Medication Safety Considerations in Older Adults

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Learning Objectives

At the end of the session, the participants will be able to:
• Discuss how to assess the risk-benefit of prescribing medications in older adults.
• List which classes of medications potentially impact mentation and mobility in older adults.
• Briefly describe medication safety and appropriateness tools (2019 AGS Beers Criteria) and how they impact the deprescribing process.
Disclosures

Dr. Beier has no actual or potentially relevant conflict of interests in relation to this activity.

Age-Friendly Healthcare in a COVID-19 World

Startling Medication Use Trends in Older Adults!!
Reckoning with Medication Use

- 42% take 5 or more prescription medications a day
  - 20% take 10 drugs or more
- Including OTC medications and supplements
  - 67% take 5 meds or more
- In 2004, 40% of NH residents used >=9 meds/daily!
- In 2018, 5 million older adults sought medical attention for ADEs

**Med use a two-edged sword!**

ADEs: adverse drug events

https://lowninstitute.org/medication-overload-how-the-drive-to-prescribe-is-harming-older-americans/

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And The Beat Goes On......

**LESS IS MORE**

Polypharmacy—Time to Get Beyond Numbers

“Numbers are not the enemy. Unnecessary, ineffective, and harmful prescribing is.”


Risk Factors in Older Adults

- Polypharmacy is pervasive!
  - Multiple prescribers
  - Multiple pharmacies
  - Fragmented care
  - More therapeutic options
- Special populations
  - Critically ill, older, complex patients
  - Patients on psychiatric and/or pain medications
  - Advanced dementia in nursing homes (NHs)
  - During transitions of care (TOC)

RISK FACTORS FOR ADEs

- 6 or more concurrent chronic conditions
- 12 or more doses of drugs/day
- 9 or more medications
- Prior adverse drug event
- Low body weight or low BMI
- Age 85 or older
- Estimated CrCl < 50 mL/min

ADEs: adverse drug events
The Prescribing Cascade: More relevant than ever!

DRUG 1

Adverse drug effect interpreted as new medical condition

DRUG 2

Adverse drug effect


Medications Affecting Mentation

• Anticholinergics (Table 7 Beers)
  • Antihistamines
  • Incontinence meds (Ditropan, tolterodine)
  • Antiparkinsonian agents (benztropine)
• Antidepressants (paroxetine)
• Antipsychotics
• Opioids
• Tramadol
• Gabapentin and Pregabalin
• Benzodiazepines
• Epilepsy meds

Medications Affecting Mobility

- Antidepressants
- Antipsychotics
- Insomnia Meds (Z Drugs: zolpidem, etc)
- Opioids
- Tramadol
- Gabapentin and Pregabalin
- Benzodiazepines
- Epilepsy meds
- Antihypertensives

Beer’s Criteria 2019 Update Highlights

- Aspirin for primary prevention of cardiovascular disease
  - bleeding increases with age
- Caution regarding dabigatran and rivaroxaban (anticoagulants)
  - Increased bleeding risk?
  - Apixaban best choice?
- Several warfarin drug-drug interactions profiled
- Dosage reductions in renal insufficiency (new table)

Chronic Kidney Disease (CKD)

- 10% of North Americans have CKD
- 25% of individuals over the age of 65 have CKD
- Diabetes and hypertension are the 2 main causes

https://kidneyfailurerisk.com/

The Triple Whammy: Kidney Damage

1. ACE inhibitor dilates the efferent arteriole, and reduces GFR
2. Diuretics reduce plasma volume and GFR
3. NSAIDs constrict blood flow into the glomerulus via the afferent arteriole and reduce GFR

### Beers Criteria

<table>
<thead>
<tr>
<th>Drug(s)</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrofurantoin</td>
<td>Potential for pulmonary toxicity, hepatotoxicity, and peripheral neuropathy, especially with long-term use; safer alternatives available</td>
<td>Avoid in individuals with CrCl &lt;30 mL/min or for long-term suppression</td>
<td>Low</td>
<td>Strong</td>
</tr>
</tbody>
</table>


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<tr>
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</thead>
<tbody>
<tr>
<td>Digoxin for first-line treatment of atrial fibrillation or heart failure</td>
<td>Decreased renal clearance of digoxin may lead to increased risk of toxic effects; further dose reduction may be necessary in those with stage 4 or 5 CKD</td>
<td>Avoid dosages &gt;0.125 mg/day</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Trimethoprim-sulfamethoxazole</td>
<td>Increased risk of hyperkalemia when used concurrently with an ACEI or ARB in presence of decreased CrCl</td>
<td>Use with caution in patients on ACEI or ARB and decreased CrCl</td>
<td>Low</td>
<td>Strong</td>
</tr>
</tbody>
</table>

