Doc, I think I am taking too many medications!

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Objectives
1) Discuss the dangers of polypharmacy
2) Review potentially inappropriate medications for older adults
3) Develop strategies for prioritizing medications and for “deprescribing” medications

Case: Mrs. W.
• Mrs. W is an 80 year-old female with a history of coronary artery disease, diabetes, chronic kidney disease, anemia, osteoarthritis, and gradually worsening Alzheimer’s type dementia
• She is brought to the office by her husband (her primary caregiver)
• He manages her medications and ensures that she follows up with her primary care physician, cardiologist, orthopedic surgeon, and neurologist.
• She has been losing weight, poor appetite, worsening urinary incontinence, constipation, and chronic swelling of her legs
• She has been hospitalized twice in the past 3 months for exacerbations of her congestive heart failure
• She became very confused and agitated with each hospitalization

Mrs. W’s Medications
• Aspirin
• Furosemide
• Carvedilol
• Lisinopril
• Amlodipine
• Metformin
• Glargine insulin
• Glipizide
• Atorvastatin
• Donepezil
• Memantine
• Zolpidem
• Quetiapine
• Omeprazole
• Iron tablet
• Docusate sodium
• Senna
• Polyethylene Glycol
• Multivitamin
• Calcium
• Vitamin D
• Fish oil
• Ibuprofen
• Tylenol
• Diphenhydramine
• Alprazolam

Case: Mrs. W. (continued)
• Mr. W feels overwhelmed as a caregiver
  • Disrupted sleep at night due to his wife’s frequent urination and wandering
  • Increased need to assist her with dressing, bathing, toileting
• Hospitalizations have been very stressful for both of them
• Frequent follow up appointments with physicians are taxing, especially since Mrs. W’s mobility is poor and she falls frequently
• Admits to making some mistakes with her medications (forgetting doses, running out of medications, confusing pill shapes/colors)
• Daughter is now helping him fill a pill box each week
• Goal: avoid future hospitalizations and nursing home

Mrs. W.
• Recognizes her husband and daughter
• Feeds herself, although appetite is poor lately
• Frequently up at night and takes naps during day
• Intermittent confusion about time, place, and events; worse at night
• Denies pain, depressed mood, or other concerns today, except that she states:
  “Doc, I think I am taking too many medications!”

(Her husband nods in agreement)
Challenges of Prescribing for Older Adults

- Multiple medical conditions
- Multiple medications
- Multiple prescribers
- Different metabolisms and responses for older adults
- Adherence and cost
- Supplements, herbs, and OTC drugs

Older Adults and Medications

- Older Adults (age 65+) use more medications than any other age group
  - 34% of all prescription medications
  - 30% of all Over-The-Counter (OTC) medications
  - Age 65+ represent 13% of the U.S. population
- Most Medicare beneficiaries (90%) take prescription medications
- Many older adults take multiple medications at the same time
  - 2 out of 5 take 5 or more prescription medications
- Older adults are frequently not included in clinical trials, which makes it difficult to predict drug metabolism or drug effects

Medications

- Injected, ingested, or absorbed
- Distribute throughout the body
  - Body fat
  - Body water
- Metabolized (broken down), usually by the liver
- Cleared from the body (excreted)
  - Liver
  - Kidneys

Aging and Medications

- Changes in body fat and water
  - Less water, more body fat
  - Changes distribution of drugs in the body
  - Dosing may need adjustment
- Changes in liver and kidney function
  - Medications are metabolized and cleared from the body more slowly
  - Lower doses or less frequent doses may be necessary
- Underlying diseases influence medication effects and side effects

Dietary Supplements & Herbal Remedies

- Often self-prescribed, available from many sources
- You are responsible for choosing the correct medicine, dose, and watching for side effects
- For herbal remedies, manufacturers do not have to prove that the product is safe, effective, or that it contains the ingredients on the label

Ask about Non-Prescription Medications

- Often self-prescribed, available from many sources
- You are responsible for choosing the correct medicine, dose, and watching for side effects
- For herbal remedies, manufacturers do not have to prove that the product is safe, effective, or that it contains the ingredients on the label
Brown Bag Check-Up

