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Beers Criteria: American Geriatrics Society AGS Beers Criteria® for Potentially Inappropriate Medication Use in Older Adults (2019)

About the Guideline

- This guideline is provided by the American Geriatric Society (AGS) regarding potentially inappropriate medications (PIMs) (not definitively inappropriate medications) for individuals ages 65 and older; these standards are known as the Beers Criteria.
- This 2019 guideline is an update to the 2015 version.
- This guideline is meant to assist healthcare providers in decision making, while also taking into consideration a patient's preferences, needs, and goals, especially when there are numerous medications prescribed for multiple chronic diseases.
- A literature review in PubMed and the Cochrane Library was done by 13 experts in geriatric care and pharmacotherapy, including doctors, nurses, and pharmacists, from January 1, 2015, to September 30, 2017.

Key Clinical Considerations

Become familiar with the recommendations and best-practice statements provided in this guideline, especially if you care for older adults in acute care and ambulatory care settings.

Key Evidence

The key evidence in this guideline is presented in tables 2-10. The information presented here is a summary of the 2015 and 2019 guideline ***updates*** only. Please review the full guidelines for complete medication listings.

Table 2: Includes medications that are potentially inappropriate in most older adults
Table 3: Lists medications that are potentially inappropriate in older adults with certain conditions
Table 4: Lists medications to be used with caution
Table 5: Drug-drug interactions of potential clinical importance
Table 6: Medications to avoid or dose reduced with varying levels of kidney function
Table 7: Drugs with strong anticholinergic properties
Table 8: Medications/criteria removed Since 2015 AGS Beers Criteria
Table 9: Medications/criteria added since 2015 AGS Beers Criteria
Table 10: Medications/criteria modified since 2015 AGS Beers Criteria

Medications removed from earlier Beers criteria

- No changes were made for insulin recommendations, but the language was changed to make it clearer and less confusing.
- Certain medications were removed from the earlier Beers Criteria list in order to make the list more specific and unique to adults ages 65 years and older. This does not mean that the removed medications are safe for older adults; instead, the updated list keeps the criteria focused on medications that are *particularly* problematic for adults ages 65 years and older.
- The following medications have now been removed from the Beers Criteria list:
    - Ticlopidine, which is no longer available in the United States

- Since epilepsy or seizure is not exclusive to older adults, the following medications were removed:
  - BuPROPion
  - ChlorproMAZINE
  - CloZAPine
  - Maprotiline
  - OLANZapine
  - Thioridazine
  - Thiothixene
  - TraMADol
- H2 receptor antagonists were removed from the "avoid" list for patients with dementia and gastroesophageal reflux disease because the evidence of adverse cognitive effects was weak and did not outweigh the potential therapeutic benefits of their use.
- Avoiding H2 receptor antagonists in patients with delirium is still advised.
- Because insomnia is not exclusive to older adults, the following medications were removed:
  - Oral decongestants, such as phenylephrine and pseudoephedrine
  - Stimulants, such as amphetamine, armodafinil, and methylphenidate, modafinil
  - Theobromines, such as theophylline and caffeine.
- Aripiprazole was removed for patients with Parkinson disease due to concerns of effectiveness and safety.
- The following specialty medications for syndrome of inappropriate antidiuretic hormone (SIADH), or hyponatremia, that previously were labeled *use with caution* did not meet the updated criteria and were removed:
  - CARBOplatin
  - Cyclophosphamide
  - CISplatin
  - VinCRIStine
- Since syncope is not exclusive to older adults, vasodilators previously labeled *use with caution* were removed.

Added as medications to be avoided

- Strong anticholinergic medications, including pyrilamine and methscopolamine, should be avoided.
- Glimepiride, due to the increased risk of severe, prolonged hypoglycemia should be avoided.
- Digoxin should be avoided as first-line therapy for heart failure and atrial fibrillation.
- A duration of use was added for metoclopramide.
- Serotonin-norepinephrine reuptake inhibitors should be avoided in older adults with a history of fractures or falls.
- Avoid nondihydropyridine calcium channel blockers in older adults who have heart failure with a reduced ejection fraction.
- For older adults with symptomatic heart failure, avoid nonsteroidal anti-inflammatory drugs (NSAIDs), cyclooxygenase-2 inhibitors, thiazolidinediones ("glitazones"), and dronedarone.
- Cilostazol should be avoided in older adults with heart failure of any type.

Medications to be used with caution

- NSAIDs, cyclooxygenase-2 inhibitors, thiazolidinediones, and dronedarone should be used with caution in older adults with asymptomatic heart failure, specifically those with excellent control of heart failure with or without medication.
- The age at which aspirin should be used with caution for the primary prevention of cardiovascular disease and colorectal cancer was lowered to 70 years of age or older (down from 80 years old or older).
- Rivaroxaban for the treatment of atrial fibrillation or venous thromboembolism (VTE) should be used with caution in persons 75 years old and older.
- Use tramadol with caution due to its association with SIADH or hyponatremia.
- Caution should be used with the combination of dextromethorphan and quinidine due to an increased risk of falls, potential drug to drug interactions, and its limited efficacy.
- Trimethoprim-sulfamethoxazole (TMP-SMX) should be used cautiously in older adults taking angiotensin-converting inhibitors or angiotensin receptor blockers who also have renal insufficiency, as it may cause hyperkalemia.

Drug to drug interactions

- Avoid opioids and benzodiazepines in combination with one another; and avoid opioids in combination with gabapentinoids.
    - An exception may be made when weaning a person from an opioid to a gabapentinoid.
- Antibiotic interactions involving TMP-SMX, macrolides, and ciprofloxacin are as follows:
    - TMP-SMX in combination with phenytoin may cause phenytoin toxicity.
    - TMP-SMX, macrolides (except azithromycin), and ciprofloxacin in combination with warfarin may increase the risk of bleeding.
    - Ciprofloxacin in combination with theophylline may cause theophylline toxicity.
- There is an increased risk for falls if three or more central nervous system (CNS) medications are taken concurrently. These agents include antidepressants, antipsychotics, benzodiazepines, nonbenzodiazepine benzodiazepine receptor agonist hypnotics, antiepileptics, and opioids.

PIMs based on kidney function

- TMP-SMX and ciprofloxacin should be avoided or administered at a reduced dose based on kidney function. The medications may worsen renal function and hyperkalemia; they also cause an increased risk of tendon rupture and have increased CNS effects.
- Dofetilide may cause torsade de pointes and prolonged Q-T intervals and should either be avoided or administered at a reduced dose.
- Avoid edoxaban if creatinine clearance is less than 15 mL/min.

Reference:

American Geriatrics Society Beers Criteria® Update Expert Panel. (2019). American Geriatrics Society 2019 updated AGS Beers Criteria® for potentially inappropriate medication use in older adults. *Journal of the American Geriatric Society, 67*(4), 674-694. https://sbgg.org.br/informativos/13-02-19/1_Updated_AGS_Beer.pdf