STUDENT NAME:_____

MEDICAL SURGICAL I- Simulated Virtual Clinical Summer 2020
Week 5: Osteoporosis

Scenario

M.S., a 72-year-old white woman, comes to your clinic for a complete physical examination. She has not been to a provider for 11 years because "I don't like doctors." Her only complaint today is "pain in my upper back." She describes the pain as sharp and knifelike. The pain began approximately 3 weeks ago when she was getting out of bed in the morning and hasn't changed at all. M.S. rates her pain as 6 on a 0-to 10-point pain scale and says the pain decreases to 3 or 4 after taking "a couple of ibuprofen." She denies recent falls or trauma.

M.S. admits she needs to quit smoking, lose some weight, and start exercising but states, "I don't have the energy to exercise." She has smoked 1 to 2 packs of cigarettes per day since she was 17 years old. Her last blood work was 11 years ago, and she can't remember the results. She went through menopause at the age of 47 and has never taken hormone replacement therapy.

The physical exam was unremarkable other than moderate tenderness to deep palpation over the spinous process at T7. No masses or tenderness to the tissue surrounded the tender spot. No visible masses, skin changes, or erythema were noted. Her neurologic exam is intact, and no muscle wasting is noted.

1. An x-ray examination of the thoracic spine reveals osteopenic changes at T7. What does this mean?

    Osteopenia is when there is a lower than normal bone mineral density as well as bone mass. This would mean a lowering of the bone mass and density at that vertebra. Can lead to more severe bone loss.

2. The physician suspects osteoporosis. List seven risk factors associated with osteoporosis.

    - Sex – women are more likely to develop **
    - Age – older, the more likely to develop **
    - Sedentary lifestyle **

- Alcohol – drinking 2 or more glasses a day
- Tobacco – using tobacco can weaken bones **
- Family history **
- Post-menopausal women due to reduction of sex hormones, estrogen **

3. Place a star next to those risk factors specific to M.S.

- ❖ Non-Modifiable:
  - Older age both genders and all races
  - Parental history of osteoporosis, especially mother
  - History of low trauma fracture after the age of 50 years

- ❖ Modifiable factors:
  - Low body weight, thin build
  - Chronic low calcium and/ or vitamin D intake
  - Estrogen or androgen deficiency
  - Current smoking (active or passive)
  - High alcohol intake (3 or more drinks a day)
  - Lack of physical exercise or prolonged immobility (Ignatavicius, Workman, Rebar, & 2018, P.1017)

CASE STUDY PROGRESS

M.S. has never had osteoporosis screening. She confides that her mother and grandmother were diagnosed with osteoporosis when they were in their early 50s.

4. What tests could be done to determine whether M.S. has osteoporosis? Which test is recommended and why?

- Bone mineral density test should be done. (< -2.5)
- DEXA scan. It can diagnose osteoporosis, check for fractures and determine if the treatment is working.

5. M.S.'s DEXA scan revealed a bone density of −2.6 SD (standard deviations). What does this mean?

This means that M.S is positive for having osteoporosis because her DEXA bond density score measures below the normal limit of -2.5. Our book states that a T-score represents the number of standard deviations above or below (designated by a - sign) The T-score in a healthy 30-year-old adult is 0. Osteopenia is present

when a T- score is at -1 and above -2.5. Osteoporosis is diagnosed in a person who has a T-score at or below -2.5. (Ignatavicius, Workman, Rebar, & 2018, P.1016)

6. The physician orders alendronate (Fosamax) 70 mg/wk. What instructions should you give M.S. regarding alendronate?

- Take on an empty stomach first thing in the morning with a full glass of water this aids in prevention of esophagitis, esophageal ulcers, and gastric ulcers.
- Remain upright, sitting or standing for 30 minutes after taking the drug this aids in prevention of esophagitis.
- Take drugs 30 minutes before food, drink and any other drugs to prevent interactions.
- Dental examinations before starting the medication regimen because it can cause jaw and maxillary osteonecrosis, especially if oral hygiene is poor.
- Do not give the drug to patients who are sensitive to aspirin because bronchodilation may occur. (Ignatavicius, Workman, Rebar, & 2018, P.1021)

7. What nonpharmacologic interventions should you teach M.S. to prevent further bone loss?

- Prevent falls: declutter house, clear pathways, no area rugs, wear rubber soled shoes, non-slip socks
- Daily exposure to the sun at least 5 minutes
- Consume vitamin D and calcium supplements
- Increase calcium intake through diet
- Exercise: especially strength training, avoid jarring exercises such as jogging and horseback riding, walking is the most effective
- Avoid tobacco, stop smoking
- Limit alcohol intake (Ignatavicius, Workman, Rebar, & 2018, P. 1020-1022)

8. You encourage M.S. to start working on one problem at a time. Which problem should M.S. attempt first?

Smoking cessation, daily exercise, healthy diet high in calcium and vitamin D.