

CHAPTER 26. CHRONIC & END-STAGE RENAL DISEASE, SELF-ASSESSMENT QUESTIONS

1. Which of the following would *not* hasten the progression of chronic kidney disease (CKD) to end-stage kidney disease (ESKD)?
 - A. Cigarette smoking
 - B. High blood pressure
 - C. Hyperglycemia
 - D. Low birth weight
 - E. Proteinuria
2. CY is a 42-year-old Asian woman with the following laboratory values: eGFR 48 mL/min/1.73 m² (0.46 mL/s/m²) and urine albumin:creatinine ratio 15 mg/g creatinine (1.7 mg/mmol creatinine). How would you classify her CKD?
 - A. GFR category 2; Albuminuria category A1
 - B. GFR category 3a; Albuminuria category A1
 - C. GFR category 3b; Albuminuria category A2
 - D. GFR category 4; Albuminuria category A2
 - E. GFR category 5; Albuminuria category A3
3. JF is a 52-year-old Caucasian man with a history of polycystic kidney disease (PCKD) who presents for follow-up. His laboratory values indicate an eGFR 35 mL/min/1.73 m² (0.34 mL/s/m²) and urine albumin:creatinine ratio of 45 mg/g creatinine (5.1 mg/mmol creatinine). His BP today was 135/86 mm Hg, which is consistent with the BP readings he has been taking at home. He is currently taking no antihypertensives. Which of the following treatments would you recommend to control his blood pressure?
 - A. Amlodipine 5 mg orally daily
 - B. Hydrochlorothiazide 25 mg orally daily
 - C. Lisinopril 10 mg orally daily
 - D. Metoprolol 25 mg orally twice daily
 - E. No treatment is necessary as his blood pressure is at goal.

4. JF is a 38-year-old African American man with hypertension. He was born with one kidney and dropped out of school at age 7. His father is currently receiving hemodialysis. He does not smoke cigarettes, but does drink alcohol occasionally. Which of the following is *not* a risk factor for CKD?
- A. African American ethnicity
 - B. Alcohol consumption
 - C. Born with one kidney
 - D. Family history of kidney disease
 - E. Low education level
5. Which of the following describes the mechanism by which sodium balance is maintained in CKD?
- A. A functioning nephron excretes sodium at a fixed rate, regardless of the degree of kidney dysfunction.
 - B. Fluid retention stimulates atrial natriuretic peptide (ANP) to retain sodium to maintain sodium and fluid balance.
 - C. In CKD, the kidneys are not able to alter sodium reabsorption when the GFR falls below 60 ml/min/1.73 m² (1 ml/s/m²).
 - D. Increased sodium excretion creates an osmotic diuresis that results in urine osmolality close to plasma osmolality.
 - E. Restricting sodium intake is recommended in CKD to decrease overall sodium load and promote water excretion.
6. Which of the following statements is *true* regarding anemia of CKD?
- A. Blood loss during hemodialysis exacerbates the anemia.
 - B. It is caused by a decrease in erythropoietin production.
 - C. Uremia shortens the lifespan of red blood cells (RBC) which intensifies the anemia.
 - D. All of the above are true statements.
7. FY is a 58-year-old 90-kg man who is receiving hemodialysis. He receives Epoetin alfa 3000 units IV with each dialysis session. His laboratory parameters reveal: Hgb 9.1 g/dL (91 g/L; 5.65 mmol/L); serum ferritin 56

ng/mL (56 µg/L; 126 pmol/L); transferrin saturation (TSAT) 12% (0.12). Which of the following is the *most appropriate* treatment for him?

