Practical Issues Related to Medication Use in Dementia

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Disclosure Statement

I, Kevin Schleich, PharmD, BCACP do not have any financial interests or relationships with any manufacturers of products or providers of services I might be discussing in my presentation.

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I will not discuss any pharmaceuticals, medical procedures, or devices that are investigational or unapproved for use by the FDA.
Objectives

• Briefly review the background and prevalence of dementia in the United States

• Understand the importance of a thorough medication review, and appropriate steps involved when conducting a medication review

• Discuss methods to help patients with dementia improve medication adherence

• Address goals of therapy for chronic disease states as they relate to patients with dementia
# Background

<table>
<thead>
<tr>
<th>Cause of Dementia</th>
<th>Characteristics</th>
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</thead>
</table>
| Alzheimer’s                        | Most common cause (60-80% of cases)  
• Progressive accumulation of beta-amyloid plaques in brain |
| Vascular                           | Accounts for ~10% of dementia cases  
• Impaired judgement/ability to make decisions |
| Lewy body                          | Manifest as sleep disturbance, **visual hallucinations**, gait imbalance, significant memory impairment may be absent  
• Often co-exists with Alzheimer’s dementia |
| Frontotemporal lobar degeneration  | Aphasia, marked changes in behavior (“loss of filter”)  
• Memory typically intact in early stages |
| Mixed                              | Hallmark abnormalities of more than one cause  
• Most commonly Alzheimer’s combined with vascular dementia |
| Parkinson’s disease                | Bradykinesia, rigidity, tremor, gait abnormalities  
• Often results in accumulation of Lewy bodies |
| Normal pressure hydrocephalus      | Accounts for < 5% of dementia cases  
• May be corrected with shunt to drain excess cerebral fluid |
| Creutzfeldt-Jakob                 | Extremely rare |
Epidemiology

• Difficult to ascertain a good approximation of people living with dementia

• Most statistics focus on Alzheimer’s dementia

• Estimated that 35.6 million people worldwide were living with dementia as of 2010

• That number is expected to at least double every 20 years

*Alzheimer's Dementia, 9(1), 63-75. 2013*
Projected Number of People Age 65 and Older (Total and by Age Group) in the U.S. Population with Alzheimer’s Disease, 2010 to 2050

Created from data from Hebert et al., 2015.
Treating Patients with Dementia
“FIRST, DO NO HARM”

www.merckmanuals.com/professional/geriatrics/drug_therapy_in_the_elderly
“IN ELDERLY PATIENTS, PRESCRIBERS SHOULD ALWAYS CONSIDER THE POSSIBILITY THAT A NEW SYMPTOM IS DUE TO DRUG THERAPY”
5-Step Medication Review

1 - Indication?

2 - Safe?

3 - Effective?

4 - Tolerated?

5 - Untreated?
Meet Our Patient

• MF is an 80-year-old female who reluctantly moved back to Iowa City to be closer to her family after her husband passed away within the past year. She was formally diagnosed with cognitive impairment in 2013, but her family believes her cognition has acutely worsened over the past 3 months. Additionally, she fell once in the past month. Her past medical history is significant for:

  • Cognitive impairment
  • Hypertension
  • Hypothyroidism
  • Insomnia
  • Depression/Anxiety
  • Parkinsonism

  • Osteoarthritis
  • Chronic back pain
  • Diarrhea/GI pain
  • Hysterectomy (1982)
  • Cataract removal (2013)
# Patient Info

<table>
<thead>
<tr>
<th>Medication</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetaminophen 500 mg as needed</td>
<td>OA Pain</td>
</tr>
<tr>
<td>Hydrocodone/APAP 10/325 mg as needed</td>
<td>OA Pain</td>
</tr>
<tr>
<td>Meloxicam 7.5 mg daily</td>
<td>OA Pain</td>
</tr>
<tr>
<td>Alprazolam 0.5 mg three times daily as needed</td>
<td>Anxiety/Insomnia</td>
</tr>
<tr>
<td>Amantadine 100 mg twice daily</td>
<td>Parkinson’s</td>
</tr>
<tr>
<td>Amlodipine 10 mg daily</td>
<td>Hypertension</td>
</tr>
<tr>
<td>Levothyroxine 75 mcg daily</td>
<td>Hypothyroidism</td>
</tr>
<tr>
<td>Potassium Chloride 20 mEq daily</td>
<td>Hypokalemia</td>
</tr>
<tr>
<td>Donepezil 10 mg daily</td>
<td>Cognitive Impairment</td>
</tr>
</tbody>
</table>

