

Medications and Memory Loss in Older Adults

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CATHOLIC CHARITIES
HAWAII
CIRCLE OF CARE FOR DEMENTIA



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Agenda

- Normal changes of memory in aging
- What is Dementia?
- What is Delirium?
- How is Dementia/Delirium diagnosed?
- What is Polypharmacy?
- How can one help **avoid adverse effects of medications** in the older adult?



What is Brain Health?

- Also called Cognitive Health
- Refers to a person's capacity to remember, learn, plan, concentrate, and maintain a clear, active mind.

<https://brainhealth.nia.nih.gov>

Normal Cognitive Changes in Aging

- The aging brain's physical structure and abilities change
- Your body's ability to break down and use medicine changes
- Learning new things may take longer than before
- Recall may take longer

Forgetfulness – What's not normal?

- Serious memory problems that make it hard to do everyday things like driving and shopping:
- Asking the same questions over and over again
- Getting lost in familiar places
- Not being able to follow instructions
- Becoming confused about time, people and places

Be aware that lack of attention due to anxiety/pressure or many distractions may cause normal people to ask questions several times

Mild Cognitive Impairment (MCI)

- MCI means one has more memory or other thinking problems than other people their age
- MCI “may” be an early sign of Alzheimer’s disease, but not everyone with MCI will develop Alzheimer’s Disease
- Should be followed by primary care, geriatrics, or neurology every 6-12 months to track changes in memory and other skills

What is Dementia?

- Dementia is Not a normal part of aging
- Dementia is the Loss of cognitive functioning, thinking, remembering, reasoning & behavioral abilities to such an extent that it interferes with a person's daily life and activities
- Generally irreversible and progressive disorder
- It does not name the etiology of the Dementia

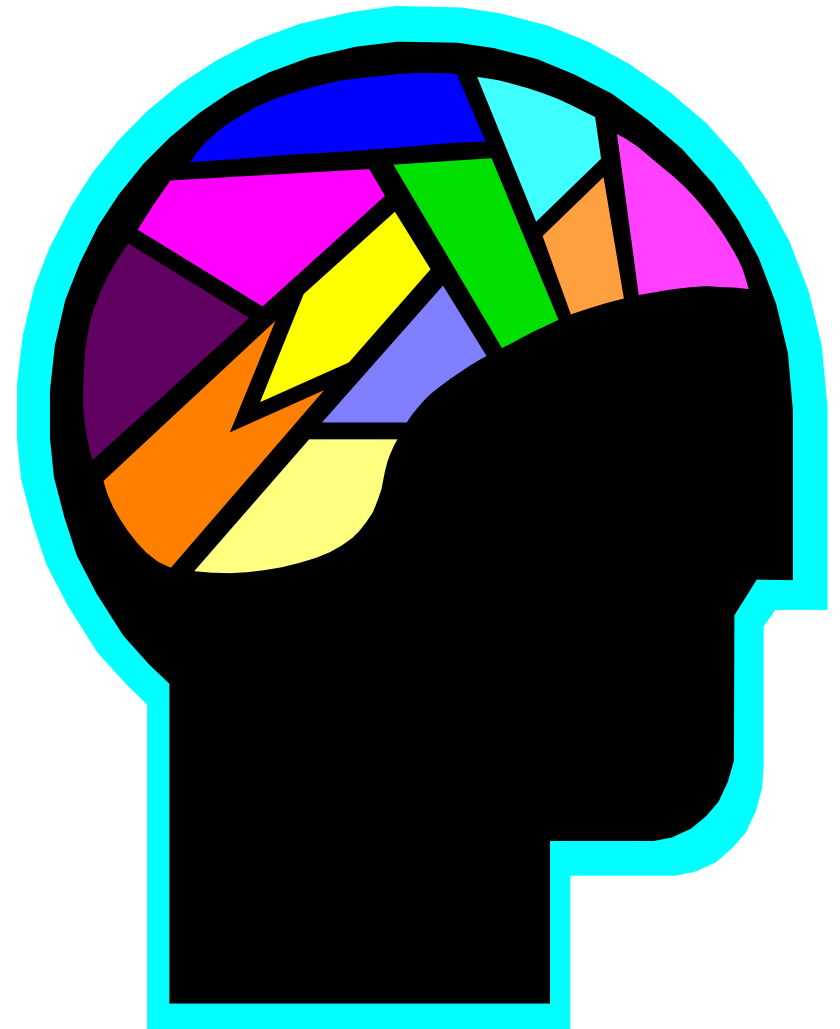
National Institute on Aging: <https://www.nia.nih.gov/health/what-dementia-symptoms-types-and-diagnosis>