- A. Change to darbepoetin, 40 mcg weekly with dialysis
 - B. Increase Epoetin alfa to 150 unit/kg subcutaneously three times weekly
 - C. Ferrous sulfate, 300 mg orally three times daily
 - D. Iron sucrose, 100 mg intravenously (IV) weekly for 10 doses
 - E. B and C
8. Parathyroid hormone (PTH) activity does *not* cause:
- A. Decreased phosphate excretion from the kidney
 - B. Increased calcium reabsorption from the kidney
 - C. Increased vitamin D activation in the kidney
 - D. Increased calcium resorption from the bones
 - E. PTH causes all of the above activities
9. MP is a 62-year-old man with a history of CKD (GFR category 4) who presents with a corrected calcium level of 8.6 mg/dL (2.15 mmol/L); serum phosphorus level of 7.2 mg/dL (2.33 mmol/L); and PTH level of 135 pg/mL (135 ng/L; 14.4 pmol/L). Which of the following treatments would you recommend for his hyperphosphatemia?
- A. Aluminum hydroxide 600 mg orally three times daily with meals
 - B. Calcium acetate 667 mg orally three times a day with meals
 - C. Calcitriol 0.25 mcg orally daily
 - D. Cinacalcet 30 mg orally daily
 - E. Lanthanum carbonate 600 mg orally twice daily
10. Which of the following is *not* a consequence of declining renal function?
- A. Activation of vitamin D increases to maintain normal bone turnover.
 - B. Bleeding can result from accumulation of uremic toxins.
 - C. Parathyroid hormone levels increase to promote phosphorus excretion.

- D. Potassium excretion increases to maintain normal levels in Stage 3 CKD.
- E. Protein excretion contributes to further loss of functioning nephrons.
11. Which of the following is *not* an indication for initiating hemodialysis in a patient with CKD?
- A. Intractable nausea
 - B. Mental status changes due to volume overload
 - C. Serum creatinine 7.3 mg/dL (645 $\mu\text{mol/L}$)
 - D. Serum potassium 6.2 mEq/L (6.2 mmol/L)
 - E. Weight loss due to anorexia
12. Which of the following statements is *true* regarding hemodialysis?
- A. Arteriovenous grafts (AVG) have a shorter survival time but are able to be used sooner than arteriovenous fistulas (AVF).
 - B. Arteriovenous fistulas (AVF) have the highest failure rate owing to thrombosis and infection.
 - C. Convection allows for the passive movement of small molecules across the dialyzer membrane.
 - D. Lower clearance rates of urea make hemodialysis allow for intermittent treatment three times weekly.
 - E. Ultrafiltration results in the removal of large molecules, including drugs, from the bloodstream.
13. Which of the following is *true* regarding potassium balance in CKD?
- A. Furosemide is ineffective in promoting potassium excretion when the GFR falls below 25 ml/min/1.73 m² (0.24 ml/s/m²).
 - B. In CKD, aldosterone secretion increases GI excretion of potassium to maintain potassium balance.
 - C. Medications that increase serum potassium levels with normal kidney function have little effect in CKD.
 - D. Once GFR falls below 40 ml/min/1.73 m² (0.39 ml/s/m²), serum potassium levels increase.
 - E. Potassium restriction in CKD will lead to a negative potassium balance that can affect cardiac function.
14. Which of the following is *not* an appropriate treatment for metabolic acidosis in a patient with CKD?
- A. Calcium carbonate 500 mg orally three times daily.

- B. Increase dialysate bicarbonate concentration.
- C. Sodium bicarbonate 1300 mg orally twice daily.
- D. All of the above are appropriate treatments for a patient receiving hemodialysis.

15. Which of the following is *true* regarding peritoneal dialysis (PD)?

- A. Lower dwell times can increase solute removal during peritoneal dialysis exchanges.
- B. Peritoneal dialysis causes a more rapid decline in residual renal function.
- C. Peritoneal dialysis exchanges are associated with increased blood loss.
- D. Peritoneal dialysis results in a lower clearance rate of urea than hemodialysis.
- E. The mesothelial cells of the peritoneum act as the dialyzer in peritoneal dialysis.

ANSWERS

1. B
2. B
3. C
4. C
5. D
6. D
7. D
8. C
9. B
10. A
11. C
12. A
13. B
14. A
15. D