BP: 148/84 mmHg
P: 80 bpm
Calcium: 10.2 mg/dL
Hemoglobin A1c: 5.6%
TSH: 2.53 mIU/L
Medication Review

1) Does each medication have a legitimate indication?

- Acetaminophen → OA Pain
- Hydrocodone/APAP → OA Pain
- Meloxicam → OA Pain
- Alprazolam → Depression/Insomnia
- Amantadine → Parkinson’s
- Amlodipine → Hypertension
- Levothyroxine → Hypothyroidism
- Donepezil → Cognitive Impairment
- Potassium → Hypokalemia

<table>
<thead>
<tr>
<th>141</th>
<th>103</th>
<th>24</th>
<th>103</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.9</td>
<td>26</td>
<td>0.9</td>
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</tbody>
</table>
Safety of Medications?
AGS Beers Criteria

- The Beers Criteria is a consensus-based list of **POTENTIALLY** inappropriate medications for older adults

- Most recently published in 2015, adhering to the IOM’s challenge of developing evidence-based guidelines

- 20-page document with **nine** reader-friendly tables:

  Table 2. 2015 American Geriatrics Society Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

<table>
<thead>
<tr>
<th>Organ System, Therapeutic Category, Drugs</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticholinergics</td>
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<tr>
<td>First-generation antihistamines</td>
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<tr>
<td>Dimenhydrinate</td>
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<tr>
<td>Diphenhydramine (oral)</td>
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<tr>
<td>Trihexyphenidyl</td>
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<tr>
<td>Antiparkinsonian agents</td>
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<tr>
<td>Benztropine (oral)</td>
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<td>Triflusal</td>
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*J Am Geriatr Soc. 2015 Nov;63(11):2227-46*
# AGS Beers Criteria

## Table 3. 2015 American Geriatrics Society Beers Criteria for Potentially Inappropriate Medication Use in Older Adults Due to Drug–Disease or Drug–Syndrome Interactions That May Exacerbate the Disease or Syndrome

<table>
<thead>
<tr>
<th>Disease or Syndrome</th>
<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>Cardiovascular</td>
<td></td>
<td>Potential to promote fluid retention and exacerbate heart failure</td>
<td>Avoid</td>
<td>NSAIDs: moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Heart failure</td>
<td>NSAIDs and COX-2 inhibitors</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nondihydropyridine CCBs (diltiazem, verapamil)</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Avoid only for heart failure with reduced ejection fraction</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thiazolidinediones (pioglitazone, rosiglitazone)</td>
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<tr>
<td></td>
<td>Cilostazol</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Dronedarone (severe or recently decompensated heart failure)</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

## Table 4. 2015 American Geriatrics Society Beers Criteria for Potentially Inappropriate Medications to Be Used with Caution in Older Adults

<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>Aspirin for primary prevention of cardiac events</td>
<td>Lack of evidence of benefit versus risk in adults aged ≥80</td>
<td>Use with caution in adults aged ≥80</td>
<td>Low</td>
<td>Strong</td>
</tr>
<tr>
<td>Dabigatran</td>
<td>Increased risk of gastrointestinal bleeding compared with warfarin and reported rates with other target-specific oral anticoagulants in adults aged ≥75; lack of evidence of efficacy and safety in individuals with CrCl &lt;30 mL/min</td>
<td>Use with caution in adults aged ≥75 and in patients with CrCl &lt;30 mL/min</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>

