



Challenges and Tips for Managing Medications in Older Adults

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October 13, 2023

Objectives

By the end of this session, you should be able to:

Identify challenges to medication management in older adults

Discuss tips for managing medications in older adults.

Challenges are what
make life interesting
and overcoming them
is what makes life
meaningful.

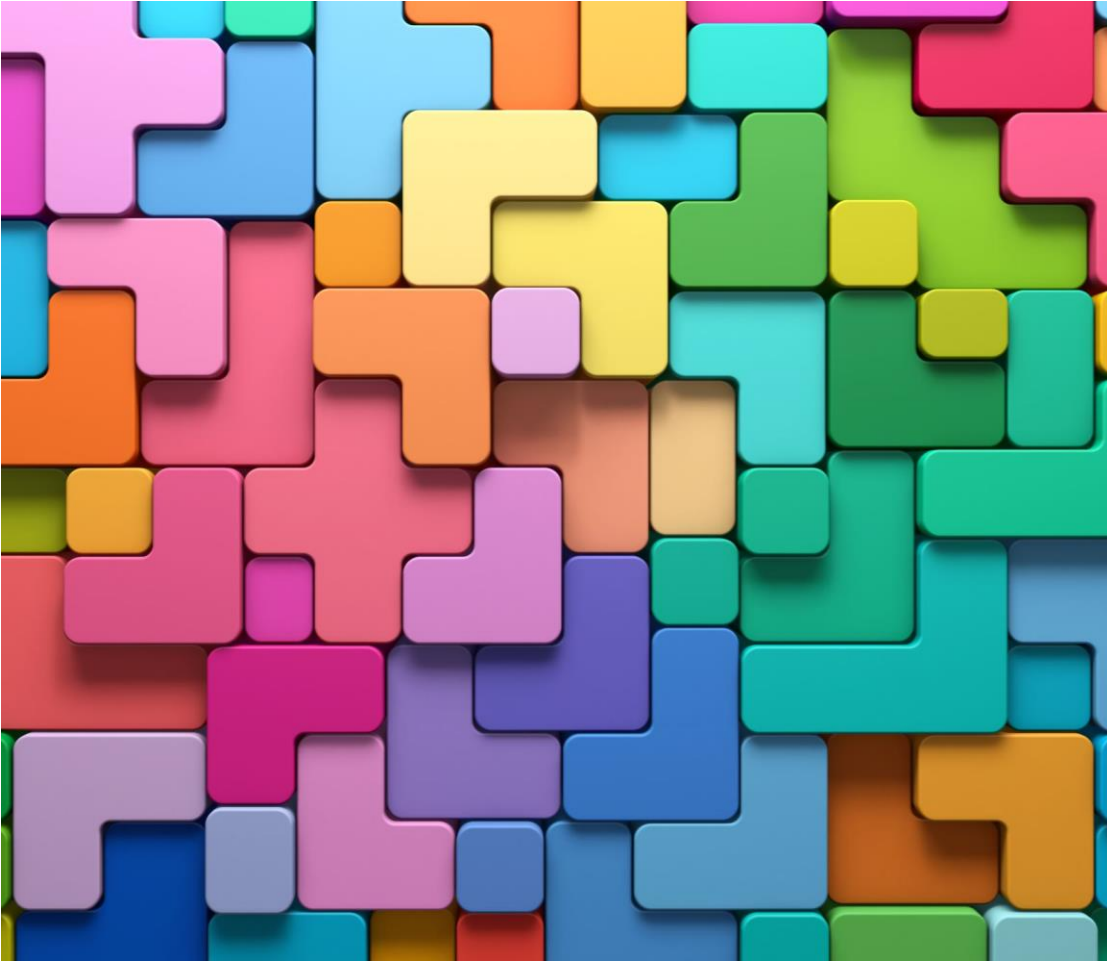
Joshua J. Marine

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Challenges

- Older adults are a variable population. They having varying sensitivity to medications.
- Adherence is rarely perfect
- Transitions are rarely perfect
- People become attached to their medications
- There are limited medications to treat conditions

Providing Patient Centered Care



Solving the Puzzle

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Mrs. Abbott is an 86-year-old female who has a history of diabetes, hyperlipidemia, mild stage dementia, and anxiety. Normally she has some cognition deficits, but over the last couple of days she has become more confused and agitated. She lives with her daughter who brought her in to the hospital due to her worsening cognition. Her delirium screen is positive. Her medications are listed below. Which of her medications may contribute to her new symptoms?