- Put all of your medication bottles in a brown bag
- Include both prescription and non-prescription (OTC) medications
- Bring the bag to the doctor’s office or hospital
- Do this EVERY time you go to see the doctor

Adverse Drug Events (ADEs)

- Adverse symptoms
  - Adverse clinical outcomes
    - Doctor visits or hospitalizations
    - Falls
    - Functional decline
    - Changes in cognition (delirium)
    - Death
  - Poor adherence, poor quality of life
  - Increased cost

Keep the Medication List Short: “Less is More”

- Greater number of medications = Higher risk of an Adverse Drug Event
- Question the need for new medications, stop meds if possible
- Prioritize treatments
  - Avoid under treating conditions (pain)
  - Weigh the benefits and risks of a new medication
    - Sedative hypnotic (sleep) medications
    - “Tight” control of parameters (blood pressure, blood sugars)
  - Goals of care

Do you need a new medication?

- Does every condition need a medication?
  - Is it a benign or self-limiting condition?
  - How does this condition bother the person?
  - Some conditions are inconvenient, but not life-threatening
  - Individualize treatment plans
- Consider non-drug alternatives for some conditions
  - Diet
  - Exercise
  - Lifestyle modification
- Use caution with over-the-counter (OTC) medications
  - Not necessarily safer than prescription drugs
  - Uncertain safety and efficacy of herbals and supplements

“Think Drugs” Before Making a New Diagnosis

- Consider adverse drug effect as the cause of new symptoms
- Remember that over-the-counter drugs, supplements, and herbals can cause adverse drug effects
- Consider discontinuing or dose-reducing medications rather than treating an adverse drug effect with another medication

Prescribing Cascade: Prescribing a New Drug to Treat an Adverse Drug Event

- Establish the correct diagnosis
- Consider drug-drug interactions (opposing effects)
- Plan: Try stopping or dose-reducing a medication
Adverse Drug Events: Constipation, Urinary Incontinence, and Weight Loss

• Aspirin
• Furosemide
• Carvedilol
• Lisinopril
• Amlodipine
• Metformin
• Glargine insulin
• Glipizide
• Atorvastatin
• Donepezil
• Memantine
• Zolpidem
• Quetiapine
• Omeprazole
• Iron tablet
• Docusate sodium
• Senna
• Polystyrene Glycol
• Multivitamin
• Calcium
• Vitamin D
• Fish oil
• Ibuprofen
• Tylenol
• Diphenhydramine
• Alprazolam
• Omeprazole
• Iron tablet
• Docusate sodium
• Senna
• Polystyrene Glycol
• Multivitamin
• Calcium
• Vitamin D
• Fish oil
• Ibuprofen
• Tylenol
• Diphenhydramine
• Alprazolam

“Start Low and Go Slow…”

• Start one medication at a time
• Start with a low dose and increase gradually
• Once daily is usually best
• Monitor for response and adverse effects
• Assess adherence with regimen

“...But, Go All The Way!”

• Be conservative, but don’t miss the target!
• What is your goal? Are you achieving it?
• Can you keep increasing the dose or are you limited by side effects?
• Are you observing a clinical benefit at lower doses?
• Consider stopping if you can’t “go all the way” and the benefit is not clear.

Beers Criteria: Potentially Inappropriate Medications for Older Adults

• Originally conceived by Dr. Mark Beers
• Consensus-based, but statistical association with adverse drug events
• Adopted for nursing home regulation.
• Does not account for the complexity of a patient’s entire medication regimen.
• Not a “Do Not Prescribe List” (balance risks with potential benefits)

Beers Criteria: Anticholinergic Medications

• Increased sensitivity for older adults
• Slowed metabolism, especially long-acting agents
• Similar neurocognitive effects to alcohol
• May cause a paradoxical reaction (increased agitation)
• Increased risk of adverse clinical events
• Falls and fractures
• Cognitive impairment
• Delirium
• Avoid if possible
• Appropriate if being used for seizures, alcohol withdrawal, severe anxiety, or peri-procedural anesthesia
• If necessary, use lowest dose possible and shortest duration

