Lumbar Case Scenario

Patient History:

A 73-year-old female presents to your physical therapy clinic with a new episode of lower back pain. Her pain started after a recent hospital stay where she was admitted after falling at home and had a prolonged hospital stay due to sepsis. She says she spent a lot of time in her bed during the hospital stay. She reports a history of episodic low back pain, but this current problem feels more intense and is limiting her more than previous episodes. She describes her pain as a right lower lumbar deep ache and occasional sharp pain that seems constant and ranges from 3-6/10. She also has intermittent pain that radiates to her right lateral hip area.

Her past medical history includes the following:

- Hypertension managed with medication (hydrochlorothiazide)
- Bone density T-score of -1.5
- History of basal cell carcinoma 20 years ago
- Type 2 diabetes

Systems Review:

She is alert, oriented, and able to express herself clearly without difficulty in speech, hearing, or comprehension. Affect is appropriate and cooperative throughout the examination. Cognitive function is intact, as she is oriented to person, place, time, and situation. Her blood pressure is elevated, and heart rate is mildly elevated. She reports fatigue.

Tests and Measures:

On observation, the patient demonstrated increased lumbar lordosis with symmetrical leg length, normal muscle tone, no edema or skin changes, and no obvious deformity.

Functional tasks: A full squat reproduced mild right-sided low back pain (2/10) that resolved upon standing. Gait was cautious and mildly antalgic with reduced endurance. Step-up onto an 8-inch step provoked 3/10 lumbar pain. Single-leg stance on the right reproduced low back pain with observable trunk sway.

Lumbar motion testing: Flexion was limited by stiffness but did not reproduce pain. Extension and quadrant testing reproduced right lumbar discomfort at end range.

Hip testing: Flexion strength was 5/5 bilaterally and pain-free, with mild discomfort crossing the right leg over the left. Range of motion included 120° of hip flexion bilaterally, 40° of abduction

bilaterally, 20° of adduction on the right and 25° on the left, 30° of internal rotation bilaterally, and 40° of external rotation bilaterally.

Strength testing: Hip abduction was 4/5 bilaterally with mild right-sided lumbar discomfort. Hip external rotation was 4+/5 bilaterally. Core muscle endurance was reduced, with difficulty maintaining a bridge position for more than 10 seconds.

Palpation: Diffuse tenderness was noted in the right paraspinal muscles and L3-4 spinous processes.

1. Based on the scenario, which red-flag conditions are you most concerned with?
    a. Cancer.
    b. Infection.
    c. Fracture.
    d. Cauda equina.

The correct answer is **b. Infection.** This patient has multiple risk factors for spinal infection, including recent hospitalization for sepsis, diabetes mellitus, and constant pain. Basal cell carcinoma is not a metastatic cancer, so malignancy is less concerning. Osteopenia without acute trauma reduces suspicion for fracture, and she has no urinary or saddle anesthesia symptoms suggestive of cauda equina syndrome.

2. Which of the following additional findings would be most concerning in this patient and require immediate referral for additional testing?
    a. Persistent fever with localized lumbar spinous process tenderness.
    b. Unexplained 15-lb weight loss over the past 3 months.
    c. New urinary retention with saddle anesthesia.
    d. Severe midline lumbar pain following a minor fall with known osteoporosis.

The correct answer is **c. New urinary retention with saddle anesthesia.** Each option represents a classic red-flag finding: Infection: Fever with focal spinous process tenderness raises suspicion for spinal infection (spondylodiscitis, osteomyelitis). Cancer: Unexplained weight loss and age >50 increase suspicion for spinal malignancy, especially with a prior cancer history.
Fracture: Severe midline pain after a minor fall in an osteoporotic patient is highly concerning for a compression fracture. Cauda equina: New urinary retention and saddle anesthesia are the hallmark “red flag of red flags” for cauda equina syndrome, requiring *emergency referral*.

While all are concerning, cauda equina syndrome is the most time-critical because delayed diagnosis can result in irreversible bowel, bladder, and sexual dysfunction. Therefore, option c is the most concerning.

3. Assuming that red-flag conditions are ruled out, which is the most appropriate intervention?
    a. Lumbar thrust manipulation.
    b. Trunk coordination, strengthening, and endurance training.
    c. Prolonged bed rest to unload the spine.
    d. Mechanical traction.

The correct answer is **b. Trunk coordination, strengthening, and edurance training.** According to the Low Back Pain Clinical Practice Guidelines (CPG), trunk coordination, strengthening, and endurance exercises are strongly supported for older adults with subacute or chronic low back pain. Manipulation may not be appropriate in this population due to medical complexity, and prolonged bed rest is contraindicated. Traction has conflicting evidence and is not indicated here.

4. Which of the following interventions are *not recommended* for this patient?
    a. Patient education focused on prognosis and active coping.
    b. Prolonged bed rest with activity avoidance.
    c. Flexion-based exercise with progressive walking.
    d. Cardiovascular fitness training at low-to-moderate intensity.

The correct answer is **b. Prolonged bed rest with activity avoidance.** The CPG explicitly recommends against prolonged rest, as it delays recovery and increases disability. Instead, clinicians should emphasize positive education, early return to activity, trunk coordination, and progressive exercise. Flexion-based exercise and fitness training may be considered in older adults with radiating pain or deconditioning.

References

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