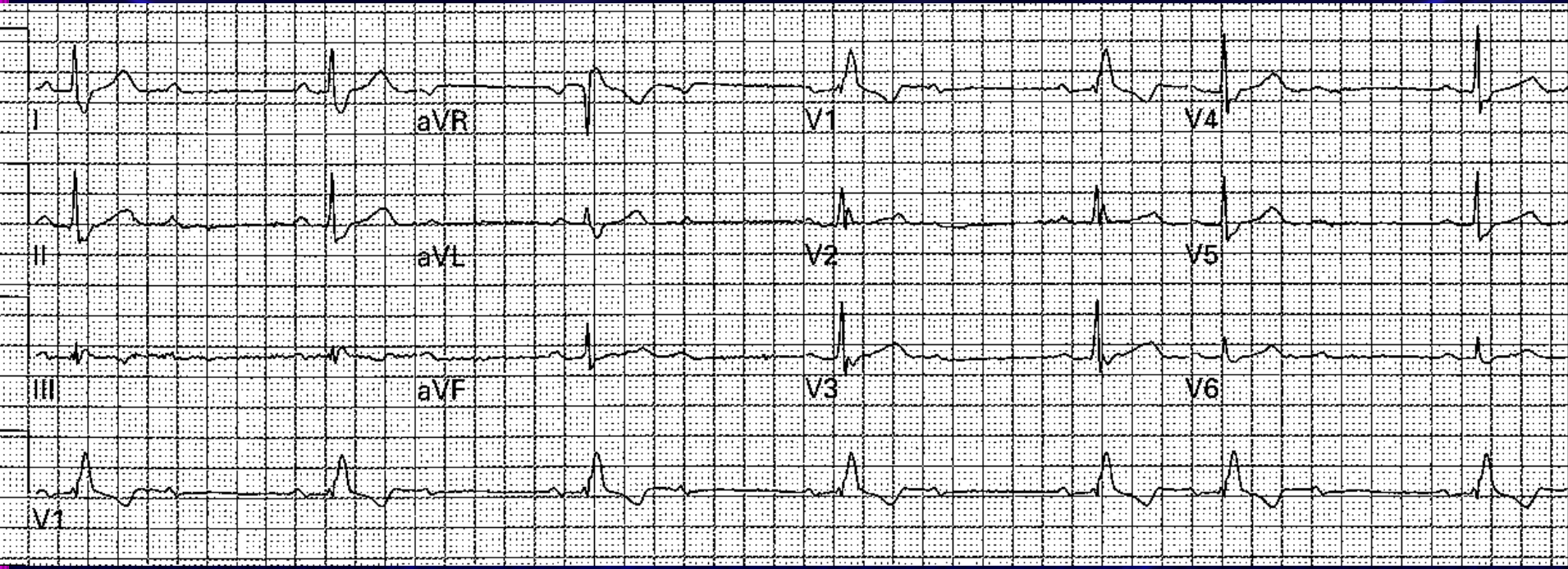
18. A 29 year old man presents complaining of palpitations. His blood pressure is 145/85. His ECG is shown. What is the best immediate treatment?



18. A 29 year old man presents complaining of palpitations. His blood pressure is 145/85. His ECG is shown. Based on the likely diagnosis, which of the following is the best immediate treatment?

