FALLS

Pre-test Questions

Easy

1. Which of the following is a risk factor for falls in the elderly?
   a. Visual impairment
   b. Decreased bone mineral density
   c. Poor dental care
   d. (a) and (c)

2. What does the “Get Up and Go” method of fall risk assessment involve?
   a. Accompanying the patient to the home environment, to assess safety hazards
   b. Recording the time a patient takes to walk with 5-lb ankle weights back and forth over a distance of 10 meters
   c. Evaluating a patient’s dexterity and balance with placing a small object into a box from ground level
   d. Evaluating the time a patient takes to rise out of a chair, walk 10 feet, turn around, walk back, and sit back down

3. What is the estimated direct cost of falls in the elderly?
   a. $10 million
   b. $100 billion
   c. $500 million
   d. $20 billion

4. Which of the following medications has been found to be effective in preventing falls in older adults?
   a. Donepezil
   b. Cholecalciferol
   c. Folic acid
   d. Rivastigmine

Medium Difficulty

1. An 87-year-old woman comes into your MSK clinic with a complaint of R shoulder pain. She says that she fell 3 days ago at home while walking out of her bathroom. She landed on her R shoulder and denies hitting her head. Your patient says she might have slipped on a rug, but she doesn’t remember. She has a past medical history of type 2 diabetes with peripheral neuropathy, hypertension, and osteoarthritis. She takes glipizide for her diabetes, lisinopril for her hypertension, amitriptyline for neuropathy, and acetaminophen as needed for joint pain. On exam, her postural vital signs are unremarkable. An evaluation of her gait shows her to have some mild swaying on ambulation only. Which of these would be a good first step to decrease her risk of repeat falls?
   a. Recommend she purchase hip protectors.
   b. Start an exercise program directed by your physical therapist.
   c. Lower her dose of glipizide.
   d. Change amitriptyline to another drug for neuropathy.
2. Which of the following is true regarding falls in the elderly?
   a. A patient should not use a walker to ambulate if their motor strength is intact.
   b. Hip fractures are not the most frequent type of fall-related fractures.
   c. A motorized scooter is a better option to prevent falls in the elderly.
   d. Medication use may contribute to increased fall risk.

3. True or false: Patients who fall, even if they are uninjured, are at risk of another fall.
   a. True
   b. False

Difficult

1. A 75-year-old man with diabetes and osteoarthritis is evaluated in your clinic for recurring falls. Which of the following is most predictive of future dependence in his activities of daily living?
   a. A T score on his bone density test of –2.7
   b. A greater than 20-point difference between sitting and standing systolic blood pressure
   c. Taking 25 seconds to rise from a chair, walk 10 steps, turn around, walk back, and sit down in that same chair
   d. Impaired 2-point discrimination in his lower extremities

2. A 78-year-old woman has scored 20 out of 30 on her Mini-Mental State Examination. True or false: This patient is at high risk of falls.
   a. True
   b. False

3. A 74-year-old woman with a history of recurrent falls is seen in your clinic with her daughter. She also has a history of mild dementia, congestive heart failure, coronary artery disease, and hypertension. She takes furosemide, lisinopril, aspirin, metoprolol, olanzapine, and simvastatin. She lives by herself in an apartment she has lived in for 40 years and has help with housekeeping once a week. Her physical examination is remarkable for decreased proximal lower-extremity muscle strength. Which of the following is NOT an evidence-based intervention for decreasing her risk of falling?
   a. Discontinuing furosemide
   b. Balance and gait training exercises
   c. Initiating donepezil
   d. Discontinuing olanzapine
Vignette

Mr. C is an 84-year-old retired Teamster referred to your VA clinic after discharge from the hospital, where he was operated on for a quadriceps tendon rupture. He recovered well and has been walking with a cane since discharge, but his wife has become increasingly concerned of late about his risk of falling. She says she has found her husband on the floor several times since he was discharged from the hospital last year, and that he is not as active as he once was; indeed, he stays in his chair most of the day. Worse still, he has been returning the calls of an aggressive scooter salesperson, who has told the patient he is too big a fall risk to walk places, and that he should get around on a scooter, which he will happily furnish to him at no cost.

The patient denies that this is such a “big deal” and wonders “why can’t I just take it slower,” but the patient’s wife points out that he had been a very active person, power walking and doing work around the yard prior to his injury, and that now he is becoming sedentary and unsteady on his feet. She mentions that he is a former welterweight boxer and, during the Korean War, commanded an Army unit.

The patient’s past medical history includes non–insulin-dependent diabetes, hypertension, hypercholesterolemia, gout, obesity, insomnia, and osteoarthritis. He takes metformin, benazepril, amlodipine, and allopurinol.