## Table 5. 2015 American Geriatrics Society Beers Criteria for Potentially Clinically Important Non-Anti-infective Drug–Drug Interactions That Should Be Avoided in Older Adults

<table>
<thead>
<tr>
<th>Object Drug and Class</th>
<th>Interacting Drug and Class</th>
<th>Risk Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACEIs</td>
<td>Amiloride or triamterene</td>
<td>Increased risk of Hyperkalemia</td>
<td>Avoid routine use, reserve for patients with demonstrated hyperkalemia while taking an ACEI</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Anticholinergic</td>
<td>Anticholinergic</td>
<td>Increased risk of Cognitive decline</td>
<td>Avoid, minimize number of anticholinergic drugs (Table 7)</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Antidepressants (i.e., TCAs and SSRIs)</td>
<td>≥2 other CNS-active drugs*</td>
<td>Increased risk of Falls</td>
<td>Avoid total of ≥3 CNS-active drugs*; minimize number of CNS-active drugs</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
</tbody>
</table>
### AGS Beers Criteria

#### Table 6. 2015 American Geriatrics Society Beers Criteria for Non-Anti-Infective Medications That Should Be Avoided or Have Their Dosage Reduced with Varying Levels of Kidney Function in Older Adults

<table>
<thead>
<tr>
<th>Medication Class and Medication</th>
<th>Creatinine Clearance, mL/min, at Which Action Required</th>
<th>Rationale</th>
<th>Recommendation</th>
<th>Quality of Evidence</th>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular or hemostasis</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amiloride</td>
<td>&lt;30</td>
<td>Increased potassium, and decreased sodium</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Apixaban</td>
<td>~25</td>
<td>Increased risk of bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Dabigatran</td>
<td>&lt;30</td>
<td>Increased risk of bleeding</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td>Edoxaban</td>
<td>30–60</td>
<td>Increased risk of bleeding</td>
<td>Reduce dose</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>&lt;30 or ~50</td>
<td></td>
<td>Avoid</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Table 7. Drugs with Strong Anticholinergic Properties

<table>
<thead>
<tr>
<th>Antihistamines</th>
<th>Antiparkinsonian agents</th>
<th>Skeletal muscle relaxants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brompheniramine</td>
<td>Carbinoxamine</td>
<td>Chlorpheniramine</td>
</tr>
<tr>
<td>Carisoprodol</td>
<td>Benztropine</td>
<td>Cyclobenzapine</td>
</tr>
<tr>
<td>Clemastine</td>
<td>Trihexyphenidyl</td>
<td>Orphenadrine</td>
</tr>
<tr>
<td>Cyproheptadine</td>
<td>Dextroamphetamine</td>
<td></td>
</tr>
<tr>
<td>Doxylamine</td>
<td>Dimenhydrinate</td>
<td></td>
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<tr>
<td>Diphenhydramine</td>
<td></td>
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</tbody>
</table>

#### Table 8. Medications Moved to Another Category or Modified Since 2012 Beers Criteria

<table>
<thead>
<tr>
<th>Independent of Diagnoses or Condition (Table 2)</th>
<th>Considering Disease or Syndrome Interactions (Table 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrofurantoin—recommendation and rationale modified</td>
<td>Heart failure—rationale and quality of evidence modified</td>
</tr>
<tr>
<td>Dronedarone—recommendation and rationale modified</td>
<td>Chronic seizures or epilepsy—quality of evidence modified</td>
</tr>
<tr>
<td>Digoxin—recommendation and rationale modified</td>
<td>Delirium—recommendation and rationale modified</td>
</tr>
</tbody>
</table>

