

Chapter 56. Osteoporosis, Self-Assessment Questions

1. RW is a 45-year-old African-American woman with an 18 pack–year smoking history who quit 10 years ago and has a BMI of 32 kg/m². She is currently on a 1-week prednisone taper for an asthma exacerbation and takes lisinopril 20 mg daily for hypertension. Which characteristic is associated with an increased risk of developing osteoporosis?
 - A. African American ethnicity
 - B. Presence of hypertension
 - C. Present systemic oral glucocorticoid therapy
 - D. Female sex
 - E. BMI greater than 30 kg/m²
2. You are a pharmacist involved in bone density screening during a health fair in your community. Several patients present to your booth for a peripheral bone density measurement. Based on the following descriptions and recommendations from the National Osteoporosis Foundation, who should be referred to a health care provider for follow-up and evaluation of bone mineral density by central DXA?
 - A. 71-year-old man with low bone mineral density
 - B. 66-year-old woman with low calcium intake and nicotine dependence
 - C. 53-year-old active African-American man receiving chronic glucocorticoid therapy
 - D. 58-year-old woman with a FRAX 10-year probability of hip fracture of 3.2%
 - E. All of these patients meet criteria for screening by central DXA.
3. MM is an 82-year-old frail woman who is recovering from a vertebral compression fracture. At her follow-up appointment today, her primary care provider has asked the team to make interventions to reduce her fall risk. Which factor would decrease her risk of falls?

- A. Discontinuation of oxybutynin
 - B. Changing amitriptyline to diphenhydramine for sleep
 - C. Use of lorazepam several nights per week
 - D. Initiation of metoprolol
 - E. Tapering of nonsteroidal anti-inflammatory agents
4. RS is a 75-year-old woman with newly diagnosed osteoporosis who is being discharged from the hospital after total hip replacement due to hip fracture. She has never taken any medication for osteoporosis. Her history is significant for GERD, DVT associated with oral contraceptive use 20 years ago, and family history of breast cancer. Which therapy may offer the most benefit in this patient?
- A. Denosumab 60 mg subcutaneously every 6 months
 - B. Calcitonin one spray daily in alternating nostrils
 - C. Raloxifene 60 mg orally daily
 - D. Teriparatide 20 mcg subcutaneously daily
 - E. Zoledronic acid 5 mg IV every 12 months
5. PM is a 68-year-old woman with a past medical history of hypertension and osteoarthritis who has been told by her primary care physician that she should start risedronate treatment of osteoporosis (*T*-score of -2.6 at femoral neck). Her other medications include chlorthalidone 25 mg daily and ibuprofen 600 mg TID. She recently read in a women's magazine that medications like alendronate and risedronate can cause "jaw problems," especially in patients who have dental procedures. She is concerned about starting the medication because she needs to have some dental work done. What factor could increase her risk for osteonecrosis of the jaw (ONJ)?

- A. Concomitant thiazide diuretic use
 - B. Preexisting dental disease
 - C. Use of oral instead of IV bisphosphonate
 - D. Use of concomitant gastrointestinal toxic drugs
 - E. There are no risk factors that could increase her risk of ONJ
6. TB is a 78-year-old man with a history of vertebral compression fractures, hypertension, osteoarthritis, and depression. Spinal kyphosis is noted on physical examination. Laboratory results show normal testosterone and vitamin D levels. DXA results include a *T*-score of -2.2 in the left hip and -2.9 in the lumbar spine. His physician would like to initiate treatment for osteoporosis. Which initial therapy is recommended for this patient?
- A. Testosterone 200 mg intramuscularly every 4 weeks
 - B. Alendronate 70 mg orally once weekly 30 minutes before breakfast
 - C. Calcitonin salmon nasal spray one spray daily in alternating nostrils
 - D. Teriparatide 20 mcg subcutaneously daily
 - E. Ibandronate 150 mg by mouth every month
7. Which osteoporosis drug is correctly matched with its contraindication?
- A. Zoledronic acid—previous thromboembolism
 - B. Calcitonin—bone pain
 - C. Denosumab—uncorrected hypocalcemia
 - D. Raloxifene—osteosarcoma
 - E. Teriparatide—uncorrected hypocalcemia

