

### QUESTION

1. A 60-year-old male patient with a long history of hypertension and diabetes mellitus presents to the emergency department with acute onset of severe chest pain and shortness of breath. The patient reports that the pain is a crushing, heavy pressure in the center of his chest, radiating to his left arm and jaw. 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 clear lungs, normal heart sounds, and no lower extremity edema. An electrocardiogram (ECG) shows ST-segment elevation in leads V1, V2, and V3, consistent with an anterior wall myocardial infarction (MI). The patient is currently on aspirin, beta-blockers, and statins.

2. A 45-year-old female patient with a history of rheumatoid arthritis (RA) and chronic kidney disease (CKD) presents to the emergency department with acute onset of severe, bilateral lower extremity weakness and numbness. She reports that the weakness is symmetric and involves her legs more than her arms. She has a long history of RA, treated with chronic low-dose prednisone (5 mg daily) and disease-modifying antirheumatic drugs (DMARDs). Her vital signs are: blood pressure 120/80 mmHg, heart rate 90 bpm, respiratory rate 18 breaths per minute, and oxygen saturation 98% on room air. Physical examination reveals symmetric weakness in the lower extremities, sensory deficits in the lower extremities, and normal reflexes. Laboratory tests show a serum creatinine level of 2.5 mg/dL and a normal complete blood count (CBC). The patient is currently on prednisone, methotrexate, and hydroxychloroquine.

3. A 55-year-old male patient with a history of chronic obstructive pulmonary disease (COPD) and a recent diagnosis of atrial fibrillation (AF) presents to the emergency department with acute onset of severe, retrosternal chest pain and shortness of breath. The patient reports that the pain is a sharp, stabbing pain in the center of his chest, worse with inspiration. He has a history of smoking 10 cigarettes per day for 20 years. His vital signs are: blood pressure 140/90 mmHg, heart rate 130 bpm, respiratory rate 22 breaths per minute, and oxygen saturation 90% on room air. Physical examination reveals clear lungs, normal heart sounds, and no lower extremity edema. An ECG shows a regular sinus rhythm with a heart rate of 130 bpm. The patient is currently on beta-blockers, statins, and inhaled corticosteroids.

### ANSWERS

1. The patient's presentation is consistent with an acute anterior wall myocardial infarction (MI). The crushing chest pain, radiating to the left arm and jaw, along with ST-segment elevation in leads V1, V2, and V3 on the ECG, are classic signs of an anterior wall MI. The patient's history of hypertension and diabetes mellitus, along with a long history of smoking, are significant risk factors for atherosclerosis and MI. The patient's vital signs, including a blood pressure of 180/110 mmHg and a heart rate of 110 bpm, suggest a hyperadrenergic state, which is common in the early stages of an MI. The patient's current medications, including aspirin, beta-blockers, and statins, are appropriate for the management of atherosclerosis and secondary prevention of MI. The patient's acute onset of chest pain and shortness of breath, along with the physical examination findings, suggest a diagnosis of acute MI. The patient's history of smoking and hypertension are significant risk factors for atherosclerosis and MI. The patient's current medications, including aspirin, beta-blockers, and statins, are appropriate for the management of atherosclerosis and secondary prevention of MI.

2. The patient's presentation is consistent with a complication of rheumatoid arthritis (RA), specifically a peripheral neuropathy. The symmetric weakness and numbness in the lower extremities, along with the history of RA and chronic kidney disease (CKD), are suggestive of a peripheral neuropathy. The patient's history of RA, treated with chronic low-dose prednisone (5 mg daily) and disease-modifying antirheumatic drugs (DMARDs), is a significant risk factor for peripheral neuropathy. The patient's history of CKD, with a serum creatinine level of 2.5 mg/dL, is also a significant risk factor for peripheral neuropathy. The patient's current medications, including prednisone, methotrexate, and hydroxychloroquine, are appropriate for the management of RA. The patient's acute onset of weakness and numbness, along with the physical examination findings, suggest a diagnosis of peripheral neuropathy. The patient's history of RA and CKD are significant risk factors for peripheral neuropathy. The patient's current medications, including prednisone, methotrexate, and hydroxychloroquine, are appropriate for the management of RA.

3. The patient's presentation is consistent with a complication of chronic obstructive pulmonary disease (COPD), specifically a pulmonary embolism (PE). The sharp, stabbing retrosternal chest pain, worse with inspiration, along with the history of COPD and a recent diagnosis of atrial fibrillation (AF), are suggestive of a PE. The patient's history of COPD, with a recent diagnosis of AF, is a significant risk factor for PE. The patient's history of smoking 10 cigarettes per day for 20 years is also a significant risk factor for PE. The patient's current medications, including beta-blockers, statins, and inhaled corticosteroids, are appropriate for the management of COPD and AF. The patient's acute onset of chest pain and shortness of breath, along with the physical examination findings, suggest a diagnosis of PE. The patient's history of COPD and AF are significant risk factors for PE. The patient's current medications, including beta-blockers, statins, and inhaled corticosteroids, are appropriate for the management of COPD and AF.