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Featured Speakers

- Bruce R. Troen, MD, AGSF, Professor and Chief, Division of Geriatrics and Palliative Medicine, Jacobs School of Medicine and Biomedical Sciences
- Michael R. Brodeur, PharmD, CGP, FASCP, Associate Professor of Pharmacy Practice, Albany College of Pharmacy and Health Sciences

Falls and Their Prevention: A Geriatrics and Pharmacological Imperative

Fall Risk Identification and Intervention for the Community-Dwelling Older Adult

October 20, 2016
Objectives

- Define medical conditions & geriatric syndromes that predispose individuals to falls;
- Describe role primary/specialty medical care providers play in assessing the risks associated with falls;
- Identify key role pharmacists can play in addressing impacts of medication use on risk for falls;
- Explain the benefits of an interdisciplinary, team-based, holistic approach to prevent falls.

Global Approach

- Identify those at risk for falls
- Intervene to:
  - Enhance and maintain mobility
  - Prevent falls and fractures
  - Preserve quality of life
- Examine medication use and potential polypharmacy

Falls - Definitions

- Unintentional event leading one to be on the ground
- Many falls not observed, often an inadequate history and an uncertain causality
- Classified as extrinsic (environmental) or intrinsic (physiological)
- Most falls are multi-factorial

Falls Among Older Adults

- One in three adults over age 65 experience falls each year - it rises to one in two for those over age 80
- Less than half of older adults tell healthcare providers about a fall
- Falls may contribute to deterioration in overall quality of life
- In 2010, direct medical costs due to falls was approximately $28 billion

Fracture Prevention: Shifting The Focus For Falls

- Rate of fall injuries for adults ≥ 85 - almost 4x that for adults 65 to 74.3
- Over 90% of hip fractures are caused by falls
- People ≥ 75 who fall are 4-5x more likely than those age 65 to 74 to be admitted to a long-term care facility
- Women are more likely than men to be injured and suffer fractures than men; men more likely to die (46%)
- 82% of fall deaths are among people ≥ 65

Fall-related Injuries
### Aging’s Impact on Falls Risk
- Declines in vision: acuity / depth perception / contrast sensitivity / dark adaptation
- Reduced strength in lower extremities
- Reduced proprioception in legs
- Diminished vestibular function - loss of hair cells, ganglion cells and nerve fibers

### Falls Risk Factors
Many acute illnesses present with a fall
Falling is a geriatrics syndrome
- Falls & stroke history
- Cognition & depression
- ADLs
- Age and co-morbidities
- Vision
- Leg weakness, balance or gait problems, use of assistive device
- Postural hypotension
- Polypharmacy

### Before the Fall: Prevention
- Identify those at risk – screen all for risk factors
  - Ask about falls
  - Observed Get Up And Go test
- If positive Get Up And Go history or other fall risk factors detected, proceed with comprehensive geriatric assessment

### Screen for Balance and Gait
- Timed Get Up And Go (arise from chair, walk, turn 180°, return)
- One leg stand > 10 sec
- Tandem stand > 10 sec
- Performance Oriented Mobility Assessment (POMA)
- Romberg Test

### Tinetti’s Falls Risk Reduction Table
1. Any problem walking
2. Postural hypotension
3. ≥4 meds, any psychoactive med
4. Unsafe footwear or foot problem
5. Visual problem
6. Environmental hazard

### Medications & Falls Risk
- Older adults often take multiple medications
  - Prescriptions from different providers and specialists
  - Sedatives
  - Hypotensives
Polypharmacy
Risk Factors
- Multiple medications
- Multiple chronic conditions
- Multiple providers
- Multiple pharmacies
- Changing PK/PD

Consequence
- Falls
- Adverse drug events
- Hospitalizations
- Mortality
- Measures of function and cognition

How Pharmacists Think
“Any symptom in an elderly patient should be considered a drug side effect until proved otherwise.” Gurwitz et al.

Medication Reconciliation
- Collect all medications
  - Prescriptions
  - Over-the-counter medications
  - Herbal supplements
- For every medication, identify the:
  - Drug
  - Dose
  - Frequency
  - Route of administration

Psychomotor Test Mistakes
The total number of mistakes made in a psychomotor test by old and young adults after 10mg nitrazepam.
- BMJ 1977; t: 10-12.

Prescribing Cascade

Traditional Definition of PIMs
- Drug-Drug Interaction
- Consent List
- High Risk of ER Admission Rates
- No Indication
- Exceeds Total Daily Dosage

Potentially Inappropriate Medications
- NSAID
  - Increased Blood Pressure
  - HCTZ
- Gabapentin
  - Edema
  - Furosemide
- Donepezil
  - Urinary Incontinence
  - Oxybutynin
**Expanded Definition of PIMs**

- Drug-Drug Interaction
- Drug-Disease Interaction
- No Indication
- Exceeds Total Daily Dosage
- Patient valuation of harm exceeding benefit

**PIM and PIR**

- Consensus List
- Beers/STOPP
- High Risk of ER Admission Rates
- Complex Feasibility
- Polypharmacy
- Exceeds Total Daily Dosage

**The Deprescribing Protocol**

1. Ascertain all drugs the patient is currently taking and the reason for each one
2. Consider overall risk of drug-induced harm in individual patients in determining the required intensity of deprescribing intervention
3. Assess each drug for eligibility to be discontinued
4. Prioritize drugs for discontinuation
5. Implement and monitor drug discontinuation regimen

**Make a Drug Discontinuation Plan**

- General Rule: One medication at a time
- Taper medications that have withdrawal effects
- Write out clear, simple instructions
- Provide medication calendar
- Involve social support
- Schedule appropriate follow up

**Evidence-Based Interventions**

- Exercise or physical therapy
- Modification of home hazards
- Medication withdrawal or adjustment
- Nutritional or vitamin supplementation
- Referral for correction of visual deficiency

**Evidence-Based Interventions**

- Cardiac pacemaker for syncope-associated falls
- Multidisciplinary, multifactorial, health, and environmental risk-factor screening and intervention
- Cognitive-behavioral intervention
- System change to prevent falls in high-risk hospital patients
- Education of clinicians
Falls Prevention Guidelines
- Assessment of all older adults & anyone with falls history
- Multifactorial interventions:
  - Minimize medications
  - Initiate individually tailored exercise program
  - Treat vision impairment
  - Manage postural hypotension, heart rate and rhythm abnormalities
  - Supplement vitamin D
  - Manage foot and footwear problems
  - Modify the house environment

Fall Prevention Checklist
- Check glasses: correct prescription and worn correctly
- Check for factors that impair walking and balance: peripheral neuropathy, arthropathy
- Check for postural hypotension, arrhythmias
- Check for excessive use of tranquilizers, sedatives, hypnotics, & antidepressants
- Pay attention to environments:
  - Nonslip floors, good lighting, hand rails, no obstacles, beds/seating - easy in & out

Ongoing Falls Risk Monitoring
- Ask about falls history
- Any symptoms should be considered a drug side effect until proven otherwise
- At minimum once a year complete medication "Brown bag session" should be conducted
- Less is more

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