#### Table 9. Medications Removed Since 2012 Beers Criteria

<table>
<thead>
<tr>
<th>Independent of Diagnoses or Condition (Table 2)</th>
<th>Considering Disease and Syndrome Interactions (Table 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>
Utilizing the 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>
<th>Strength of Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dementia or cognitive impairment</td>
<td>Anticholinergics (see Table 7 for full list)</td>
<td>Avoid because of adverse CNS effects</td>
<td>Avoid</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>Benzodiazepines</td>
<td></td>
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<tr>
<td></td>
<td>H&lt;sub&gt;2&lt;/sub&gt;-receptor antagonists</td>
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<tr>
<td></td>
<td>Nonbenzodiazepine, benzodiazepine receptor agonist hypnotics</td>
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<td></td>
<td>Eszopiclone</td>
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<td></td>
<td>Zolpidem</td>
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<td></td>
<td>Zaleplon</td>
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<tr>
<td></td>
<td>Antipsychotics, chronic and as-needed use</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Disease or Syndrome</th>
<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>Non-cyclooxygenase-selective</td>
<td>NSAIDs, oral; Aspirin &lt;325 mg/d Diclofenac</td>
<td>Increased risk of gastrointestinal bleeding or peptic ulcer disease in high-risk groups, including those aged &gt;75 or taking oral or parenteral corticosteroids, antagonists, or antithrombotic agents; use of proton-pump inhibitor or misoprostol reduces but does not eliminate risk. Upper gastrointestinal ulcers, gross bleeding, or perforation caused by NSAIDs occur in approximately 1% of patients treated for 3-6 months and in ~2-4% of patients treated for 1 year; these trends continue with</td>
<td>Avoid chronic use, unless other alternatives are not effective and patient can take gastroprotective agent (proton-pump inhibitor or misoprostol)</td>
<td>Moderate</td>
<td>Strong</td>
</tr>
<tr>
<td></td>
<td>Diffursal</td>
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<tr>
<td></td>
<td>Etodolac</td>
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<td></td>
<td>Fenoprofen</td>
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<td></td>
<td>Ibuprofen</td>
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<td></td>
<td>Ketoprofen</td>
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<td></td>
<td>Meclofenamate</td>
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<td></td>
<td>Mefenamic acid</td>
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</table>

<table>
<thead>
<tr>
<th>Disease or Syndrome</th>
<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></td>
<td>History of falls or fractures</td>
<td>May cause ataxia, impaired psychomotor function, syncope, additional falls; shorter-acting benzodiazepines are not safer than long-acting ones</td>
<td>Avoid unless safer alternatives are not available; avoid anticonvulsants except for seizure and mood disorders</td>
<td>High</td>
<td>Strong</td>
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<tr>
<td></td>
<td>Anticonvulsants</td>
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<td></td>
<td>Antipsychotics</td>
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<tr>
<td></td>
<td>Benzodiazepines</td>
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<td>Eszopiclone</td>
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<td></td>
<td>Zaleplon</td>
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<td></td>
<td>TCAs</td>
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<td>SSRI</td>
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<td></td>
<td>Opioids</td>
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</table>
Medication Review

2) Is each medication safe for a geriatric patient?

- Acetaminophen
- Hydrocodone/APAP
- Meloxicam
- Alprazolam
- Amantadine / Amantadine
- Amlodipine
- Levothyroxine
- Potassium
- Donepezil
Medication Review

3) Is each medication effective for the indication?

- **Acetaminophen**: unsure, still having occasional pain
- **Hydrocodone/APAP**: unsure, still having occasional pain
- **Meloxicam**: unsure, still having occasional pain
- **Alprazolam**: never had issues with sleep prior to her husband passing away; unsure if it has helped, and still depressed
- **Amantadine**: very happy with the effect on her tremor. She had previously been on carbidopa/levodopa without benefit
- **Amlodipine**: yes, blood pressure 148/84 mmHg in clinic, lower at home per her report
- **Levothyroxine**: yes, TSH is 2.53 mIU/L and she is not having any symptoms of hypo- or hyperthyroidism
- **Potassium**: yes, but closer to being hyperkalemic at 4.9 mEq/L
- **Donepezil**: family believes it was helping until the most recent 3 months
Medication Review

4) Is each medication being tolerated by the patient?

