Prevention of Falls in Older Adults

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What is a fall?
What is not a fall?
What usually happens after a fall?
Common and Costly

• Age ≥ 65 years, about 30% fall each year
• Age> 80, 50% fall each year
• 60% of older adults who fell in past year will fall again
  • 5-10% of falls result in serious injuries
    • fractures, head trauma, lacerations
  • Most common (61%) cause of nonfatal injury treated in Emergency Department in 2009-10
• Fall injuries cost ~$50 billion (2015)
• Increase risk of nursing home placement, loss of function

Bergen G. MMWR Morb Mortal Wkly Rep 2016;65:993
Cameron ID. Cochrane Datab Syst Rev 2018; DOI: 10.1002/14651858.CD005465.pub4
THE GOAL IS PREVENTION
Identifying risk level

- Have you fallen two or more times in the past 12 months?
- Have you fallen and hurt yourself since your last doctor visit?
- Are you afraid that you might fall because of balance or walking problems?

_Wenger NS et al., Arch Intern Med 2010;170:1765-1772_
_Other screening items: see Lusardi MM et al., J Geriatr Phys Ther 2017; 40:1-36_
USPSTF Recommendations

• Recommend exercise for older patients at increased risk (Grade B)
• Recommend against vitamin D supplementation (Grade D)
• Recommendations apply to community-dwelling older adults not known to have osteoporosis or Vitamin D deficiency

Exercise: Options

• Community-based exercise
• Outpatient physical therapy
• Home physical therapy via home health
• Balance exercises (Tai Chi)

http://eldercare.gov/Eldercare.NET/Public/index
Systematic reviews: Vitamin D

- Did not reduce falls overall
- Possible benefit in subgroup with low Vitamin D levels
- Current recommendations for older adults
  - Age 51-70: 600 IU daily
  - Age > 70: 800 IU daily

Gillespie LD. Cochrane Database Systematic Reviews 2012; CD007146
Vitamin D: Harms

• Toxic in overdose
• Safe upper limit: 4000 IU/day
• Increased risk of kidney stones with combined Vitamin D/calcium in Women’s Health Initiative and in meta-analysis

Kahwati LC. JAMA 2018;319:1600
Causes of falls

• Usually, multiple interacting causes → no “magic bullet”

• However, intervening on these causes decreases the rate of future falls
Evaluation – Seven Elements

- Orthostatic vital signs
- Visual acuity
- Gait/balance
- Functional status
- Cognition (+/- mood)
- Medications
- Home hazards

Chang JT et al. BMJ 2004;328:680
Orthostasis

• Orthostatic hypotension → dizziness or loss of consciousness → fall
• Check orthostatic vital signs
• Interventions
  • Discontinue or ↓ dose causative medicines
  • Support stockings
  • In severe cases, treat orthostatic hypotension
Vision

• Visual impairment – inability to see hazards puts patients at risk
• Check for eye exam in the past year
• If not, perform visual acuity examination
• Intervention
  • Referral to eye care
    • May lead to cataract extraction
    • Single-lens distance glasses for outdoor use (selected cases)

Gait/balance/strength

• Gait/balance/strength impairment – ↑ likelihood of losing balance or tripping
• Observe gait
• Side-by-side/semi-tandem/full tandem (balance – next slide)
• Watch patient arise from chair without using his/her arms to push off (strength)
Stances to assess balance
Timed Up and Go

When I say “Go,” I want you to:

1. Stand up from the chair.
2. Walk to the line on the floor at your normal pace.
3. Turn.
4. Walk back to the chair at your normal pace.
5. Sit down again.
Gait/balance/strength

• Interventions
  • Exercise/physical therapy
  • Assistive device
Function

- Functional impairments – inability to complete tasks safely
- Ask patient or caregiver about basic/instrumental activities of daily living (ADL’s)

Interventions
- Occupational therapy
- Equipment to support ADL’s
Cognition (+/- mood)

- Cognitive impairment – Poor insight, judgment, awareness of surroundings → unsafe decisions
- Cognitive evaluation (e.g., 3-item recall)
- Impairment → evaluate for reversible causes
- Interventions
  - Treat reversible causes (e.g., depression)
  - Develop a plan with caregiver for supervising patient
Medications

- CNS-active medications → drowsiness, dizziness
- Antihypertensives
- Diuretics

**Assessment/Intervention**
- Identify and discontinue medicines without a clear indication
- Discontinue or ↓ medications after weighing risks and benefits
Environment

- Environmental hazards – inciting factor that initiates a fall
- Order home safety evaluation
  - Through home health
- Intervention
  - Remove hazards
  - Improve lighting
Footwear

Figure.
Recommended shoe features for older people.

From Menant et al., J Rehabil Res Dev 2008; 45:1167-1182
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Chang JT et al. BMJ 2004;328:680
Consider risk of injury

- Factors that increase injury risk upon impact
  - Osteoporosis
  - Bleeding risk
    - Underlying disorder
    - Medication
      - Weigh benefits vs. risks
Falls in hospitals: risk factors

- Recent fall
- Muscle weakness
- Behavioral disturbance
- Urinary frequency/incontinence
- Medications
- Orthostatic hypotension/syncope
Fall Prevention in Nursing Homes

• Nursing homes: possibly effective strategies include Vitamin D supplementation
  • Baseline Vitamin D levels were low
• Moderate quality evidence for small reduction in hip fractures with hip protectors
• Low beds
Key Points on Falls and Mobility

• For the general older population, offer exercise
  • Fall prevention exercise for those at higher risk of falls
• For vulnerable community-dwelling older people, consider multifactorial fall evaluation, and then act on results
Resources

• Community-dwelling older people:
  • American Geriatrics Society guidelines
    • AGS/BGS Panel: JAGS 2011;59:148–157
  • CDC STEADI toolkit
    • http://www.cdc.gov/steadi/index.html
Resources

• AHRQ Falls Toolkit (hospital)
  • http://www.ahrq.gov/professionals/systems/hospital/fallpxtoolkit/

• Hospital Elder Life Program
  • http://www.hospitalelderlifeprogram.org/

• Falls Management Program (nursing home)
  • http://www.ahrq.gov/professionals/systems/long-term-care/resources/injuries/fallspx/