Types of Dementia

- **Alzheimer's disease**
- CVA/Stroke
- Parkinson's disease
- HIV/AIDS
- Multiple Sclerosis
- **Huntington's disease**
- Lewy Body dementia
- **Frontotemporal dementia**
- Creutzfeldt-Jakob disease
- Traumatic brain injury
- Toxic exposures(industrial strength solvents/chemicals)
- Chronic hypoxia*
- Syphilis
- Brain tumors
- **Normal pressure hydrocephalus**
- Wernicke-Korsakoff's Syndrome

What are Risk Factors for Developing Alzheimer's Dementia?

- **Advancing age**
- **Family History**
- **Genetic predisposition for certain types**



What causes Dementia?

- Dementia which is generally **irreversible** has many etiologies.
- Alzheimer's Disease is the most common
- Vascular Dementia is also common and often mixed with other types
- While some stroke victims improve, they will generally not recover completely – it depends on where the brain damage was
- Normal Pressure Hydrocephalus (NPH) may resolve with surgically implanted shunt

What are the causes of Dementia?

- Alzheimer's affects the hippocampus in the medial temporal lobe of the brain under the cortical surface:
- Frontotemporal is specific to frontal and/or temporal lobes:
- Huntington's is genetic & early onset
- Infectious disease affecting brain
 - **Creutzfeldt-Jakob disease**
- Toxic substances (Excessive alcohol, opioids, long term benzodiazepines, methamphetamine)

Common Progression of Dementia

- Loss of higher level functions; managing finances, planning
- Short term memory loss progresses
- Orientation: Time: date, day, month, season, year
- Orientation: Place
- ADL decline (feeding is usually last)
- RECOGNITION OF Family/caregiver
- Language
- Behavioral symptoms; agitation, psychosis, hallucinations (constipation is common precipitator and may be related to meds or dehydration)

What is Delirium?

- Delirium is a mental state in which one is confused, disoriented, and not able to think or remember clearly
- It **usually** starts suddenly
- It is often temporary and treatable

Source: <https://medlineplus.gov/delirium.html#>

3 Types of Delirium

- Hypoactive Delirium, where one is not active and seems sleepy, tired or depressed
- Hyperactive Delirium, where one is restless or agitated
- Mixed Delirium, where one changes back and forth between being hypoactive and hyperactive

What Causes Delirium?

- Alcohol or Drugs
- Dehydration
- **Electrolyte imbalance**
- Hospitals – esp ICU
- Infections
- Medication!
- Metabolic Disorders
- Organ Failure
- Poisoning
- Serious Illnesses
- Severe pain
- Sleep deprivation
- Anesthesia for surgery or procedures
- Obstructive Sleep Apnea (OSA)

