

### QUESTION

1. A patient with a long history of chronic kidney disease (CKD) is being treated with a diuretic. The patient's serum potassium level is 2.8 mEq/L. The patient is also taking a beta-blocker and a calcium channel blocker. The patient's blood pressure is 150/90 mmHg. The patient's creatinine level is 2.5 mg/dL. The patient's hemoglobin level is 10 g/dL. The patient's hematocrit level is 30%. The patient's ferritin level is 100 ng/mL. The patient's transferrin saturation level is 20%. The patient's erythropoietin level is 1000 U/L. The patient's parathyroid hormone-related protein (PTHrP) level is 100 pg/mL. The patient's 25-hydroxyvitamin D level is 10 ng/mL. The patient's 1,25-dihydroxyvitamin D level is 10 pg/mL. The patient's calcium level is 8.5 mg/dL. The patient's phosphorus level is 3.5 mg/dL. The patient's magnesium level is 1.5 mg/dL. The patient's sodium level is 135 mEq/L. The patient's chloride level is 100 mEq/L. The patient's bicarbonate level is 22 mEq/L. The patient's pH level is 7.35. The patient's partial pressure of carbon dioxide (PCO<sub>2</sub>) level is 40 mmHg. The patient's partial pressure of oxygen (PO<sub>2</sub>) level is 80 mmHg. The patient's oxygen saturation level is 95%. The patient's respiratory rate is 12 breaths per minute. The patient's heart rate is 60 beats per minute. The patient's blood pressure is 150/90 mmHg. The patient's oxygen saturation level is 95%.

Parameter	Value	Reference Range
Serum potassium	2.8 mEq/L	3.5-5.0 mEq/L
Blood pressure	150/90 mmHg	120/80 mmHg
Creatinine	2.5 mg/dL	0.6-1.2 mg/dL
Hemoglobin	10 g/dL	12-16 g/dL
Hematocrit	30%	37-47%
Ferritin	100 ng/mL	50-200 ng/mL
Transferrin saturation	20%	20-50%
Erythropoietin	1000 U/L	10-100 U/L
PTHrP	100 pg/mL	<10 pg/mL
25-hydroxyvitamin D	10 ng/mL	20-80 ng/mL
1,25-dihydroxyvitamin D	10 pg/mL	10-40 pg/mL
Calcium	8.5 mg/dL	8.8-10.0 mg/dL
Phosphorus	3.5 mg/dL	2.5-4.5 mg/dL
Magnesium	1.5 mg/dL	1.7-2.2 mg/dL
Sodium	135 mEq/L	136-145 mEq/L
Chloride	100 mEq/L	98-108 mEq/L
Bicarbonate	22 mEq/L	22-28 mEq/L
pH	7.35	7.35-7.45
PCO <sub>2</sub>	40 mmHg	35-45 mmHg
PO <sub>2</sub>	80 mmHg	80-100 mmHg
Oxygen saturation	95%	95-100%
Respiratory rate	12 breaths per minute	12-20 breaths per minute
Heart rate	60 beats per minute	60-100 beats per minute

2. A patient with a long history of chronic kidney disease (CKD) is being treated with a diuretic. The patient's serum potassium level is 2.8 mEq/L. The patient is also taking a beta-blocker and a calcium channel blocker. The patient's blood pressure is 150/90 mmHg. The patient's creatinine level is 2.5 mg/dL. The patient's hemoglobin level is 10 g/dL. The patient's hematocrit level is 30%. The patient's ferritin level is 100 ng/mL. The patient's transferrin saturation level is 20%. The patient's erythropoietin level is 1000 U/L. The patient's parathyroid hormone-related protein (PTHrP) level is 100 pg/mL. The patient's 25-hydroxyvitamin D level is 10 ng/mL. The patient's 1,25-dihydroxyvitamin D level is 10 pg/mL. The patient's calcium level is 8.5 mg/dL. The patient's phosphorus level is 3.5 mg/dL. The patient's magnesium level is 1.5 mg/dL. The patient's sodium level is 135 mEq/L. The patient's chloride level is 100 mEq/L. The patient's bicarbonate level is 22 mEq/L. The patient's pH level is 7.35. The patient's partial pressure of carbon dioxide (PCO<sub>2</sub>) level is 40 mmHg. The patient's partial pressure of oxygen (PO<sub>2</sub>) level is 80 mmHg. The patient's oxygen saturation level is 95%. The patient's respiratory rate is 12 breaths per minute. The patient's heart rate is 60 beats per minute. The patient's blood pressure is 150/90 mmHg. The patient's oxygen saturation level is 95%.

### ANSWER

The patient has severe hypokalemia (2.8 mEq/L) and is on a diuretic. The patient is also on a beta-blocker and a calcium channel blocker. The patient's blood pressure is 150/90 mmHg. The patient's creatinine level is 2.5 mg/dL. The patient's hemoglobin level is 10 g/dL. The patient's hematocrit level is 30%. The patient's ferritin level is 100 ng/mL. The patient's transferrin saturation level is 20%. The patient's erythropoietin level is 1000 U/L. The patient's parathyroid hormone-related protein (PTHrP) level is 100 pg/mL. The patient's 25-hydroxyvitamin D level is 10 ng/mL. The patient's 1,25-dihydroxyvitamin D level is 10 pg/mL. The patient's calcium level is 8.5 mg/dL. The patient's phosphorus level is 3.5 mg/dL. The patient's magnesium level is 1.5 mg/dL. The patient's sodium level is 135 mEq/L. The patient's chloride level is 100 mEq/L. The patient's bicarbonate level is 22 mEq/L. The patient's pH level is 7.35. The patient's partial pressure of carbon dioxide (PCO<sub>2</sub>) level is 40 mmHg. The patient's partial pressure of oxygen (PO<sub>2</sub>) level is 80 mmHg. The patient's oxygen saturation level is 95%. The patient's respiratory rate is 12 breaths per minute. The patient's heart rate is 60 beats per minute. The patient's blood pressure is 150/90 mmHg. The patient's oxygen saturation level is 95%.