- **Acetaminophen:** no adverse effects, does not drink EtOH
- **Hydrocodone/APAP:** had a fall, problems with memory recently
- **Meloxicam:** treated for hypertension
- **Alprazolam:** had a fall, problems with memory recently
- **Amantadine:** diarrhea and GI upset
- **Amlodipine:** no lower extremity edema, denies dizziness/lightheadedness
- **Levothyroxine:** no signs/symptoms of hypo/hyperthyroidism
- **Potassium:** GI upset
- **Donepezil:** GI upset
Medication Review

5) Are any indications being undertreated?

• Depression: very tearful in clinic
  • previously on venlafaxine and mirtazapine with questionable efficacy

• Osteoarthritis pain: still complaining of relatively constant pain
Medication Review

**No Indication**
- Potassium?

**Potentially Unsafe**
- Hydrocodone/APAP
- Meloxicam
- Alprazolam

**Not Effective**
- Acetaminophen
- Hydrocodone/APAP
- Meloxicam
- Alprazolam

**Not Tolerated**
- Hydrocodone/APAP
- Meloxicam
- Amantadine
- Potassium
- Alprazolam
- Donepezil?
Our Plan

• **Discontinue:**
  - Hydrocodone/APAP → safety, tolerability, and unsure efficacy
  - Meloxicam → safety, tolerability, and unsure efficacy
  - Potassium → no indication and tolerability
  - Alprazolam → safety, tolerability, and unsure efficacy

• **Change:**
  - Acetaminophen to 1000 mg three times daily

• **Start:**
  - Sertraline 25 mg daily for depression/anxiety
    - Would not go back to venlafaxine due to questionable efficacy, and potential to increase blood pressure
  - Start lidocaine patches every 12 hours
Follow-Up

- Decreased number of medications from 9 to 7
- Follow-up potassium in 2 weeks was 3.9 mEq/L
- Ended up increasing the sertraline to 50 mg daily in 6 weeks
- Family felt her mind was “less cloudy” and they reported no more falls
Medication Adherence
The Problem

• As patients age, most have some impairment in:
  • Dexterity
  • Mobility
  • Hearing
  • Vision

  Each of these alone can be a barrier to medication adherence. When added to progressing dementia, adherence becomes increasingly more problematic.

• As dementia worsens, the ability to plan accordingly, organize complex plans, and execute meticulous tasks diminishes

• Non-adherence to medications has been shown to:
  • Worsen therapeutic outcomes
  • Increase medical interventions
  • Increase incidence of adverse effects
  • Increase hospitalizations

*Current Clinical Pharmacology, 2015, 10, 213-221*
Improving Adherence

SIMPLIFY MEDICATION REGIMEN

RECOMMEND ASSISTIVE MEASURES
Simplifying Medication Regimens

• Complete a comprehensive medication review

• Utilize combination medications if appropriate

• Switch to extended-release formulations if appropriate

• Exploit personal habits to help improve adherence
Simplifying Medication Regimens

• LZ is a 76-year-old female with a PMH significant for hypertension, type 2 diabetes mellitus, and mild cognitive impairment. Her current medication regimen is listed below:

<table>
<thead>
<tr>
<th>Medication</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochlorothiazide 25 mg daily</td>
<td>HTN</td>
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<tr>
<td>Lisinopril 10 mg daily</td>
<td>HTN</td>
</tr>
<tr>
<td>Metformin 500 mg three times daily with meals</td>
<td>Type 2 DM</td>
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<tr>
<td>Glipizide 5 mg twice daily</td>
<td>Type 2 DM</td>
</tr>
<tr>
<td>Donepezil 10 mg at bedtime</td>
<td>Cognitive impairment</td>
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Simplifying Medication Regimens

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<td>Lisinopril/Hydrochlorothiazide 10/25mg daily</td>
<td>HTN</td>
</tr>
<tr>
<td>Metformin ER 2000 mg daily</td>
<td>Type 2 DM</td>
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<tr>
<td>Glipizide XL 5 mg daily</td>
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<th>Noon</th>
<th>Night</th>
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Medication Adherence

**Advantages**

- Cheap ($3-$10)
- Easy to use
- Large variation allows for differing complexities of medication regimen
  - Single dose, single day
  - 4 x dosing, single day
  - 4 x dosing, weekly
- Easy to change regimen