- a. Procainamide
- b. Adenosine
- c. Magnesium
- d. Beta-blockers

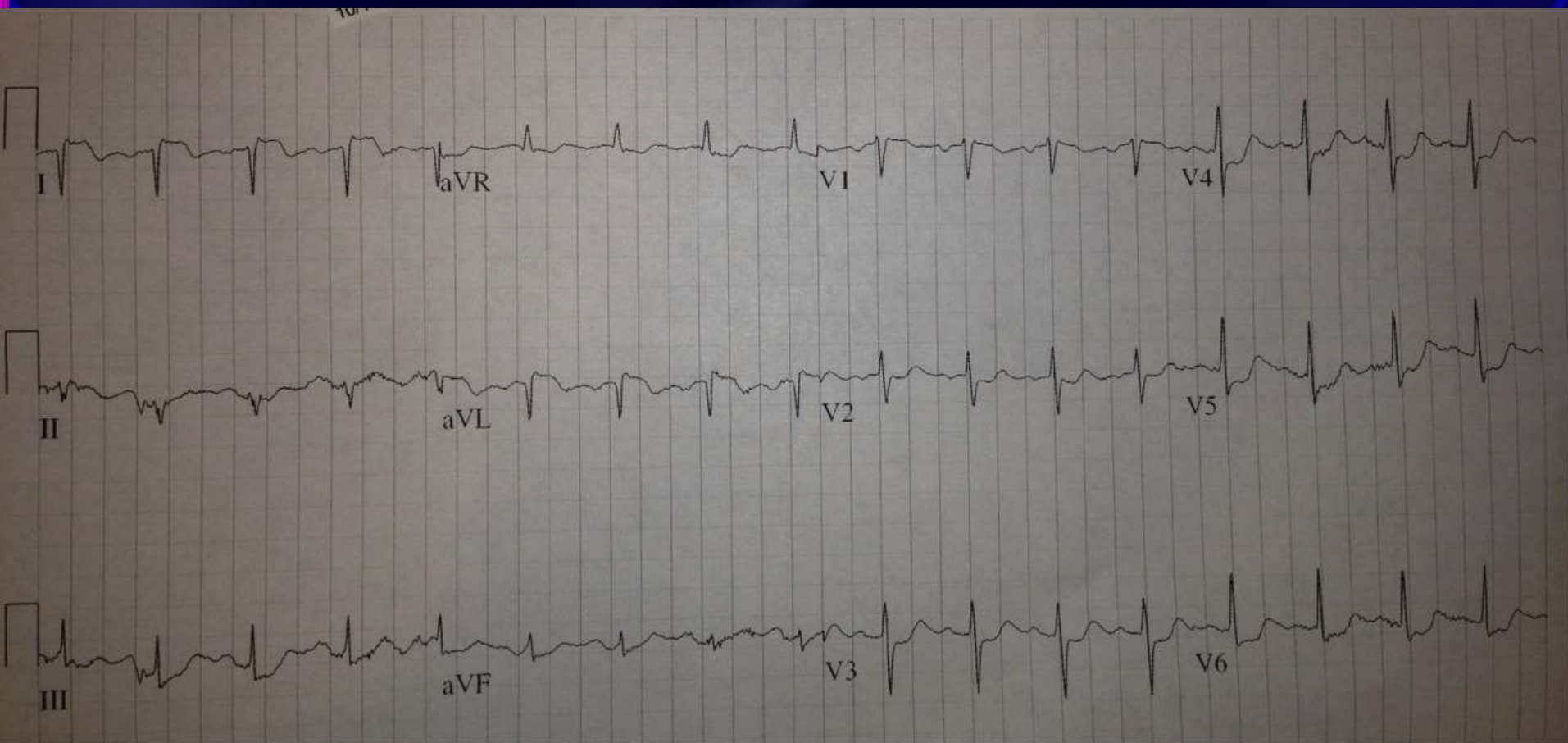
19. A 64 year old woman presents after a syncopal episode. She is now awake with a BP of 80/40. Her ECG is shown. What is the best description of the ECG rhythm and most appropriate immediate treatment?



19. A 64 year old woman presents after a syncopal episode. She is now awake with a BP of 80/40. Her ECG is shown. What is the best description of the ECG rhythm and most appropriate immediate treatment?

- a. 1st degree AV block and sinus bradycardia → atropine
- b. Mobitz I → atropine
- c. Mobitz II → electrical pacemaker
- d. 3rd degree AV block → electrical pacemaker

20. A 63 year old man presents with CP and SOB. He is hemodynamically stable. The ECG is shown. What is the most appropriate initial treatment?



20. A 63 year old man presents with CP and SOB. He is hemodynamically stable. The ECG is shown. What is the most appropriate initial management?

- a. ASA, heparin, thrombolytics
- b. Needle decompression of lung cavity
- c. High-dose ASA, colchicine
- d. Repeat ECGs