AKA: ALTERED MENTAL STATUS

ALTERED MENTAL STATUS

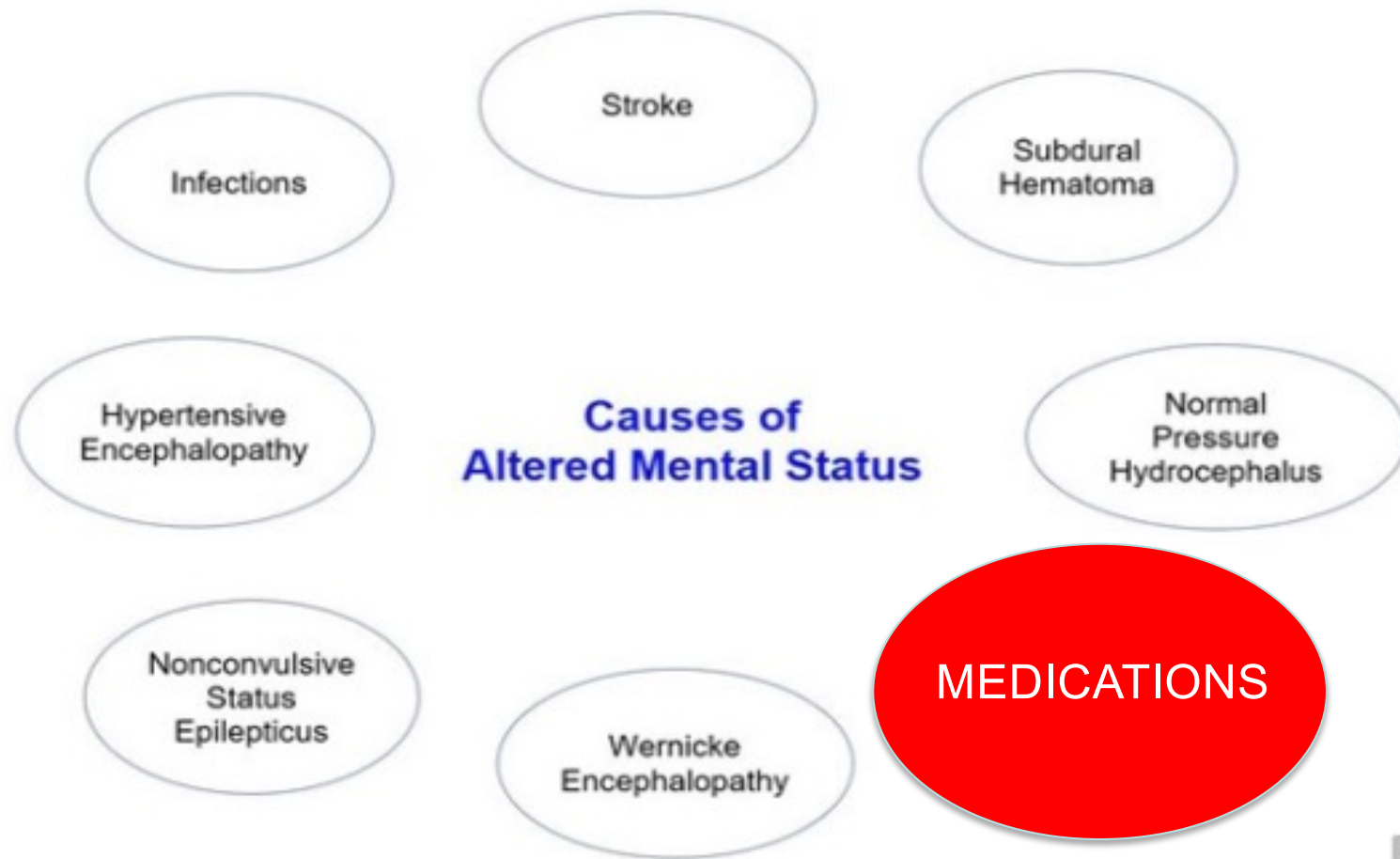


Image of common [causes](#) of altered mental status in the elderly, courtesy of Nicole Cimino-Fiallos, MD, FAAEM.

What are Symptoms of Delirium

- Altered mental status: Changes in alertness, especially in morning
- Confusion (don't know they are in hospital)
- Disorganized Thinking
- Disrupted Sleep
- Emotional changes: anger, agitation, irritability, overexcitement
- **HALLUCINATIONS and delusions****
- Incontinence
- Concentration and memory problems.

How does Dementia differ from Delirium ?

Delirium

- Sudden Onset
- Reversible
- Disoriented at onset
- Waxing and waning
- Poor Concentration
- Poor Orientation
- Immediate memory poor
- Disorganized thinking

Dementia

- Gradual Onset
- Stable Course
- Poor Short Term memory
- Disorientation is later
- Persistent
- No alteration in consciousness until later in disease
- Long Term Memory preserved for a long time

