AGS 2015 Updated Beers Criteria

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Disclosure Information

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- I have no financial relationships to disclose

- **I will discuss off label use of medications that will be pointed out during the presentation**

Origins

- Beers MH, Ouslander JG, Rollingher I, et al in 1991
  - **"Explicit Criteria for Determining Inappropriate Medication Use in Nursing Home Residents"**
- In 2011 the updates were taken over by the American Geriatric Society
- Last update published in 2015
  - "American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults", J Am Geriatr Soc 63:2227–2246, 2015

Purpose of the Beers Criteria

- To identify potentially inappropriate medications that should be avoided in many older adults
  - These have been found to be associated with poor health outcomes, including confusion, falls, and mortality
- To reduce adverse drug events and drug related problems, and to improve medication selection and medication use in older adults

What's its not for…

- Believing the Criteria judge all uses of the listed drugs to be universally inappropriate
- Be-all and end-all of all potentially inappropriate medications that should be avoided
- Older adults receiving palliative care or are in a hospice setting
- Access to Criteria medications should not be excessively restricted by prior authorization and/or health plan coverage policies

Key Principles

- **Medications are potentially inappropriate, not definitively inappropriate**
  - Unfavorable balance of benefits and harms for many older adults
  - Are there better alternatives?
  - May still be useful in certain situations
- **Understand why medications are included in the Criteria**
- **Optimal application of Criteria involves offering safer non-pharmacologic and pharmacologic therapies**

Key Principles

- **The Criteria should be a starting point for identifying and improving medication appropriateness and safety**
  - Captures a small percentage of medication-related problems
  - Works best when used as a starting point to review and discuss a patient's entire medication regimen
  - Addressing medication appropriateness, adherence, and adverse events

Most Important Principle

- Use clinical common sense
  - The criteria are intended to support, not contradict, common sense and good clinical care

Anticholinergics

Drugs	Rationale	Recommendation	Alternatives
First-generation antihistamines hydroxyzine, meclizine, promethazine, diphenhydramine	Highly anticholinergic, reduced clearance with age, tolerance, confusion, dry mouth, constipation	Avoid	2nd generation antihistimine (fexofenadine, loratadine), intranasal steroids or normal saline
Antiparkinsonian agents benztropine, trihexyphenidyl	Not recommended for EPS prevention with antipsychotics	Avoid	Carbidopa/levdopa
Antispasmodics atropine, belladonna alkaloids, dicyclomine, hycosamine, scopolamine	Highly anticholinergic, effectiveness is uncertain	Avoid	

Cardiovascular

Drugs	Rationale	Recommendation	Alternatives
Peripheral α-1 blockers doxazosin, prazosin, terazosin	High risk of orthostatic hypotension, better drugs available	Avoid	Diuretics, ACEI, ARB, LA dihydropyridine CCB
Central alpha blockers clonidine, methyldopa, reserpine	CNS effects, bradycardia, orthostatic hypotension	Avoid clonidine as first line, avoid the rest	
Digoxin	In Afib:↑ mortality in HF. ↓ renal clearance. In HF: Higher doses not beneficial	Avoid as first line	
Nifedipine (immediate release)	Hypotension potential. Risk of myocardial ischemia	Avoid	Long acting dihydropyridine CCB
Amiodarone	↑ toxicity than other antiarrhythmics	Avoid as first line unless with HF or LVH	

Central Nervous System

Drugs	Rationale	Recommendation	Alternatives
Antidepressants and neuropathic pain (tertiary tricyclics) amitriptyline, imipramine, nortriptyline. SSRI-paroxetine	Highly anticholinergic, risk of orthostatic hypotension, sedating	Avoid	SSRI (except paroxetine), SNRI, bupropion. Neuropathic pain: SNRI, capsaicin cream, lidocaine, patch, pregabalin, gabapentin,
Benzodiazepines short & intermediate acting-alprazolam, lorazepam, temazepam	↑ sensitivity, ↓ metabolism, ↑ risk of cognitive decline, falls, MVA, delirium	Avoid	Anxiety: SSRI, SNRI, bupropion
Benzodiazepines long acting-clonazepam, diazepam	REM sleep disorder, ETOH & benzo withdrawal, generalized anxiety disorder	Avoid	For epilepsy: lamotrigine, levetiracetam (Keppra)

Central Nervous System

Drugs	Rationale	Recommendation	Alternatives
Barbiturates butabarbital, butalbital, mephobarbital	↑ rate of physical dependence, tolerance to sleep benefits, risk of overdose	Avoid	
Nonbenzodiazepine, benzodiazepine receptor agonist hypnotic zolpidem, zaleplon	Similar to benzodiazepines. ↑ hospitalizations & ER visits.	Avoid	
Antipsychotics first (conventional) & second (atypical) generation	↑ rate of cognitive decline & mortality in those with dementia. ↑ CVA risk.	Avoid in dementia & delirium unless other options not effective or patient is a danger to self or others (risperidone, quetiapine).	