Metformin 1000 mg bid	Duloxetine 30 mg daily
Dulaglutide 3 mg sq qhs	Donepezil 10 mg daily
Atorvastatin 40 mg qhs	Senna S 1 tablet daily
Hydroxyzine 25 mg tid	Oxybutynin XL 10 mg daily

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Dulaglutide 3 mg qhs	Donepezil 10 mg daily
Atorvastatin 40 mg qhs	Senna S 1 tablet daily
Hydroxyzine 25 mg tid	Oxybutynin XL 10 mg daily

Both hydroxyzine and oxybutynin are high in anticholinergic effects. These effects are additive and can contribute to delirium, falls, urinary retention, and constipation.

Common Medications Reported to have High Anticholinergic Effects

Antidepressants

amitriptyline (Elavil)
doxepin (Sinequan) >6mg/day
imipramine (Tofranil)
desipramine (Norpramin)
nortriptyline (Pamelor)
paroxetine (Paxil)

Muscle Relaxants

methocarbamol (Robaxin)
cyclobenzaprine (Flexeril)
orphenadrine (Norflex)
carisoprodol (Soma)
chlorzoxazone (Parafon)
Metaxalone (Skelexin)

Antihistamines

diphenhydramine (Benadryl)
hydroxyzine (Vistaril)
chlorpheniramine
(ChorTrimeton)

Anti-emetics

promethazine (Phenergan)
prochlorperazine (Compazine)
thiethylperazine (Torecan)
trimethobenzamide (Tigan)

Antipsychotic Agents

chlorpromazine (Thorazine)
thioridazine (Mellaril)
loxapine (Loxitane)
clozapine (Clozaril)
olanzapine (Zyprexa)
perphenazine (Trilafon)
trifluoperazine (Stelazine)

atropine/belladonna (B&O supps)
hyoscamine (Levsin)
flavoxalate (Urispas)
dicyclomine (Bentyl)
benzotropine (Cogentin)
oxybutynin (Ditropan)

J Am Geriatr Soc. 2023 ;71(7):2052-2081
J Am Geriatr Soc. 2019 ; 67(4):674-694
J Am Geriatr Soc 2008; 56: 1333-1341

