

QUESTION

A 65-year-old male patient with a long history of hypertension and hyperlipidemia presents to the emergency department with a 2-hour history of severe, crushing chest pain. The pain is described as a heavy weight on his chest and is not relieved by rest or nitroglycerin. He has a history of smoking 20 cigarettes per day for 30 years. His vital signs are: blood pressure 180/110 mmHg, heart rate 110 bpm, respiratory rate 20 breaths per minute, and oxygen saturation 92% on room air. Physical examination reveals a pale, diaphoretic patient with a 2/6 systolic murmur at the apex. An electrocardiogram (ECG) shows ST-segment elevation in leads II, III, and aVF, consistent with an inferior wall myocardial infarction. The patient is currently on aspirin, beta-blockers, and statins.

ANSWER

The patient is experiencing an acute myocardial infarction (MI) with ST-segment elevation (STEMI). The primary goal is to restore coronary blood flow as quickly as possible to minimize myocardial damage. The standard of care for STEMI involves primary percutaneous coronary intervention (PPCI) if available within 90 minutes. If PPCI is not available, fibrinolytic therapy should be administered within 12 hours of symptom onset. The patient's current medications (aspirin, beta-blockers, and statins) should be continued. The patient's blood pressure is significantly elevated, and beta-blockers should be administered to reduce myocardial oxygen demand and prevent complications like heart failure or arrhythmias.

Additional management includes oxygen therapy if oxygen saturation is below 90%, morphine for pain relief, and aspirin administration if not already given. The patient should be transferred to a cardiac catheterization laboratory for PPCI.

DISCUSSION

The clinical presentation is highly suggestive of an acute myocardial infarction (MI). The key features include a 2-hour history of severe, crushing chest pain, which is not relieved by rest or nitroglycerin. The patient's history of hypertension and hyperlipidemia, along with a long history of smoking, are significant risk factors for atherosclerosis and subsequent MI. The physical examination findings, including a pale, diaphoretic patient and a 2/6 systolic murmur at the apex, further support the diagnosis. The ECG findings of ST-segment elevation in leads II, III, and aVF are characteristic of an inferior wall MI. The patient's current medications, including aspirin, beta-blockers, and statins, are standard for secondary prevention in patients with a history of MI. The primary goal in the management of STEMI is to restore coronary blood flow as quickly as possible to minimize myocardial damage. This is typically achieved through primary percutaneous coronary intervention (PPCI) if available within 90 minutes of symptom onset. If PPCI is not available, fibrinolytic therapy should be administered within 12 hours of symptom onset. The patient's blood pressure is significantly elevated, and beta-blockers should be administered to reduce myocardial oxygen demand and prevent complications like heart failure or arrhythmias. Additional management includes oxygen therapy if oxygen saturation is below 90%, morphine for pain relief, and aspirin administration if not already given. The patient should be transferred to a cardiac catheterization laboratory for PPCI.