Depression versus Dementia

Depression

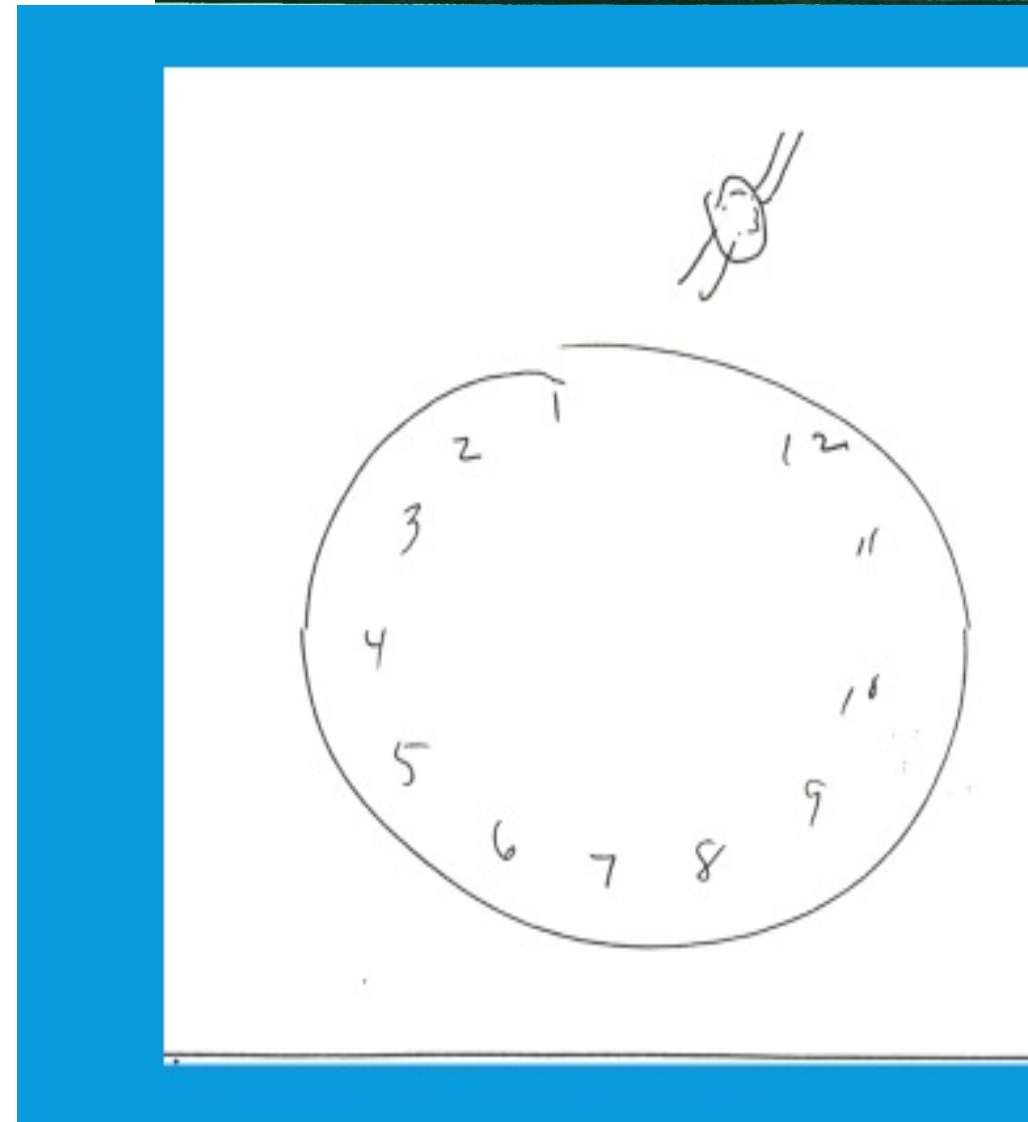
- Onset Abrupt (w/i 6 mo)
- Fluctuating Function
- Poor Concentration
- Highlights Disabilities
- 'Don't Know' answers
- Depressed mood occurs first
- May manifest as AGITATION in dementia

Dementia

- Insidious Onset
- Stable cognitive loss
- Concentration intact
- Unconcerned about losses
- 'Near Miss' Answers
- Memory loss occurs first

How is Dementia or Delirium Diagnosed?

- History of symptoms, behaviors is key
- Physical Exam
- Neurological/Cognitive assessments
- Functional Assessment
- Blood Tests
- Brain-imaging*
- Medication Review of RX and OTCs
- Rule out other pathology



* DISCUSS RISK AND BENEFIT OF BRAIN IMAGING!

Reversible Conditions to Look for

- **Medication Side Effects**
- Thyroid Disorders
- Vitamin Deficiencies
- NPH
- Infections
- Tumors*
- Electrolyte Imbalances
- **Depression**



