

A Breakdown on Falls in the Elderly



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Did you know...

Falls are the leading cause of accidental injury and death in the 65 to 80-year-old age category and carry prognostic implications for a patient's need for assisted living.¹

Point #1

Falls in the elderly are common and significant. Fifteen per cent of 65-year-old Canadians and 50% of 80-year-olds will fall this year.

Detecting injuries and minimizing risks

Approaching a patient with the three following questions will ensure all their injuries are detected and risk of future falls is minimized:

1. What did they injure?
2. Why did they fall?
3. Are they safe to go home?

X-ray tidbit...

Occult hip fractures can be missed in up to 9% of initial X-rays.²

Point #2

While all body sites are at greater risk of injury in the young, specific attention should be paid to the elderly patient's bones and head.

Bones

Osteoporosis causes 5% of all falls in the elderly to result in fracture. Osteoporosis also hinders fracture detection on X-ray.

Of greatest concern is the high risk of neck fracture. The clinician should have a low threshold for X-raying any neck injury. The elderly patient with persistent hip or neck pain following a fall despite normal X-rays, must undergo computerized tomography (CT) scan or magnetic resonance imaging to assess for occult fracture.

Aggressive physiotherapy after injury is mandated due to the rapidity of muscle atrophy from injury-related immobility.

Head

Head injury is the leading cause of death from falls in the elderly. Brain atrophy and vascular fragility of the bridging veins result in a greater chance of intracranial hemorrhage, especially in those on anticoagulants.

Physicians are poor at detecting subtle cognitive changes in this population, which would otherwise suggest subdural hemorrhage. A CT scan is indicated for all elderly patients with cognitive impairment following a fall.

Table 1

Common acute illnesses resulting in falls

Presyncope/Syncope

- Hematologic:
 - Hypoglycemia
 - Electrolyte abnormalities
 - Anemia
 - Bacteremia
- Vascular:
 - Vasodilation (medication, vagal)
 - Hypovolemia, bleeding
 - Orthostatic hypotension
- Obstructive:
 - Aortic stenosis
 - Pulmonary embolism
 - Transient ischemic attack/stroke
- Cardiogenic:
 - Arrhythmia
 - Reduced contractility (cardiomyopathy, medications)

Vertigo

- Peripheral (all causes)
- Central (stroke, cerebellar lesion)

Other

- Adverse drug reaction
- Seizure
- Vertebrobasilar insufficiency

F.Y.I.

Vigorous patients describing central vertigo symptoms may warrant urgent CT.

Point #3

Instead of dividing falls as mechanical or non-mechanical, it is useful to decide on the vigor and frailty of your patients to determine the reasons behind their fall:

Vigorous patients

- Active lifestyle with little significant past medical history.
- No history of falls and do not use walking aids.

Why did they fall?

- Falls are the result of true mechanical fall/trip or sudden presyncope/syncope, vertigo or ataxia (Table 1).
- Should receive acute, in-hospital investigation of cause, including:
 - telemetry,
 - risk stratification for coronary disease,
 - possible CT scanning and
 - blood work.

Frail patients

- Extensive medical histories.
- Likely use a cane or walker and frequently give history of previous falls.

Why did they fall?

- Efforts should be directed at optimizing the multitude of physiologic systems needed for safe ambulation. These can be divided into problems of:
 - impaired input (*i.e.*, vision, vestibular input and proprioception),
 - impaired cognitive processing (*i.e.*, medication side-effects and dementia) and
 - impaired output (*i.e.*, poor foot care and muscle atrophy).

Point #4

Vigorous patients with a true mechanical fall simply need to be assessed for their injuries.

Those with concern for an acute medical stressor deserve a rapid workup to rule out pathology, followed by outpatient Holter monitoring and possible 2-D echocardiography.

Table 2

Checklist for falls in frail patients

Emergency department

- Assess and treat injuries
- "Get up and go" test
- Review medications
- Consider anti-osteoporotic treatment

Outpatient referrals

- Gerontology
- Optometry/optthamology
- Occupational therapy
- Physiotherapy
- Podiatry
- Homecare

Point #5

Frail patients with repeated falling should have their gait, transfers and stability assessed by an occupational therapist (OT).

If rapid accessibility to an OT is not available, confirming that the patient can rise from bed, sit, stand and then walk (the "get up and go" test) can suffice until more extensive in-home assessments can be done.

A checklist of needed outpatient assessments should be available to organize outpatient strategies (Table 2).

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References

1. Marx J: *Rosen's Emergency Medicine: Concepts and Clinical Practice*. Fifth Edition. Mosby Inc., St. Louis, 2002, chapter 176.
2. Perron AD, Miller MD, Brady WJ: Orthopedic pitfalls in the ED: Radiographically occult hip fracture. *Am J Emerg Med* 2002; 20(3):234.



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