**Disadvantages**

- Requires adequate cognition to set up pill box
- Requires assistance from family, friend, nursing services to set up in absence of adequate cognition
- No system to actually remind patient to take doses
- No feedback with missed doses

www.google.com/images_medication_reminder
Medication Adherence

**Advantages**
- Relatively cheap; pharmacies will generally charge a weekly or monthly fee for service
- Removes burden of preparing medications from patient and/or family
- Added assurance of accuracy

**Disadvantages**
- Not all pharmacies offer the service
- An added monthly cost
- No system to actually remind the patient to take doses
- Difficult to make dosing changes
Automated Devices
Medication Adherence

**Advantages**

- Offer both monitored and stand-alone options; ability to lock
- Alert for patient to take meds
- Monitored options allow for text, phone, or e-mail notifications of missed doses to designated person
- Can coordinate with pharmacies

**Disadvantages**

- EXPENSIVE
  - $400-$2000 for the machine
  - Often monthly fees for monitoring
- Can be very difficult to set up and fill on weekly or monthly basis

www.google.com/images_medication_reminder
Medication Adherence

1. Evaluate the patient’s cognition to help determine their ability to manage their medications
   a) Montreal Cognitive Assessment (MOCA)

2. Assess family/community support available for patients unable to manage their own medications
   a) Competent/willing family
   b) In-home nursing services
   c) Pharmacy services

3. Determine the best plan to maximize mediation adherence
Dementia
Principles of Chronic Disease States in Elderly

1. Establish goals of care with patient and family members

2. Achieve acceptable goals without causing undue treatment burden

3. Continuously assess therapy for safety, efficacy, and tolerability

4. Be willing to de-escalate therapy

“Hope is not a plan.”

– Dr. Atul Gawande
AVOID MEDICATIONS THAT CAN WORSEN DEMENTIA
Neurological

Depression/Anxiety

• Most common mental disorder in geriatric patients
  • Estimated that ~40% of patients with Alzheimer’s dementia have depression

• Geriatric depression scale helps screen patients in clinic

• Treatment revolves around SSRIs
  • Sertraline: favorite (start with low dose, and titrate slowly)
  • Paroxetine: too short half-life
  • Fluoxetine: too long half-life
  • Citalopram: associated with prolonged QT-interval

• Mirtazapine: helpful for depression, insomnia, appetite stimulation

www.alz.org
www.google.com/images_kill_2_birds_with_1_stone
Neurological

Insomnia

• Many patients with dementia have trouble with insomnia

• No prescription medications work very well, and all have potential for serious adverse effects

Sleep Hygiene

• Increase physical activity throughout the day
• Avoid long naps
• Only use bedroom for sleep
• Limit caffeine/alcohol intake

Potential Medication Trials

• Melatonin 3 mg
• Trazodone 50-200 mg
• Mirtazapine 7.5 mg
• Nortriptyline 10 mg

Medications to AVOID

• Diphenhydramine (all OTC “PM” medications)
• Zolpidem
• Benzodiazepines
Endocrine

Type 2 Diabetes Mellitus

- Most important part of tight glycemic control in adults is to avoid long-term complications

- Patients of advanced age with numerous comorbid conditions will have different goals of care

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Diabetes Care. 2016 Jan;39
Endocrine

Type 2 Diabetes Mellitus

• With increased hemoglobin A1c goals, comes increased blood glucose goals
  • ~100-150 mg/dL fasting
  • < 200-250 mg/dL pre-prandial

• Utilize medications with convenient dosing and low risk of hypoglycemic events
  • **Metformin** XL daily: be cognizant of renal function
    - **Estimated GFR (mL/min)**
      - > 45: No renal contraindication to metformin
      - 30 – 45: Max dose of 1000 mg daily
      - < 30: Discontinue metformin

