Osteoporosis in HIV and Aging

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Educational Objectives
By the end of the session, learners will be able to:

1. Describe two features that distinguish osteoporosis in HIV-infected patients from that in the general population.
2. Outline a factor for osteoporosis in HIV-infected patients and the strategy to minimize its effects on bone health.
3. Apply an evidence-based approach to the evaluation and management of osteoporosis in HIV-infected patients.

Suggested reading:

CASE ONE:

Ms. Fracture is a 50-year-old woman with past intravenous drug abuse, chronic obstructive pulmonary disease (COPD) from tobacco abuse, HIV well-controlled on ART who presents to your clinic to establish care. Her current medications include prednisone 10mg daily, methadone 100mg daily, ritonavir, atazanavir, tenofovir and emtricitabine daily. Her last CD4 count is 200 cells/mm³, and her viral load is undetectable.

As part of the initial intake, you ask whether she has had a bone density scan in the past to screen for osteoporosis, to which Ms. Fracture replies, “Doctor, what is osteoporosis?”

Questions:

1. What is osteoporosis? How does it differ from osteopenia?

2. How does the prevalence rate among HIV-infected patients differ than that in the general population?
3. Why does the prevalence for osteoporosis differ in HIV-infected patients compared to the general population? What are the effects of HIV on bone metabolism?

4. What are risk factors for bone loss? Your answer should address traditional risk factors and HIV-associated risk factors.

5. What questions would you ask Ms. Fracture to determine her risk factors? Would you order any lab tests?

CASE ONE CONTINUED:

After explaining to Ms. Fracture what osteoporosis is, you proceed to collect more information regarding her medical history.

Ms. Fracture was diagnosed with HIV 20 years ago during a period of heavy drinking and injection drug use, when she was found to have Pneumocystis jiroveci pneumonia (PCP) because her CD4 was “nonexistent.” Ms. Fracture underwent menopause when she was 46 years old. Although she has never broken any bones because she is sedentary, her mother broke her hip and wrist due to falls before she passed away.

When you review the medication bottles, you learn that she is also taking furosemide 20mg every other day for blood pressure and esomeprazole 40mg daily, which was started during a hospitalization many years ago. She is unsure what the esomeprazole is for.

On physical exam, her weight is 120 lbs, BMI 17.15. She is afebrile, BP 110/60, pulse 65, oxygen saturation 100% on room air. She is thin, but otherwise her exam is unremarkable.

6. What are Ms. Fracture’s risk factors for osteoporosis? Which ones can you potentially modify and how would you optimize them?

CASE ONE CONTINUED:

Ms. Fracture is eager to make the changes you suggest, but she also wants to know if she has osteoporosis.

7. Would you screen Ms. Fracture for osteoporosis and why? What test would you order if you decide to screen her?
CASE ONE CONTINUED:

| DXA results show the following T-scores: Hip total -2.8, femoral neck -2.4, L4 -2.5 |

8. Does Ms. Fracture have osteoporosis? What other tests would you order?

9. How would you treat Ms. Fracture?

10. Would you switch Ms. Fracture’s ART regimen?

11. How would you monitor treatment?
Additional reference: