

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 160/100 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 serum calcium level is 8.5 mg/dL. The patient's serum phosphorus level is 4.5 mg/dL. The patient's serum parathyroid hormone-related protein (PTHrP) level is 150 pg/mL. The patient's serum parathyroid hormone (PTH) level is 100 pg/mL. The patient's serum vitamin D level is 10 ng/mL. The patient's serum albumin level is 3.5 g/dL. The patient's serum total protein level is 6.5 g/dL. The patient's serum globulin level is 3.0 g/dL. The patient's serum immunoglobulin G (IgG) level is 1.5 g/dL. The patient's serum immunoglobulin A (IgA) level is 0.5 g/dL. The patient's serum immunoglobulin M (IgM) level is 0.5 g/dL. The patient's serum ferritin level is 100 ng/mL. The patient's serum transferrin level is 2.5 g/L. The patient's serum transferrin saturation level is 20%. The patient's serum iron level is 50 µg/dL. The patient's serum total iron-binding capacity (TIBC) level is 250 µg/dL. The patient's serum transferrin receptor level is 2.5 ng/mL. The patient's serum transferrin receptor level is 2.5 ng/mL. The patient's serum transferrin receptor level is 2.5 ng/mL.

| Parameter | Value | Reference Range |
|---|-----------|-----------------|
| Serum potassium | 2.8 mEq/L | 3.5-5.0 mEq/L |
| Serum calcium | 8.5 mg/dL | 8.8-10.0 mg/dL |
| Serum phosphorus | 4.5 mg/dL | 2.5-4.5 mg/dL |
| Serum parathyroid hormone-related protein (PTHrP) | 150 pg/mL | <10 pg/mL |
| Serum parathyroid hormone (PTH) | 100 pg/mL | <100 pg/mL |
| Serum vitamin D | 10 ng/mL | >20 ng/mL |
| Serum albumin | 3.5 g/dL | 3.5-5.0 g/dL |
| Serum total protein | 6.5 g/dL | 6.0-8.0 g/dL |
| Serum globulin | 3.0 g/dL | 2.0-3.5 g/dL |
| Serum IgG | 1.5 g/dL | <1.5 g/dL |
| Serum IgA | 0.5 g/dL | <0.5 g/dL |
| Serum IgM | 0.5 g/dL | <0.5 g/dL |
| Serum ferritin | 100 ng/mL | <100 ng/mL |
| Serum transferrin | 2.5 g/L | 2.0-4.0 g/L |
| Serum transferrin saturation | 20% | 20-50% |
| Serum iron | 50 µg/dL | 50-150 µg/dL |
| Serum TIBC | 250 µg/dL | 250-450 µg/dL |
| Serum transferrin receptor | 2.5 ng/mL | <2.5 ng/mL |

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 160/100 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 serum calcium level is 8.5 mg/dL. The patient's serum phosphorus level is 4.5 mg/dL. The patient's serum parathyroid hormone-related protein (PTHrP) level is 150 pg/mL. The patient's serum parathyroid hormone (PTH) level is 100 pg/mL. The patient's serum vitamin D level is 10 ng/mL. The patient's serum albumin level is 3.5 g/dL. The patient's serum total protein level is 6.5 g/dL. The patient's serum globulin level is 3.0 g/dL. The patient's serum immunoglobulin G (IgG) level is 1.5 g/dL. The patient's serum immunoglobulin A (IgA) level is 0.5 g/dL. The patient's serum immunoglobulin M (IgM) level is 0.5 g/dL. The patient's serum ferritin level is 100 ng/mL. The patient's serum transferrin level is 2.5 g/L. The patient's serum transferrin saturation level is 20%. The patient's serum iron level is 50 µg/dL. The patient's serum total iron-binding capacity (TIBC) level is 250 µg/dL. The patient's serum transferrin receptor level is 2.5 ng/mL. The patient's serum transferrin receptor level is 2.5 ng/mL. The patient's serum transferrin receptor level is 2.5 ng/mL.

ANSWER

1. The patient has a long history of chronic kidney disease (CKD) and is being treated with a diuretic. The patient's serum potassium level is 2.8 mEq/L, which is significantly below the normal range of 3.5-5.0 mEq/L. The patient is also taking a beta-blocker and a calcium channel blocker. The patient's blood pressure is 160/100 mmHg, which is significantly above the normal range of 120/80 mmHg. The patient's creatinine level is 2.5 mg/dL, which is significantly above the normal range of 0.6-1.2 mg/dL. The patient's hemoglobin level is 10 g/dL, which is significantly below the normal range of 12-16 g/dL. The patient's hematocrit level is 30%, which is significantly below the normal range of 37-47%. The patient's serum calcium level is 8.5 mg/dL, which is significantly below the normal range of 8.8-10.0 mg/dL. The patient's serum phosphorus level is 4.5 mg/dL, which is significantly above the normal range of 2.5-4.5 mg/dL. The patient's serum parathyroid hormone-related protein (PTHrP) level is 150 pg/mL, which is significantly above the normal range of <10 pg/mL. The patient's serum parathyroid hormone (PTH) level is 100 pg/mL, which is significantly above the normal range of <100 pg/mL. The patient's serum vitamin D level is 10 ng/mL, which is significantly below the normal range of >20 ng/mL. The patient's serum albumin level is 3.5 g/dL, which is significantly below the normal range of 3.5-5.0 g/dL. The patient's serum total protein level is 6.5 g/dL, which is significantly below the normal range of 6.0-8.0 g/dL. The patient's serum globulin level is 3.0 g/dL, which is significantly above the normal range of 2.0-3.5 g/dL. The patient's serum immunoglobulin G (IgG) level is 1.5 g/dL, which is significantly above the normal range of <1.5 g/dL. The patient's serum immunoglobulin A (IgA) level is 0.5 g/dL, which is significantly above the normal range of <0.5 g/dL. The patient's serum immunoglobulin M (IgM) level is 0.5 g/dL, which is significantly above the normal range of <0.5 g/dL. The patient's serum ferritin level is 100 ng/mL, which is significantly above the normal range of <100 ng/mL. The patient's serum transferrin level is 2.5 g/L, which is significantly below the normal range of 2.0-4.0 g/L. The patient's serum transferrin saturation level is 20%, which is significantly below the normal range of 20-50%. The patient's serum iron level is 50 µg/dL, which is significantly below the normal range of 50-150 µg/dL. The patient's serum total iron-binding capacity (TIBC) level is 250 µg/dL, which is significantly below the normal range of 250-450 µg/dL. The patient's serum transferrin receptor level is 2.5 ng/mL, which is significantly above the normal range of <2.5 ng/mL. The patient's serum transferrin receptor level is 2.5 ng/mL, which is significantly above the normal range of <2.5 ng/mL. The patient's serum transferrin receptor level is 2.5 ng/mL, which is significantly above the normal range of <2.5 ng/mL.

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