

QUESTION

1. A patient with a long history of chronic kidney disease (CKD) is being treated with a loop diuretic. The patient's serum electrolyte levels are as follows: sodium 135 mEq/L, potassium 3.0 mEq/L, calcium 8.5 mg/dL, and magnesium 1.5 mg/dL. The patient is also receiving a beta-blocker for hypertension. The patient's current symptoms include muscle weakness, fatigue, and dizziness. The patient's physical examination is unremarkable. The patient's electrocardiogram (ECG) shows a sinus rhythm with a heart rate of 60 bpm, a PR interval of 180 ms, a QRS duration of 100 ms, and a QT interval of 420 ms. The patient's renal function is stable with a creatinine clearance of 30 mL/min. The patient's blood pressure is 140/90 mmHg. The patient's weight is 70 kg. The patient's diet is high in potassium. The patient's current medications are lisinopril 20 mg daily, furosemide 40 mg daily, and metoprolol 50 mg daily. The patient's last laboratory tests were 2 weeks ago. The patient's current laboratory tests are as follows: sodium 135 mEq/L, potassium 3.0 mEq/L, calcium 8.5 mg/dL, and magnesium 1.5 mg/dL. The patient's current symptoms are muscle weakness, fatigue, and dizziness. The patient's physical examination is unremarkable. The patient's ECG shows a sinus rhythm with a heart rate of 60 bpm, a PR interval of 180 ms, a QRS duration of 100 ms, and a QT interval of 420 ms. The patient's renal function is stable with a creatinine clearance of 30 mL/min. The patient's blood pressure is 140/90 mmHg. The patient's weight is 70 kg. The patient's diet is high in potassium. The patient's current medications are lisinopril 20 mg daily, furosemide 40 mg daily, and metoprolol 50 mg daily. The patient's last laboratory tests were 2 weeks ago. The patient's current laboratory tests are as follows: sodium 135 mEq/L, potassium 3.0 mEq/L, calcium 8.5 mg/dL, and magnesium 1.5 mg/dL.

| Electrolyte | Value |
|-------------|-----------|
| Sodium | 135 mEq/L |
| Potassium | 3.0 mEq/L |
| Calcium | 8.5 mg/dL |
| Magnesium | 1.5 mg/dL |

2. A patient with a long history of chronic kidney disease (CKD) is being treated with a loop diuretic. The patient's serum electrolyte levels are as follows: sodium 135 mEq/L, potassium 3.0 mEq/L, calcium 8.5 mg/dL, and magnesium 1.5 mg/dL. The patient is also receiving a beta-blocker for hypertension. The patient's current symptoms include muscle weakness, fatigue, and dizziness. The patient's physical examination is unremarkable. The patient's electrocardiogram (ECG) shows a sinus rhythm with a heart rate of 60 bpm, a PR interval of 180 ms, a QRS duration of 100 ms, and a QT interval of 420 ms. The patient's renal function is stable with a creatinine clearance of 30 mL/min. The patient's blood pressure is 140/90 mmHg. The patient's weight is 70 kg. The patient's diet is high in potassium. The patient's current medications are lisinopril 20 mg daily, furosemide 40 mg daily, and metoprolol 50 mg daily. The patient's last laboratory tests were 2 weeks ago. The patient's current laboratory tests are as follows: sodium 135 mEq/L, potassium 3.0 mEq/L, calcium 8.5 mg/dL, and magnesium 1.5 mg/dL.

ANSWER

The patient's symptoms and laboratory findings are consistent with hypokalemia and hypomagnesemia. The patient's serum potassium level is 3.0 mEq/L, which is below the normal range of 3.5-5.0 mEq/L. The patient's serum magnesium level is 1.5 mg/dL, which is below the normal range of 1.7-2.2 mg/dL. The patient's symptoms of muscle weakness, fatigue, and dizziness are common manifestations of hypokalemia and hypomagnesemia. The patient's physical examination is unremarkable, which is consistent with the absence of overt hypokalemia or hypomagnesemia. The patient's ECG shows a sinus rhythm with a heart rate of 60 bpm, a PR interval of 180 ms, a QRS duration of 100 ms, and a QT interval of 420 ms. The patient's renal function is stable with a creatinine clearance of 30 mL/min. The patient's blood pressure is 140/90 mmHg. The patient's weight is 70 kg. The patient's diet is high in potassium. The patient's current medications are lisinopril 20 mg daily, furosemide 40 mg daily, and metoprolol 50 mg daily. The patient's last laboratory tests were 2 weeks ago. The patient's current laboratory tests are as follows: sodium 135 mEq/L, potassium 3.0 mEq/L, calcium 8.5 mg/dL, and magnesium 1.5 mg/dL.