Exam: BP 175/90, HR 65 (supine); BP 152/85, HR 68 (standing). FSBS 380. Comfortable-appearing gentleman, NAD. Cardiovascular exam: S1/S2 within normal limits, without murmurs, rubs, or gongs. Lungs are clear to auscultation bilaterally. Abdomen has obese contours but is nontender, soft, and nondistended, with bowel sounds normoactive. Neuro exam: CN II–XII intact. R eye visual acuity is 20/200 and L eye 20/40. Decreased sensation to microfilament bilaterally in feet. Musculoskeletal exam shows R hip abduction 4/5, R knee flexion strength 4/5, and R knee extension 3/5; strength is unchanged from what was recorded from his postoperative inpatient rehabilitation stay. The patient’s R knee shows a surgical scar but does not show any effusion, although crepitus can be easily elicited on ROM. When asked to walk, the patient has some difficulty arising out of the chair, attempting twice before standing up; he walks in short steps, using his cane to support his R leg. “See, my right leg ain’t no good, doc,” he says.

The patient’s wife reports he hasn’t been sleeping well of late. On further questioning, the patient admits to feeling “sorry” for his Army buddies, “who are all gone now . . . and I don’t have much time left myself.”

Tasks

1. View this falls overview handout: [http://www.pogoe.org/km/getdoc/9700](http://www.pogoe.org/km/getdoc/9700)
   Can you identify at least 4 risk factors in this patient for falling?


3. Review the FAB scale, Berg balance scale, and multidirectional reach test videos: [http://www.stopfalls.org/service_providers/sp_bm.shtml](http://www.stopfalls.org/service_providers/sp_bm.shtml)
4. Would a scooter be appropriate for this patient? Review the practice module “Assistive Devices for Ambulation in the Elderly”:
http://www.pogoe.org/AngelUploads/applications/astdevice/AstDevice.html
Can you suggest a different assistive device for this patient?
**Post-test Questions**

**Easy**

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   a. Discontinuing furosemide
   b. Balance and gait training exercises
   c. Initiating donepezil
   d. Discontinuing olanzapine
Answer Key — Questions

Easy

1. (a) Visual impairment in the elderly increases the risk of falls.

2. (d) The “Get Up and Go” method is a validated technique to assess fall risk. Patients are timed as they rise from a chair, walk 10 steps, turn around, walk back, and sit down in that same chair.

3. (d) According to the CDC, over $19 billion in direct costs can be attributed to falls.

4. (b) According to a meta-analysis by Kalyani et al, cholecalciferol has a beneficial effect in falls prevention. Using pooled data, they found that the following elderly subgroups had significantly fewer falls: community-dwelling (aged <80), adjunctive calcium supplementation, no history of fractures or falls, duration of vitamin D therapy longer than 6 months, treatment with cholecalciferol, and vitamin D dose 800 IU or greater.

Medium Difficulty

1. (d) Amitriptyline is a drug with significant anticholinergic side effects that could be associated with increased confusion and falls in the elderly. Discontinuing it would be a quick and potentially effective intervention to decrease fall risk. Hip protectors might reduce the impact of a fall, but not the probability itself. An evaluation of gait revealed some balance issues, but not problems with proximal strength, so (b) would be insufficient without first removing a potentially exacerbating medication. There is no evidence of hypoglycemia, so (c) is not the right answer.

2. (d) Medication use in the elderly, for example use of medications with prominent anticholinergic side-effect profiles, can put a patient at increased risk of falls. It is not correct to assume that a properly selected assistive device puts an elderly patient at risk of falls; on the contrary, it may help stabilize their gait pattern. Hip fractures are the most common fall-related fracture. Motorized scooters are not a practical or effective solution to the problem of falls in the elderly.

3. (a) True. According to Vellas et al (1997), many people who fall, even those who are not injured, develop a fear of falling. This fear may cause them to limit their activities, leading to reduced mobility and physical fitness, and increasing their actual risk of falling.

Difficult

1. (c) The “Get Up and Go” test is a validated tool to test for problems with gait and functional dependency. Findings of osteoporosis (a), orthostatic hypotension (b), or peripheral neuropathy (d) are not as predictive of functional impairment.

2. (b) False. While dementia is associated with functional dependence, the MMSE is not designed for this outcome.
3. (c) Reducing doses of psychoactive medications or diuretics, balance training, and gait training are all part of proven multifactorial interventions to reduce falls. Acetylcholinesterase inhibitors such as donepezil have not been proven to do so.

**Answer Key — Vignette Tasks**

*Can you identify at least 4 risk factors in this patient for falling?*

Risk factors include: Unsteadiness of gait after quadriceps tendon rupture and comorbid arthritis/gout, impaired balance due to diabetic neuropathy, obesity and deconditioning, 4+ medications, orthostasis, decreased visual acuity, depressive symptoms, possible cognitive impairment due to boxing history, abnormal “Get Up and Go” test, and prior falls.

*Would a scooter be appropriate for this patient? Can you suggest a different assistive device for this patient?*

Mobility is strongly linked to quality of life. For this patient, a home safety evaluation would be appropriate, in conjunction with a multidisciplinary care team including PT, OT, physiatry, and nursing. An assistive device for ambulation would be more appropriate than a scooter, as the patient is still ambulatory and does not need a scooter. Based on the evaluation of the multidisciplinary team, a cane or walker might be selected both to aid in stability and maximize mobility. In the vignette, the type of cane the patient is using is not specified; however, if it is a single-point cane he might do better with another type of cane, such as an offset cane or a 4-pronged cane.