*ARB: angiotensin receptor blocker  
ACE: angiotensin converting enzyme inhibitor*  
### Beers Criteria

<table>
<thead>
<tr>
<th>Disease or Syndrome</th>
<th>Drug(s)</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CKD Stage 4 or higher (CrCl &lt; 30mL/min)</td>
<td>NSAIDs (non-COX and COX selective, oral and parenteral, nonacetylated salicylates)</td>
<td>May increase risk of acute kidney injury and further decline of renal function</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>

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### Analgesics for Management of Pain: Chronic Kidney Disease

<table>
<thead>
<tr>
<th>Recommend</th>
<th>Use with Caution</th>
<th>Do NOT Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen</td>
<td>Tramadol</td>
<td>NSAIDs</td>
</tr>
<tr>
<td>Hydromorphone</td>
<td>Oxycodone</td>
<td>Codeine</td>
</tr>
<tr>
<td>Methadone</td>
<td>TCAs</td>
<td>Morphine</td>
</tr>
<tr>
<td>Buprenorphine</td>
<td></td>
<td>Meperidine</td>
</tr>
<tr>
<td>Fentanyl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alfentanil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gabapentin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregabalin</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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**Age-Friendly Healthcare in a COVID-19 World**
Polysubstance Overdose
Current or former opioid abuse

Smith RV. Addiction 2016;111:1160–74.
https://www.deprescribingnetwork.ca/patient-handouts?rq=gabapentin

Benzodiazepines + Opioids

Individuals with prescribed benzodiazepines and opioids experienced:

1.66 times more emergency department visits in the past year

Tramadol Adverse Effects

- Sedation
- Seizures
- Falls
- Hypoglycemia
- Serotonin Syndrome
- Death

A New Paradigm?

OBSERVATIONS

REALITY CHECK

Is your mum on drugs?
When “de-prescribing” may be the best medicine

Ray Moynihan author, journalist, and conjoint lecturer, University of Newcastle, Australia

BMJ 2011;343:d518
When To Consider Deprescribing?

- **Course Complete**
  - No indication
  - Resolution of problem

- **Not Safe!**
  - Prescribing cascade
  - Beers Criteria meds/high risk/PIMs

- **Not Effective**
  - Persistent symptoms
  - Unknown benefit
  - Drugs for prevention?

- **Not Aligned with Goals**
  - Palliative care
  - End of life care
  - Extreme frailty
  - Personal preferences (what matters most)

**PIMs: potentially inappropriate medications**

BMJ 2016;353:i2893 doi: 10.1136/bmj.i2893

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**ORIGINAL INVESTIGATION**

**LESS IS MORE**

Feasibility Study of a Systematic Approach for Discontinuation of Multiple Medications in Older Adults

Addressing Polypharmacy

Doron Garfinkel, MD; Derierie Manger, MBCMB

Arch Intern Med. 2010;170(18):1648-1654

- Over half of drugs discontinued
- 4/5 didn’t have to be restarted
- 80% reported a global improvement in health
- No adverse events from the discontinuations
Barriers to Stopping Medications

- Don’t want to stop meds started by someone else
- Perception of inadequate care
- Provider-patient relationship
- Perception of “giving up”
- Concern about adverse withdrawal events

Sloane and Zimmerman: JAMDA 2018

Potential Deprescribing Benefits

- **MOBILITY:** Less falls
- **MENTATION:** Improvement, less delirium
- **QUALITY OF LIFE:** Improvement
- **HARMS?** Little or none if done with mindfulness, one at a time
Deprescribing rainbow

A rainbow symbolizes that deprescribing should be recognized as a positive intervention aimed at improving outcomes important to the patient, and that the relationship between these factors is fluent and may change over time.


Choosing Wisely

An initiative of the ABIM Foundation

www.choosingwisely.org
ASCP Choosing Wisely Statements

Statements that are:
• Evidence-based
• Written with “don’t use or don’t recommend or don’t prescribe or avoid”
• Emphasis on:
  • prescribing cascade, goals of care, time-to-benefit (TTB), transitions of care
  • Major Focus on DDIs
  • Focus on opioids and combinations with other CNS depressants
  • Focus on anticholinergic burden
  • Risk-benefit of tramadol

Clinical Pearls for Medication Safety

• Medication Adherence
• Reconcile meds (TOC opportunities)
• Consolidate/Streamline meds
• Enhanced Vigilance:
  • Identify Additive Adverse Drug Effects
  • Identify Possible Prescribing Cascade
  • Identify Potential Drug-drug Interactions
• Construct evidence-based case for deprescribing in concert with goals
• What Matters Most
The Long and Winding Road

Stop/Taper
Switch
Adjust
Monitor

Thank You!