Medication Use in Older Adults

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Objectives/Goals

• To identify potentially inappropriate medications that should be avoided in many older adults

• To reduce adverse drug events and drug related problems, and to improve medication selection and medication use in older adults

• Describe the Beers list of inappropriate drugs for older adults.
Disclosures

• Member of expert panel with Dr. Beers that previously revised the “Beers List.”

• Service on numerous advisory boards, panels, and guidelines committees involved with the development and review of medications and historically compensated for some of this work. No such work has been directly or indirectly compensated by a manufacturer of medications within the past 5 years.

• Co-author of Medication Management in Older Adults: A Concise Guide for Clinicians. Springer New York, NY, 2010

• Member, Health in Aging Foundation Board
One person’s drugs

Courtesy Kenneth Brummel-Smith, MD
Challenges in Prescribing for Older Adults

- Age-related changes in drug metabolism
- Polypharmacy amplifies drug-drug interactions
- Prevalence of more diseases that complicate metabolism and effects of medications
Challenges in Prescribing for Older Adults (cont’d)

- 31% use more than 1 pharmacy
- 41% take at least 5 medications
- 50% receive meds from more than 1 Dr.
- 1 in 12 physician visits result in a prescription for a Beers drug
  - Almost 7 million older persons on a Beers drug
  - One million on a “severe” Beers drug
  - Women 2x likely to get a Beers drug

- Problems of reporting ADRs (dementia)

Safran D, Health Aff, 2005
Goulding MR, Arch Int Med, 2004
American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

By the American Geriatrics Society 2015 Beers Criteria Update Expert Panel

The 2015 American Geriatrics Society (AGS) Beers Criteria are presented. Like the 2012 AGS Beers Criteria, they include lists of potentially inappropriate medications to be avoided in older adults. New to the criteria are lists of select drugs that should be avoided or have their dose adjusted based on the individual's kidney function and select drug-drug interactions documented to be associated with harms in older adults. The specific aim was to have a 13-member interdisciplinary panel of experts in geriatric care and pharmacotherapy update the 2012 AGS Beers Criteria using a modified Delphi method to systematically review and grade the evidence and reach a consensus on each existing and new criterion. The process followed an evidence-based approach using Institute of Medicine standards. The 2015 AGS Beers Criteria are applicable to all older adults with the exclusion of those in palliative and hospice care. Careful application of the criteria by health professionals, consumers, payors, and health systems should lead to closer monitoring of drug use in older adults. J Am Geriatr Soc 2015.

Key words: Beers List; medications; Beers Criteria; drugs; older adults; polypharmacy
Optimizing Use of the Beers Criteria: A Guide

• As part of 2015 update of the Beers Criteria, AGS created a workgroup to encourage optimal use of the criteria by patients, clinicians, health systems, and payors
  • Included input from key stakeholders

• Workgroup developed:
  • 7 key principles to guide optimal use of the criteria
  • Guidance for how clinicians and others can apply these principles in everyday practice

Ten Medications Older Adults Should Avoid or Use with Caution

To help you make better-informed decisions about your medications, and to lower your chances of overmedication and serious drug reactions, the American Geriatrics Society’s Health in Aging Foundation recommends that older people be cautious about using the following types of medications, including some that can be purchased without a prescription (over-the-counter).

If you are taking any of these medications, talk to your healthcare provider or pharmacist.

Do not stop taking any medication without first talking to your healthcare provider.

HealthinAging.org
Medications

Reasons

AVOID Certain Diabetes Drugs
- Glyburide (Diabeta, Micronase) and chlorpropamide (Diabinese)
  These can cause dangerously low blood sugar.
  They can leave you feeling groggy and confused, increase your risk of falls, and
  cause constipation, dry mouth, and problems urinating. Plus, there is little evidence
  that they work well.

AVOID Muscle Relaxants
- Such as cyclobenzaprine (Flexeril), methocarbamol (Robaxin), carisoprodol
  (Soma), and similar medications.
  They can increase your risk of falls, as well as cause confusion. Because it takes
  your body a long time to get rid of these drugs, these effects can carry into the
  day after you take the medication.

AVOID Certain Medications used for Anxiety and/or Insomnia
- Benzodiazepines, such as diazepam (Valium), alprazolam (Xanax), and
  chlordiazepoxide (Librium)
- Sleeping pills such as zaleplon (Sonata), zolpidem (Ambien), and eszopiclone
  (Lunesta)
  They can cause confusion, constipation, dry mouth, blurry vision, and problems
  urinating (in men).

AVOID Certain Anticholinergic Drugs
- Antidepressants amitriptyline (Elavil) and imipramine (Tofranil)
- Anti-Parkinson drug trihexyphenidyl (Artane)
- Irritable bowel syndrome drug dicyclomine (Bentyl)
7 Key Principles

• 1. Medications in the AGS 2015 Beers Criteria are potentially inappropriate, not definitely inappropriate.

• 2. Read the rationale and recommendations statements for each criterion. The caveats and guidance listed there are important.

• 3. Understand why medications are included in the AGS 2015 Beers Criteria, and adjust your approach to those medications accordingly.

• 4. Optimal application of the AGS 2015 Beers Criteria involves ... offering safer non-pharmacologic and pharmacologic therapies.
7 Key Principles (cont’d)

• 5. The AGS 2015 Beers Criteria should be a starting point for a comprehensive process of identifying and improving medication appropriateness and safety.