Crit Care Med. 2013 ;41:263-306

J Am Geriatr Soc. 2012 ; 60: 616-631

Common Medications that May Precipitate Delirium in Those at Risk

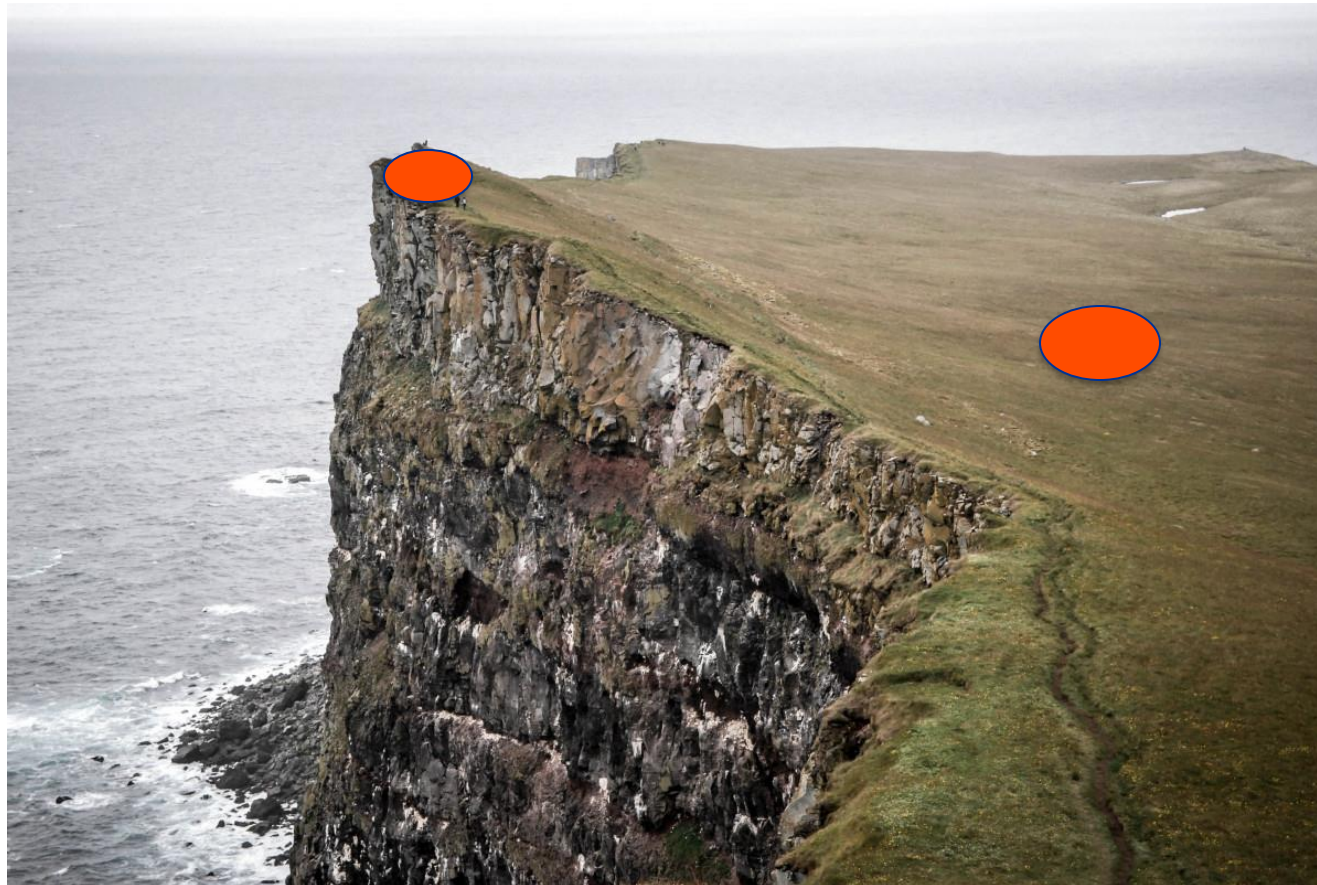
Anticholinergics
Sedatives/Hypnotics
New Benzodiazepines
New High doses of Opioids
Corticosteroids
High dose H2 antagonists
Suspect any new med with CNS effects

What is your next step in investigating if the changes noted for Mrs Abbott are likely medication related?

She has been taking all medications for over 6 months except for oxybutynin XL which was added last week.

Medication Tip

- Avoid high anticholinergic medications when able



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Mr. Trent is an 83-year-old male who has a history of hypertension, ischemic CVA, chronic back pain, seasonal allergies, and had some agitation while recently in the hospital for pneumonia. He lives alone and has family checks on him twice daily. His family reports that he is not as alert as he was before he went to the hospital. He answers questions appropriately but does not elaborate on any answer. His family brings him groceries as they always did, but he has not been using them. He is often napping when they arrive even though they come at different times of the day. He infrequently changes his clothes. These symptoms can be related to many things, but also a medication side effect could be contributing. His medications are listed below. What medications that may be contributing to his drowsiness and decreased willingness to perform his daily activities?

Hydrochlorothiazide 25 mg daily	Acetaminophen 650 mg tid
Lisinopril 40 mg daily	Gabapentin 200 mg bid
Clopidigrel 75 mg daily	Cetirizine 10 mg daily
Atorvastatin 40 mg qhs	Quetiapine 25 mg every morning and 50 mg every evening

Common Medications that May Precipitate Drowsiness and/or CNS Changes

Anticholinergics
Sedatives/Hypnotics
Benzodiazepines
New High doses of Opioids
Some Antihistamines
Clonidine
Pregabalin and Gabapentin

Hydrochlorothiazide 25 mg daily	Acetaminophen 650 mg tid
Lisinopril 40 mg daily	Gabapentin 200 mg bid
Clopidigrel 75 mg daily	Cetirizine 10 mg daily
Atorvastatin 40 mg qhs	Quetiapine 25 mg every morning and 50 mg every evening

-Gabapentin is a GABA analog (pregabalin is also in this class). This medication can cause drowsiness when first starting, especially if the dose is high, It also can cause drowsiness if the patient has new renal dysfunction, and paradoxically if it is suddenly stopped or dose is decreased quickly .