• Sulfonylureas: **AVOID** glyburide
  • Glipizide (available XL) or glimepiride once daily preferred

www.google.com/images_endocrine
Endocrine

Type 2 Diabetes Mellitus

• May consider newer agents
  • DPP-4 inhibitors: once daily, oral
    • Sitagliptin (Januvia®), linagliptin (Tradjenta®), alogliptin (Nesina®), saxagliptin (Onglyza®)
  • GLP-1 agonists: available as once weekly injections
    • Extended-release exenatide (Bydureon®)
    • Albiglutide (Tanzeum®)
    • Dulaglutide (Trulicity®)

• If insulin is necessary, basal insulin much safer than bolus insulin
Cardiovascular

Hypertension

- **Goal BP:** <150/90 mmHg

- Always assess for overtreatment
  - Dizziness
  - Lightheadedness
  - Falls

- Choose agents carefully to not exacerbate common conditions in elderly
  - Amlodipine: lower extremity edema
  - Diuretics: dehydration
  - Beta-blockers: orthostatic hypotension
Cardiovascular

Atrial Fibrillation

- Still utilize the CHADS$_2$ or CHA$_2$DS$_2$-VASc score to stratify embolic risk for elderly patients with atrial fibrillation

- Equally important to use validated bleed-risk scores to predict the risk of complications associated with anticoagulants
  - HAS-BLED
  - mOBRI

*JAMA.* 2001; 285: 2370-5
*J Geriatr Cardiol.* 2012 Jun; 9(2): 91–100
Cardiovascular

Atrial Fibrillation

<table>
<thead>
<tr>
<th>Pros</th>
<th>Agent</th>
<th>Cons</th>
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| • Affordable  
• Readily reversible  
• Not affected by renal/hepatic changes  
• Once daily dosing | Warfarin (Coumadin®) | • Requires routine monitoring  
• Requires dietary **consistency** |
| • No routine monitoring  
• **Reversal agent** available (idarucizumab) | Dabigatran (Pradaxa®) | • Expensive  
• 80% renally cleared  
• Twice daily dosing |
| • No routine monitoring  
• **Once daily dosing** | Rivaroxaban (Xarelto®) | • Expensive  
• 66% renally cleared  
• No reversal agent **YET** |
| • No routine monitoring  
• **Least renally cleared** | Apixaban (Eliquis®) | • Expensive  
• No reversal agent **YET**  
• **Twice daily dosing** |
| • No routine monitoring  
• **Once daily dosing** | Edoxaban (Savaysa®) | • Expensive  
• No reversal agent **YET** |

• Actually **more important** to be adherent with novel agents  
• Cannot monitor, therefore unsure if therapeutic/adherent  
• Intermittent adherence/discontinuation increases risk of embolism
Cardiovascular ASCVD Risk (Hyperlipidemia)

• Treating with statins for primary prevention is looking to reduce 10-year ASCVD risk

• Utilizing a medication to potentially prevent an event over 10 years may not be practical in a patient with dementia

• Statins have loosely/potentially inaccurately been associated with dementia
  • Most recent literature leans toward statins neither causing, nor playing a significant role in preventing dementia

*J Am Geriatr Soc. 2016 Jan;64(1):223-4*
Goals of Treatment

1. Establish goals of care with patient and family members

2. Achieve acceptable goals without causing undue treatment burden
   a) Preventing stroke by treating atrial fibrillation
   b) Minimizing 10-year cardiovascular risk with statins

3. Continuously assess therapy for safety, efficacy, and tolerability
   a) CHADS$_2$ score = 1 vs. HAS-BLED score = 5

4. Be willing to de-escalate therapy
Summary

• Dementia is currently affecting more than 35 million people worldwide, with expectations that number will double every 20 years

• It is essential to complete a thorough medication review for patients with dementia

• Adherence to complex medication regimens is unlikely in patients with dementia, therefore simplification is necessary

• Be familiar with your patients’ goals of therapy, and tailor their treatment to best accomplish those goals
Kevin T. Schleich, Pharm.D., BCACP
Clinical Pharmacy Specialist, Department of Family Medicine
University of Iowa Hospitals and Clinics