8. CM is a 62-year-old woman who recently started bisphosphonate therapy for osteoporosis. Due to a history of dry mouth, the patient is experiencing difficulty swallowing her ibandronate tablets. What the best recommendation for CM?
- A. Take ibandronate with the first meal of the day.
 - B. Take ibandronate with a full glass of milk.
 - C. Crush the ibandronate tablet and mix it with a small amount of pudding or applesauce and take it.
 - D. Dissolve ibandronate in a full glass of water and drink it.
 - E. Consider switching to an IV bisphosphonate.
9. SP is a 60-year-old postmenopausal obese woman with a history of DVTs. She has a family history of osteoporosis and breast cancer and inquires about the use of raloxifene, because she heard that it might prevent osteoporosis and protect against breast cancer. Which one of the following is a correct statement?
- A. She does not have an indication for raloxifene due to her menopausal status.
 - B. She has a contraindication due to her history of DVT.
 - C. Her family history of breast cancer precludes use of raloxifene.
 - D. Raloxifene is not indicated for her age group.
 - E. Raloxifene is an appropriate agent for MW.
10. CC is a 57-year-old woman with osteoarthritis, GERD, migraines, and hypertension who takes omeprazole daily, lisinopril daily, ibuprofen TID as needed for pain, and sumatriptan as needed for migraines. Which condition or medication may increase her risk of osteoporosis?
- A. Ibuprofen

- B. Osteoarthritis
 - C. Omeprazole
 - D. Sumatriptan
 - E. Lisinopril
11. AK is a 66-year-old woman who was recently prescribed teriparatide. Which is an important counseling point for this medication?
- A. Injection pens should be kept frozen until they are ready to be used.
 - B. Each injection pen should last 90 days.
 - C. This medication should be administered once a month.
 - D. Contact your doctor right away if you have bone pain.
 - E. This medication can only be used for a maximum of 5 years.
12. A 72-year-old woman with a history of hypertension, gastroesophageal reflux disease, and breast cancer status-post completion of anastrozole therapy 7 years ago presents to a primary care physician for a new patient work-up. Her current medications include lisinopril 5 mg daily and omeprazole 20 mg daily. The physician would like to evaluate the patient for the presence of osteoporosis. Which evaluation or tests would aid in the decision to recommend drug therapy for osteoporosis in this patient?
- A. Calcium and vitamin D laboratory tests
 - B. Bone densitometry; thoracic and lumbar spine x-ray
 - C. Evaluation of exercise and exercise tolerance
 - D. Basic metabolic panel and biochemical markers of bone turnover
 - E. Fall risk assessment
13. Which patient is a candidate for screening BMD measurement?

- A. 55-year-old woman with osteoarthritis
 - B. 48-year-old woman with wrist fracture secondary to motor vehicle crash
 - C. 69-year-old man with 40 pack–year history of smoking, quit 5 years ago
 - D. 68-year-old woman with 2-cm height loss from adulthood
 - E. 25-year-old woman who received a 10-day course of steroids for asthma
14. TD is a 68-year-old man with several risk factors for osteoporosis, including current cigarette smoking, alcohol consumption of three to five drinks per day, low body weight, and physical inactivity. Laboratory test results showed 25-hydroxyvitamin D level of 18 ng/mL (45 nmol/L). What recommendation can be made for TD to decrease his osteoporosis risk?
- A. Increase dietary intake of fortified milk, egg yolks, and salt-water fish
 - B. Increase sun exposure + vitamin D₃ 800 IU daily
 - C. Calcium citrate + D₃ 200 IU twice daily + multivitamin (vitamin D₃ 400 IU) daily
 - D. Ergocalciferol 50,000 IU once weekly for 8 weeks; then cholecalciferol 2000 IU daily
 - E. Ergocalciferol 50,000 IU once weekly indefinitely
- A. Calcitonin 200 IU intranasal daily in alternating nostrils

15. PW is a 53-year-old woman with a history of esophageal stricture status-post dilatation due to longstanding GERD and vasomotor symptoms associated with menopause. A recent DXA scan showed a *T*-score of -2.5 in the lumbar spine and -2.6 in the left hip. Which therapy is most appropriate for PW?
- B. Denosumab 60 mg subcutaneously every 6 months
 - C. Raloxifene 60 mg orally once daily
 - D. Risedronate 35 mg orally once weekly
 - E. Ibandronate 150 mg orally once monthly

Answers

1. D

2. E

3. A

4. E

5. B

6. B

7. C

8. E

9. B

10. C

11. D

12. B

13. D

14. D

15. A