-Cetirizine is an antihistamine that causes mild sedation in therapeutic doses. If patient's renal function has decreased, then it may cause more sedation

-Quetiapine is an atypical antipsychotic that can cause drowsiness. It is the most likely culprit for causing drowsiness in this patient , especially if patient recently started this while agitated in the hospital,

What is your next step in investigating if the changes noted for Mr. Trent are likely medication related?

- **Medication Adherence**

- Family makes sure he takes his morning and evening medications

Medications prior to admission:

Hydrochlorothiazide 25 mg daily	Acetaminophen 650 mg tid
Lisinopril 40 mg daily	Gabapentin 800 mg tid
Clopidigrel 75 mg daily	Loratadine 10 mg daily
Atorvastatin 40 mg qhs	

Select Labs

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Common Medications Associated with Withdrawal

Alcohol

Benzodiazepines

Gabapentin/Pregabalin

Baclofen

Barbituates

Muscle Relaxants

Opioids

SSRIs/SNRIs/Tricyclic Antidepressants

Antipsychotics

Dopamine Agonists

Nicotine

Marijuana

Suspect any med that gets into CNS

Medication Tips

- Wean gabapentin down slowly (by about a 25% decrease in dose every 2 weeks) , when stopping medication
- Verify dose of renally eliminated medications are still appropriate each time labs are drawn
- Re-evaluate if medication to control symptoms while patient was in the hospital are still needed at home

Mr. Kinkaid is an 84-year-old who has started to fall frequently. He has fallen 4 times in the last week. He has a history of BPH, coronary heart disease, hypertension, and anxiety.

Is he on any medications that may contribute to his falls?

Finasteride 5 mg daily	Doxazocin 8 mg qhs
Metoprolol XL 100 mg daily	Lorazepam 0.5 mg q6 hrs prn
Isosorbide 10 mg three times daily	

FRIDS= Falls Risk Increasing Medications

Antidepressants

Benzodiazepines

Sedatives

Antipsychotics

Anticonvulsants

Pain meds

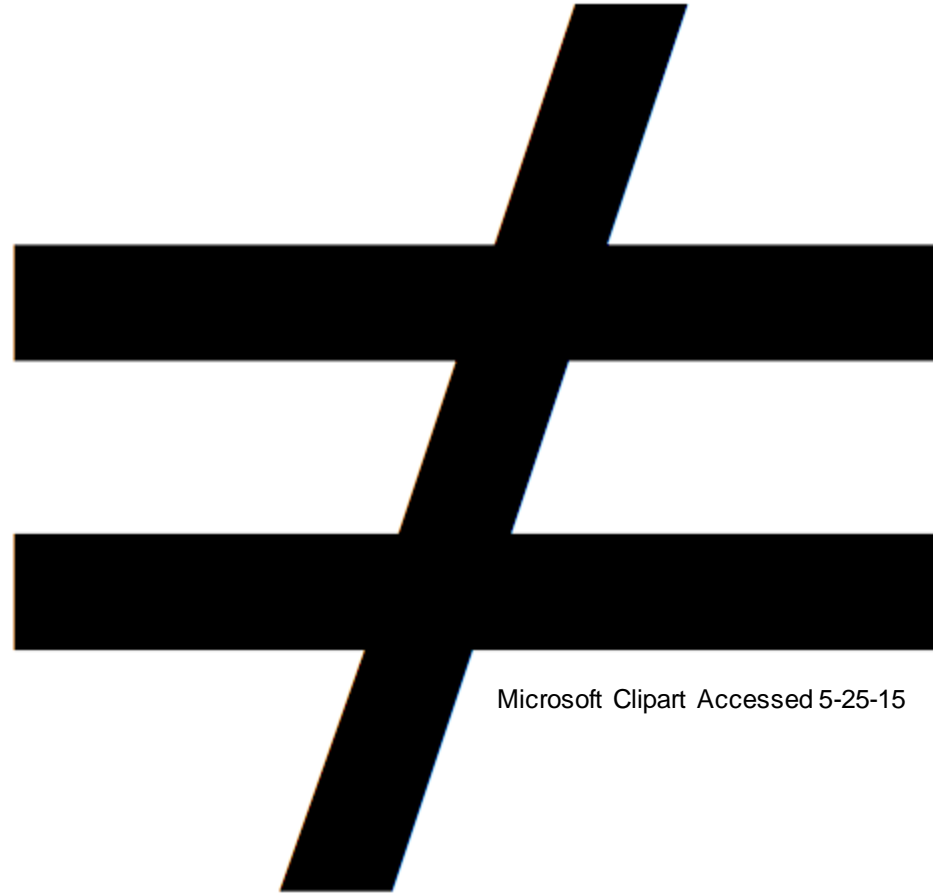
Blood pressure meds

Parkinson's disease meds

Anticholinergics

Check 25-OH Vitamin D level in patients that are falling

Antihypertensives Risk of Falls



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Antihypertensives as Falls Risk