Beers Criteria: Benzodiazepines

• Increased sensitivity for older adults
• Slowed metabolism, especially long-acting agents
• Similar neurocognitive effects to alcohol
• May cause a paradoxical reaction (increased agitation)
• Increased risk of adverse clinical events
• Falls and fractures
• Cognitive impairment
• Delirium
• Avoid if possible
• Appropriate if being used for seizures, alcohol withdrawal, severe anxiety, or peri-procedural anesthesia
• If necessary, use lowest dose possible and shortest duration
**Beers Criteria: Sleep Medications**

- Nonbenzodiazepine Hypnotics
  - Eszopiclone (Lunesta)
  - Zolpidem (Ambien)
  - Zaleplon (Sonata)

- Benzodiazepine-receptor agonists

- Adverse events similar to those of benzodiazepines

- Increased risk for delirium, falls fractures

**J Am Geriatr Soc** 2015;63:2227–2246. (Table 2)

**Beers Criteria: Antipsychotic Medications**

- FDA “Black Box” warning: increased risk of death, mostly due to cardiovascular events (e.g., heart failure, sudden death) and infections (e.g., pneumonia)

- Avoid using for behavioral problems associated with dementia

- Try non-pharmacologic interventions

- Reserve for behaviors that threaten harm to self or others

- Typical (First Generation, Conventional)
  - Haloperidol (Haldol)
  - Prochlorperazine (Compazine)

- Atypical (Second Generation)
  - Risperdone (Risperdal)
  - Quetiapine (Seroquel)
  - Ziprasidone (Geodon)
  - Aripiprazole (Abilify)

- Adverse Effects
  - Tardive dyskinesia
  - Increased risk of diabetes (type 2)

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**Reflux (Heartburn) Medications**

- Proton pump inhibitors (omeprazole, esomeprazole, pantoprazole)
  - Some available without a prescription
  - Long-term use only under guidance of physician
  - Concern for long-term risks
  - Bone fractures
  - Pneumonia
  - Low magnesium levels, vitamin B12 deficiency
  - Infectious diarrhea (Clostridium difficile colitis)

- Alternatives
  - Antacids (calcium carbonate)
  - H2 blockers (famotidine, ranitidine)

**Beers Criteria: NSAID Pain Medications**

- Nonsteroidal Anti-inflammatory Drugs (NSAIDs)
  - Ibuprofen, Naproxen, Meloxicam, Sulfasalazine, Etodolac, etc.

- Increased risk of gastrointestinal bleeding (increased risk with longer duration of use)

- May raise blood pressure (especially if underlying high blood pressure)

- Avoid chronic use, unless other alternatives are not effective

**Mrs. W’s Medications: Applying Beers Criteria**

- Aspirin
- Furosemide
- Carvedilol
- Lisinopril
- Amlodipine
- Metformin
- Glargine insulin
- Glipizide
- Atorvastatin
- Donepezil
- Memantine
- Zolpidem
- Quetiapine
- Omeprazole
- Levothyroxine
- Losartan potassium
- Simvastatin
- Insulin glargine
- Insulin glulisine
- Insulin aspart
- Insulin detemir
- Insulin degludec
- Insulin zinc suspension
- Insulin lispro
- Glipizide extended release
- Metformin extended release
- Glipizide
- Fish oil
- Ibuprofen
- Tylenol
- Diphenhydramine
- Alprazolam
- Multivitamin
- Calcium
- Vitamin D
- Fish oil
- Ibuprofen
- Tylenol
- Diphenhydramine
- Alprazolam
- Omeprazole
- Levothyroxine

**Stopping Medications: “Deprescribing”**

“Systematic process of identifying and discontinuing drugs in instances in which existing or potential harms outweigh existing or potential benefits within the context of an individual patient’s care goals, current level of functioning, life expectancy, values, and preferences.”

1) What are the current indications for each drug?
2) Is the patient actually taking the drug?
3) Does the likely benefit of the drug outweigh its potential for harm?
   • High-risk medications (see Beers Criteria)
   • Time to benefit for preventive medications (consider overall prognosis and estimated life expectancy)
4) What are the goals of care?