• 6. Access to medications included in the AGS 2015 Beers Criteria should not be excessively restricted by prior authorization and/or health plan coverage policies.

• 7. The AGS 2015 Beers Criteria are not equally applicable to all countries.
Changes in 2015

- Potentially Dangerous Drug-Drug interactions were evaluated
- Medications with Greater Risk in Diseases Common in Seniors Assessed.
- PPIs added
- Anticholinergics
- First-Generation Antihistamines
  - meclizine

Table 10. Medications Added Since 2012 Beers Criteria Independent of Diagnoses or Condition (Table 2) Considering Disease and Syndrome Interactions (Table 3)

- Proton-pump inhibitors Falls and fractures—opioids
- Desmopressin Insomnia—armodafinil and modafinil
- Anticholinergics, first-generation antihistamines—meclizine
- Dementia or cognitive impairment —eszopiclone and zaleplon
- Delirium—antipsychotics
Application of Key Principles for Clinicians

• Think of the Beers Criteria as a warning light

• Whenever you think about prescribing or renewing a Beers medication, the “warning light” should make you stop and think:
  • Why is the patient taking the drug; is it truly needed?
  • Are there safer and/or more effective alternatives?
  • Does my patient have particular characteristics that increase or mitigate risk of this medication?
  • But, keep in mind that there are situations in which use of Beers medications is justified and appropriate
Other Key Principles in Older Adults

• Age-related changes in drug metabolism
  • **Renal function** declines as a normal part of the aging process.
  • **Drug distribution** changes due to changes in lean body mass, fat distribution and plasma volume, total body water and extracellular fluid decrease.
  • Many **enzyme reactions and precursor molecule** concentrations change with aging.

• Protein Binding
  • Albumin of 2 vs 4 means far more unbound form is available

• GI changes
  • Age changes GI mucosa and motility
Other Key Principles in Older Adults (cont’d)

• Polypharmacy
  • An older adult on 6 different medications is 14 times more likely to have an ADR compared to a younger individual.

• Absorption Changes
  • Other meds can affect pH
  • Hormones
    • PTH
  • Meds
  • Greater prevalence with aging
    • Lactose intolerance

• Compliance is worse in older adults
  • Worse with more drugs
  • Worse with cognitive impairment
  • Worse with complexity of prescriptions
Other Key Principles in Older Adults (cont’d)

• GI changes
  • Age changes GI mucosa and motility
  • Other meds can affect pH
  • Absorption changes

• Protein Binding
  • Albumin of 2 vs 4 means far more unbound form is available.

• Pharmacogenomics
  • Fast-metabolizer, slow metabolizer
  • Added impact from some other medications
  • Antidepressants
Lag Time to Benefit

• Short term benefits
  • Analgesics for pain
  • Sx relief

• Long term benefits
  • Primary prevention (antihypertensive)
  • Secondary prevention (statin)

• Different than number needed to treat
  • More individualized
How are physician at HCN doing?

• Pharmacy reviewed top 50 medications prescribed in adults ≥ 65 y.o.
• Relatively few of the most prescribed drugs were Beers List medications
• Far better prescribing practice than most large primary care groups
• Still room for improvement
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*Primary Prevention*
Biggest Offenders

• Omeprazole
  • Increased risk for fracture, C. Difficile, more malignant aspirations

• Tamsulosin
  • Orthostatic hypotension, urinary incontinence (especially when combined with furosemide)

• Furosemide
  • Calcium-wasting, increased risk for falls and fractures

• Amlodipine*
  • Increased risk for orthostatic hypotension, urinary retention, constipation and lower extremity edema

• NSAIDs
  • Renal ADRs, hypertension, fluid retention, GI bleeding

• Glimepiride
  • Greater risk for hypoglycemic episodes in seniors

* Not on Beers List
Medicinal Debridement

• De-Prescribing
  • Determining pharmacokinetics in older adults with physiological changes associated with aging and drug-drug interactions with an average of 9 different prescription medications explains why geriatricians spend so much time stopping medications.
  • After 80 years and countless physicians adding medication without altering prior prescribers medications, the senior patient is likely to have multiple medications that are treating side effects from other medications.
Medicinal Debridement (cont’d)

• De-Prescribing
  • Long-standing drugs that weren’t a problem before, may become a problem as the patient changes.
  • Bringing medications into the office often reveals unknown meds, schedules, or omissions.
  • Consider OTC, herbals and diet.
  • Counsel all patients not to start or stop a medication without contacting PCP.
  • Don’t be the first or last to use a drug!
  • Try to change one at a time.
Conspicuously Absent

• Antipsychotics

• Anticholinergics
Summary

• Challenges to prescribing
  • Age-related, polypharmacy, disease-adjustments
• Beers Criteria and key principles
• HCN prescribing reviewed
• Application strategies for medication modification
Conclusions

• The success of the AGS 2015 Beers Criteria depends on their being applied in a thoughtful manner

• These key principles and application strategies are intended to improve outcomes while minimizing unintended harms
Shoe

**DO YOU BELIEVE IN LIFE AFTER DEATH?**

**HECK NO.**

By Jeff MacNelly

**BELIEVING IN LIFE BEFORE DEATH IS HARD ENOUGH.**