

# FALLS

AGS Geriatrics Evaluation and Management Tools (Geriatrics E&M Tools) support clinicians and systems that are caring for older adults with common geriatric conditions.

From the AMERICAN GERIATRICS SOCIETY

## Geriatrics Evaluation & Management Tools

### DEFINITION

- Coming to rest inadvertently on the ground or at a lower level
- Falls literature usually excludes falls associated with loss of consciousness (syncope)

### BACKGROUND

- One of the most common geriatric syndromes
- Complications resulting from falls are the leading cause of death from injury in adults >65
- Causes are multifactorial
- 10%–15% of falls in older adults result in fracture or serious injury
- Falls are associated with:
  - Increased use of medical services
  - Decline in functional status
  - Nursing home placement

### SCREENING

- All geriatric patients should be asked annually about recent falls
- Older adults with two or more falls in the past 12 months or with gait or balance abnormalities should undergo a multifactorial falls risk assessment (ie, thorough fall H&P)

### HPI

- Circumstances of fall:
  - Symptoms at the time of the fall (lightheadedness, imbalance, and dizziness)
  - Frequency of falls (the most important point in the history is asking whether there has been a previous fall, because this is a strong risk factor for future falls)
  - Injuries
  - Activity of the patient at the time of the fall
  - Location of the fall
  - Potential contributing environmental factors (lighting, floor coverings, door thresholds, railings, furniture, etc.)
- Mobility difficulties
- Use of assistive devices
- Ability to perform activities of daily living
- Rule out syncope

### PAST MEDICAL HX/REVIEW OF SYSTEMS

Presence of conditions associated with falls or fall-related injuries:

- Osteoarthritis
- Osteoporosis
- Vision loss
- Motor weakness
- Cognitive impairment
- Delirium
- Urinary incontinence
- Cardiovascular disease
- Cerebrovascular disease
- Diabetes mellitus
- Seizure disorder
- Neurological disorders (neuropathy, Parkinson's disease, normal-pressure hydrocephalus)
- Vertigo
- Hypovitaminosis D

### SOCIAL HX

- Alcohol intake
- Social support and supervision

### MEDICATIONS

Thorough evaluation of medications that can contribute to falls (including over-the-counter medications):

- Anticholinergics
- Anticonvulsants
- Antidepressants
- Antihistamines
- Antihypertensives
- Antipsychotics
- Benzodiazepines
- Insulin and oral hypoglycemics
- Narcotics
- Sedative hypnotics
- Systemic glucocorticoids

### PHYSICAL EXAM

Comprehensive physical exam with focus on:

- Orthostatic vitals (orthostatic hypotension = drop in systolic blood pressure  $\geq 20$  mm Hg [or  $\geq 20\%$ ] with or without symptoms, either immediately or within 3 min of rising from lying to standing)
- Cognitive assessment
- Eye examination, including visual acuity, visual fields, cataract examination
- Cardiovascular examination, including heart rate and rhythm
- Integrated musculoskeletal function test such as:
  - Timed Up and Go test (which can be performed with or without timing)
  - Performance Oriented Mobility Assessment
  - Berg test
- Neurological evaluation, including reflexes, focal deficits, neuropathy, tremor, rigidity
- Feet and footwear examination

## LABS AND IMAGING

- Basic metabolic profile (dehydration, hypoglycemia)
- Complete blood count (infection, anemia)
- Vitamin D level
- Vitamin B<sub>12</sub> level
- Bone densitometry if indicated (see AGS Geriatrics Evaluation and Management: Osteoporosis)
- Based on H&P results, may consider:
  - Electrocardiography and echocardiography (for those with cardiac conditions believed to contribute to the maintenance of blood flow to the brain)
  - Neuroimaging (if head injury, new focal neurologic finding on exam, CNS process suspected)
  - Spinal imaging (in patients with abnormal gait, neuralgia examination, or lower-extremity spasticity or hyperreflexia) to exclude cervical spondylosis or lumbar stenosis

## MANAGEMENT STRATEGIES (COMMUNITY-DWELLING OLDER ADULTS)

- Minimize medications:
  - Review medication profile and reduce number and dosage of all medications, as possible
  - Monitor response to medications and to dosage changes
- Optimize treatment of underlying medical conditions that can contribute to falls
- Supplement vitamin D:
  - Vitamin D (1000 IU) to achieve a 25-hydroxy vitamin D level >30 ng/mL
  - Exact mechanism is unknown; it is believed that vitamin D may reduce falls by increasing muscle strength and decreasing body sway; vitamin D supplementation also improves bone mineral density and reduces the risk of vertebral and nonvertebral fractures
- Treat vision impairment:
  - Multifactorial interventions that include visual screening and/or treatment have had a modest effect in reducing the risk of falls
  - Initial cataract surgery decreases the rate of falls (subsequent surgeries have no effect on falls)
  - Avoid wearing multifocal lenses while walking, particularly up stairs
- Manage postural hypotension:
  - Educate patient to sit for 2–3 minutes before transferring from lying to standing
  - Educate patient to clench hands or pump ankles prior to standing or when feeling lightheaded
  - Prescribe pressure stockings
  - If appropriate, liberalize salt intake
  - Add 1 cup of caffeinated coffee for postprandial hypotension
  - Consider medications to increase blood pressure (contraindicated in severe HTN, CHF, hypokalemia)
    - Midodrine 2.5–10 mg 3 times daily (4 hours apart)
    - Fludrocortisone 0.1 mg q8–24 hours
- Initiate an individually tailored exercise program:
  - Exercise classes incorporating more than one type of exercise (eg, gait training, balance, strengthening) are effective in reducing the rate of falls
  - Tai Chi, which combines strengthening and balance measures, is effective in reducing the risk of falls
- Manage foot and footwear problems:
  - Recommend proper footwear (good fit, non-slip, low heel height, large surface contact area)
- Manage heart rate and rhythm abnormalities:
  - One trial demonstrated a reduction in the rate of falls among older adults with carotid sinus hypersensitivity treated with a pacemaker
- Refer to physical therapy for:
  - Comprehensive evaluation and rehabilitation of impaired gait, balance, or transfer skills
  - Evaluation for and training in use of assistive devices
  - Assistive device review for patients who have fallen while using devices
- Recommend a home safety evaluation (often done by home health agency):
  - Potential environmental modifications:
    - Improve home lighting
    - Remove or secure rugs and floor mats
    - Place electrical cords against the wall
    - Secure bathmats
    - Minimize clutter
    - Rearrange furniture
    - Lower bed
  - Potential medical equipment (may need to be purchased by patient): toilet riser, bedside commode, urinal, shower chair, grab bars, railings, fall alert buttons (call bell, bed alarm)
- Consider need for increased assistance/supervision from caregivers