Time to Benefit for Older Adults

<table>
<thead>
<tr>
<th>Time to Benefit (Years)</th>
<th>Preventive Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–2</td>
<td>Primary prevention, hypertension</td>
</tr>
<tr>
<td>2–5</td>
<td>Primary prevention with statins</td>
</tr>
<tr>
<td>10</td>
<td>Aspirin for cardiovascular disease</td>
</tr>
<tr>
<td>10</td>
<td>Intensive glycemic (blood sugar) control in diabetes</td>
</tr>
<tr>
<td>10</td>
<td>Colorectal cancer screening</td>
</tr>
<tr>
<td>10</td>
<td>Breast cancer screening</td>
</tr>
</tbody>
</table>

Goals of Care

- Prolongation of life (Longevity)
- Maintenance of Function
- Maximization of Comfort

“Deprescribing” Should Be Considered

- New symptom or clinical syndrome suggestive of ADE
- Advanced disease, terminal illness, extreme frailty
- High-risk medications or combinations of medications
- Preventive drugs for scenarios associated with no increased risk despite stopping drug
  - Stopping alendronate after 5 years of treatment
  - Stopping statins for primary prevention
- Patient/family willing to participate in shared decision

Mrs. W’s Medications: Deprescribing

- Aspirin
- Furosemide
- Carvedilol
- Lisinopril
- Amiodipine
- Metformin
- Glargine insulin
- Glipizide
- Amlodipine
- Donepezil
- Memantine
- Zolpidemine
- Quetiapine
- Omeprazole
- Ranitidine
- Simvastatin
- Erythromycin
- Polyethylene Glycol
- Multivitamin
- Calcium
- Vitamin D
- Fish oil
- Supplemen
- Tylenol
- Diphenhydramine
- Alprazolam
Mrs. W's New Medication List

- Aspirin
- Furosemide
- Carvedilol ?
- Lisinopril ?
- Amiodipine
- Metformin
- Glargine insulin
- Glipizide
- Alogestan
- Donepezil
- Memantine
- Zopiclone
- Quetiapine
- Dimeprazone
- Evon Habsid
- Phenazide sodium
- Gamma
- Polyethylene Glycol ?
- Multivitamin
- Calcium
- Vitamin D
- Fish oil
- Diphenhydramine
- Tylenol
- Alprazolam

Conclusion

1) The longer the medication list, the higher the risk of an adverse drug event.
2) Use caution when starting new medications: Do you need a medication or is this new problem an adverse effect from another medication?
3) Medication lists should be reviewed for potentially inappropriate medications (Beers Criteria) and the balance of risks and benefits for those medications should be addressed.
4) Implement strategies to prioritize medications and “deprescribe” those medications with higher risk than benefit, long “time to benefit” for persons with limited life expectancy, or inconsistent with overall goals of care.

Resources

Health in Aging Foundation [http://www.healthinagingfoundation.org](http://www.healthinagingfoundation.org)

Choosing Wisely Campaign (consumer site) [http://www.choosingwisely.org/patient-resources](http://www.choosingwisely.org/patient-resources)
Ten Medication Safety Tips

1) Keep current list of all your medicines (prescription, OTC, vitamins, supplements); keep it updated and bring it to all appointments
2) Take your medicines as directed; don’t stop because you feel better
3) Do not use old or expired medicines
4) Store your medicines in one location (cool and dry place)
5) Use only one pharmacy

6) Ask your pharmacist or doctor before taking OTC medicines
7) Read all of your medicine labels before taking each medicine
8) Do not take someone else’s medication or share your medicines with other people
9) Use a pill box to remember to take your medications
10) Ask questions when you are given a new prescription

Label: Drug Facts

- Active Ingredients: Chemical compound in the medicine that works with your body to bring relief
- Uses: This section tells you the ONLY symptoms the medicine is approved to treat
- Warnings: This section tells you what to avoid and who should not use this
- Directions: Daily dosage and frequency
- Other Information: Tells you additional information such as proper storage
- Inactive Ingredients: A chemical compound that has no effect on your body

Medication Use Safety Training for Seniors™
http://www.mustforseniors.org/