- All have some risk
- Highest Risk
 - Short Acting Nitrates (Isosorbide SA , NTG paste)
 - Alpha Blockers
 - Prazosin (Minipress)
 - Terazosin (Hytrin)
 - Doxazosin (Cardura)
 - Clonidine (Catapres)
- Other Considerations
 - Is patient orthostatic?
 - Is patient dizzy?
 - Did fall occur when patient was rushing to bathroom?
 - Reconsider diuretics

Finasteride 5 mg daily	Doxazocin 8 mg qhs
Metoprolol XL 100 mg daily	Lorazepam 0.5 mg q6 hrs prn
Isosorbide 10 mg three times daily	

- Doxazocin is one of the blood pressure medications with higher falls risk. It is also used for BPH. Since this patient is likely using for BPH, tamsulosin may be an alternative, but additional blood pressure control may be needed.
- Metoprolol XL can also lower blood pressure and cause some falls risk. It can also cause bradycardia if dose is too high for patient that will lead to falls.
- Using long-acting isosorbide instead of short acting isosorbide may decrease risk of falls
- Lorazepam is a falls risk that increases with age. It cannot be suddenly stopped so will need to be slowly weaned 25% decrease every 2 weeks to decrease falls.
- Since Mr. Roberts has been falling a 25-OH Vitamin D level should be checked to make sure low or high levels are not contributing to his falls.

Next steps in investigating if the changes noted for Mr. Jones are likely medication related

- Checking for orthostatic hypotension and checking heart rate

Blood Pressure	130/80	100/79
Heart Rate	83	95
	Sitting	Standing

- Checking how long on lorazepam and willingness to wean off
 - On for 30 years
 - He does not think he can stop
- Checking 25-OH Vitamin D level
 - 25-OH Vitamin D level =<13

Anti-anxiety Medications: Benzodiazepines

Avoid because:

1. Increase risk of falls and functional decline
2. Increased risk of severe withdrawal
3. Increased risk for delirium
4. Additive toxicity with opioids

Benzodiazepines

Long Acting

Diazepam (Valium)
Flurazepam (Dalmane)
Chlordiazepoxide (Librium)
Clorazepate (Tranxene)
Clonazepam (Klonopin)

Benzodiazepines

Short Acting

Lorazepam (Ativan)
Oxazepam (Serax)
Alprazolam (Xanax)
Temazepam (Restoril)

Anti-anxiety Medications:

Other Common medications to avoid if able:

- Paroxetine (Paxil)** - increased risk for anticholinergic effects that can increase risk for cognitive impairment, falls, constipation, and urinary retention
- Fluoxetine (Prozac)** - increased risk for insomnia and agitation
- Citalopram (Celexa) and Escitalopram (Lexapro)** -higher risk for QTc prolongation
- Amitriptyline, Doxepin, Imipramine**- higher risk for anticholinergic effects

Common alternative Treatment for Older Patients: (all take 4-6 weeks to work)

- **Duloxetine (Cymbalta) and Venlafaxine XR (Effexor XR)** - also treats pain and depression
- **Sertraline (Zoloft)**- also treats depression
- **Buspirone (Buspar)** -does not treat depression
- **Mirtazapine (Remeron)**- also treats depression, off label to treat anxiety, causes sedation in low doses , but can be activating in high doses

Fast Acting Anti-Anxiety Medication Alternative

- Pregabalin (not FDA approved for anxiety)**

Medication Tips

- Avoid medications that can contribute to orthostasis whenever able.
- Avoid use of benzodiazepines if able
- Use motivational interviewing to help get an agreement to wean benzodiazepines.
- Start alternative anti-anxiety medication and add counseling before starting to wean benzodiazepine
- Wean benzodiazepines slowly by about 25% every 2 weeks after anxiety better controlled
- Check 25-OH Vitamin D levels in patients that are falling and shoot for a level between 30 and 50 ng/ml



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