Endocrine

Drugs	Rationale	Recommendation	Alternatives
Androgens testosterone	Contraindicated in prostate ca, potential for cardiac problems	Avoid unless for confirmed hypogonadism with symptoms	
Estrogens with or without progestins	Lack of cardio & cognitive protection. Carcinogenic potential (breast/endometrial)	Avoid unless vaginal cream for dyspareunia, UTIs & other vaginal symptoms	For vasomotor symptoms-SSRI, SNRI, bupropion
Growth hormone	Edema, gynecomastia, arthralgia, impaired fasting glucose	Avoid unless needed for replacement after pituitary gland removal	

Endocrine

Drugs	Rationale	Recommendation	Alternatives
Insulin (sliding scale)	↑ risk of hypoglycemia	Avoid unless in use with titration of basal insulin	
Sulfonylureas–Long acting chlorpropamide, glyburide	↑ risk of hypoglycemia. Risk of SIADH with Chlorporpamide	Avoid	Short acting-glipizide. Metformin
Magestrol	Minimal weight effect. ↑ risk of thrombotic events & death	Avoid	

Gastrointestinal

Drugs	Rationale	Recommendation	Alternatives
Metoclopramide Reglan	↑ risk of EPS including tardive dyskinesia	Avoid unless for gastroparesis	
Proton Pump Inhibitors	Risk of C-difficile infection, bone loss & fractures	Avoid use for >8 weeks unless high risk (corticosteroids & NSAIDS), Barrett's esophagitis or need for maintenance	
Mineral oil (oral)	Risk of aspiration	Avoid	

Pain Medications

Drugs	Rationale	Recommendation	Alternatives
Meperidine demerol	Not effective in commonly used doses. ↑ risk of neurotoxicity (delirium) than other opiods	Avoid	Mod-severe pain and chronic pain-tramadol, morphine, oycodone.
Non-cyclooxygenase-selective NSAIDS Ibuprofen, meloxicam, naproxen, asa, etodolac, sulindac	↑ risk of GI bleed/PUD (PPI don't eliminate risk) esp. with increasing age	Avoid chronic use unless alternatives are not effective	
NSAIDS-Indomethacin, ketorolac	Most side effects of NSAIDS. ↑ risk of CNS effects & kidney damage	Avoid	Mild-mod pain-acetaminophen, ibuprofen, naproxen.
Skeletal Muscle relaxants cyclobenzaprine, metaxalone, orphenadrine	↑ risk of anticholinergic effects, sedation, fractures	Avoid	Mild-mod pain-acetaminophen, ibuprofen, naproxen.

Potentially Important Drug-Drug Interaction

Drug	Interacting drug	Risk	recommendation
ACEIs	Amiloride/triamterene	↑ risk of hyperkalemia	Avoid unless hypokalemia with ACEI
Anticholinergic	Anticholinergic	↑ risk of cognitive decline	Avoid
Antidepressants	≥2 CNS-active drugs	↑ risk of falls	Avoid ≥3 CNS active drugs
Antipsychotics	≥2 CNS-active drugs	↑ risk of falls	Avoid ≥3 CNS active drugs
Corticosteroids	NSAIDS	↑ risk of PUD/GI bleed	Avoid or use GI protection
Lithium	ACEIs, loop diuretics	↑ risk of lithium toxicity	Avoid. Monitor Li levels
Warfarin	Amiodarone, NSAIDS	↑ risk of bleeding	Avoid. Monitor INR
Peripheral α-1 blockers	Loop diuretics	↑ risk of UI in older women	Avoid unless needed
Opioid receptor agonists	≥2 CNS-active drugs	↑ risk of falls	Avoid ≥3 CNS active drugs
Benzodiazepines or hypnotics	≥2 CNS-active drugs	↑ risk of falls and fractures	Avoid ≥3 CNS active drugs

Take home message

- Potentially inappropriate medications
- Use common sense (clinical)
- Use the Criteria as a starting point for full review of the patient's medications
- Alternatives exist
  - Pharmacological and non-pharmacological
- Watch for drug-drug interactions

Thank you