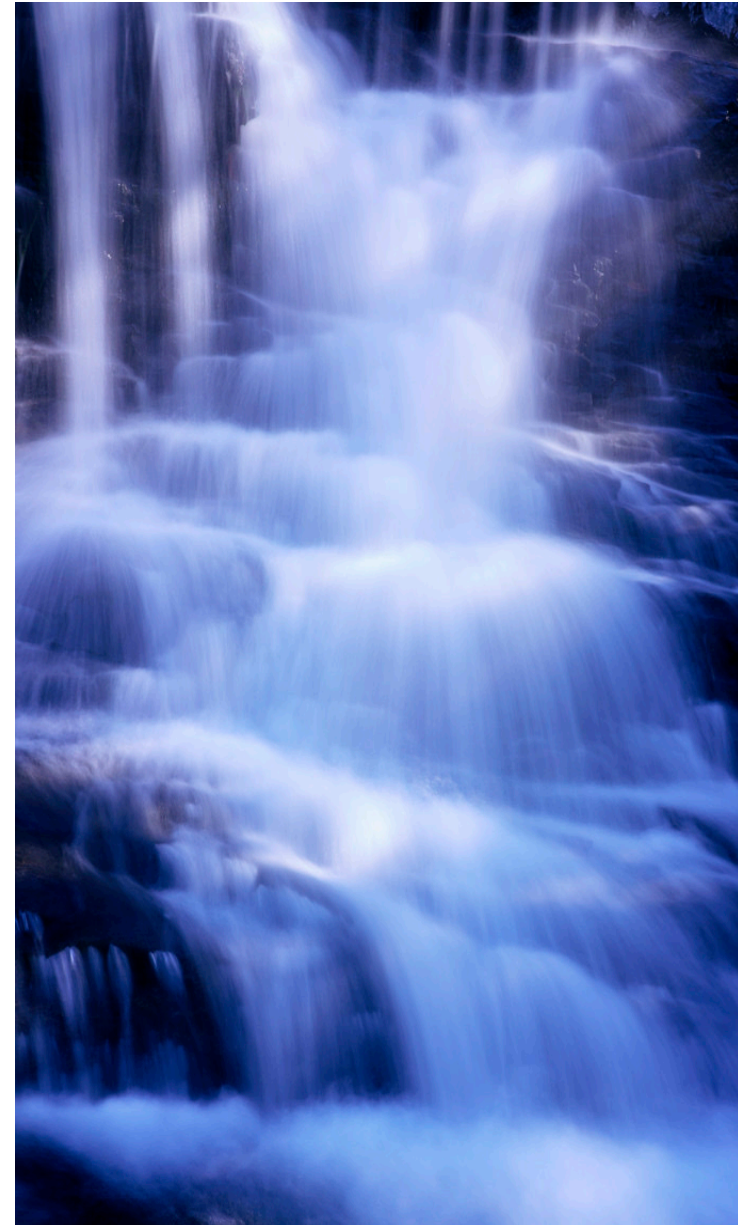
Medication issues in Dementia: PIMS

- Potentially Inappropriate Medications in Older Adults (PIMS)
- Evidence Based Updates by the American Geriatrics Society (AGS) to the “Beer’s Criteria” every 3 years.
- Last updated 2019
- Defines **Polypharmacy** as: “(often) the use of five or more medication which is likely to precipitate Adverse Drug Reactions (ADRs)”
- First developed in 1991 by Dr. Mark Beers

Source: AGS: Development of the AGS Beers Criteria

POLYPHARMACY DEFINITIONS

- Taking many medications
- Taking too much of a drug
- Multiple drugs in same class
- Drugs that are not needed
- Drugs that are ineffective
- Drugs used to treat side effects caused by another drug
- Drugs that inactivate other drugs



Polypharmacy Outcomes

- INCREASED HEALTH CARE COSTS
 - For the unnecessary drugs
 - For the costs of treating the adverse problems
 - Falls, Fractures, Bleeding in the head
 - Gastrointestinal Bleeding
 - Kidney Failure
 - Heart Failure
- INCREASED INDIRECT COSTS
 - Placement in Nursing Home
 - Quality of Life
 - Law suits, malpractice insurance

Medication issues in Dementia:

Antihistamines

- Antihistamines for Allergy
- Antihistamines are one class of **ANTICHOLINERGIC** side effects
 - Dry mouth
 - **Confusion**
 - Constipation
 - Urinary Retention
 - Many drug interactions
- Benadryl (**Diphenhydramine**) is very anticholinergic and is main ingredient in **TYLENOL PM** –



Medication issues in Dementia:

Antihistamines

- Benadryl (Diphenhydramine) should only be used for allergic reactions and follow up with PCP
- Tylenol PM includes Benadryl and should not be used for sleep in older adults
- Plain Tylenol (Acetaminophen) alone in **recommended** doses may promote sleep by relieving pain

Medication issues in Dementia:

Antihistamines

- Is Advil PM better than Tylenol PM?
- NO –It has Benadryl in it
- Instead of Tylenol contains Ibuprofen
- Ibuprofen is a NSAID
- NSAIDs can raise BP, impair kidney function, and damage stomach lining, causing GI bleeding



Medication issues in Dementia:

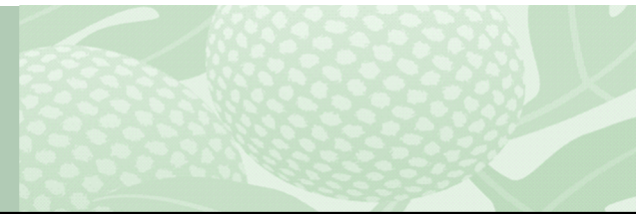
Antihistamines

- Hydroxyzine (Atarax) is now over the counter and is a moderately strong antihistamine, which can still cause confusion in older adults due to anticholinergic actions.
- Cetirizine (Zyrtec) and
- Fexofenadine (Allegra) are fairly non-sedating antihistamines that can be used for seasonal allergies in older adults, but PCP should be consulted if using long term.

OverActive Bladder (OAB) Medications

- After menopause, vaginal estrogen therapy can help strengthen the muscles and tissues in the urethra and vaginal area. Vaginal estrogen comes in the form of cream, suppository, tablet, or ring, and can significantly improve symptoms of overactive bladder.
- All medications for OAB are anticholinergic
- Mirabegron (Myrbetriq) has best/safest profile

OverActive Bladder Medications



Side Effects

- Dry Mouth
- **Constipation**
- Drowsiness
- Memory Problems
- Urinary Retention
- Increased risk of falls

Names

- Oxybutynin (Ditropan XL), skin patch (Oxytrol) or gel (Gelnique)
- Tolterodine (Detrol)
- Trospium (Sanctura) XL
- Solifenacin (Vesicare)
- Darifenacin (Enablex)
- Fesoterodine (Toviaz)
- **Mirabegron (Myrbetriq)**



Medication issues in Dementia:

Antidepressants

- Avoid older tricyclic antidepressants (TCAs) as they are very **anticholinergic**:
 - Amitriptyline, Desipramine, Doxepin, Paroxetine (PAXIL)
- Bupropion should be used with caution due to lowered seizure threshold.
- Generally, dosing is gradual to therapeutic dose which may vary by person
- Most should also be weaned gradually

Medication issues in Dementia:

Antidepressants: SSRIs

- Citalopram, Escitalopram are the preferred agents in older adults
- Little to no sedation
- Most helpful with anxiety as well
- EKG needs to be checked at baseline and intervals to ensure there is not a high risk of electrical conduction problems.
- Electrolytes need to be checked (hyponatremia)
- **AVOID Prozac** (Fluoxetine) – very anorexic

Medication issues in Dementia:

Antidepressants: SNRIs

- Serotonin-Norepinephrine Reuptake Inhibitors
- Little to no sedation
- Can help with **neuropathic pain!**
- Most helpful with anxiety as well
- EKG needs to be checked at baseline and intervals to ensure there is not a high risk of electrical conduction problems.
- Monitor Electrolytes

Source: <https://www.mayoclinic.org/diseases-conditions/depression/in-depth/antidepressants/art-20044970>

Medication issues in Dementia:

Antidepressants: SNRIs

Common Adverse Side Effects:

- Nausea
- Dry mouth
- Dizziness
- Headache
- Excessive sweating

Less Common Adverse Side Effects:

- Tiredness
- Constipation
- Insomnia
- Loss of appetite

Medication issues in Dementia:

Antidepressants: Mirtazapine

- Mirtazapine (Remeron) is a tetracyclic antidepressant. This medication works in the central nervous system to enhance chemicals in the brain that modulate mood, including increasing serotonin and norepinephrine levels
- At lower doses, Mirtazapine is sedating, and should be given at bedtime. If older adult has trouble sleeping as dose is increased, the administration can be switched to morning

Medication issues in Dementia:

Antidepressants: Mirtazapine

- Mirtazapine tends to increase appetite, so is often used for this side effect in older adults that are losing weight.
- It is not an “Appetite Stimulant”

Medication issues in Dementia:

Antidepressants: Prozac

- Prozac (Fluoxetine), is one of the most anorexic antidepressants on the market
- Potentially Inappropriate Medication (PIM) in older adults

Medication issues in Dementia:

Antidepressants: **SERIOUS SIDE EFFECTS**

- Serotonin Syndrome signs include anxiety, agitation, high fever, sweating, confusion, tremors, restlessness, lack of coordination, major changes in blood pressure and rapid heart rate.
- Usually occurs when there are drug-drug interactions or doses are too high
- Seek immediate medical attention if this occurs

AVOID ST JOHN'S WORT

Medication issues in Dementia: ACHI's

- Available medications target Alzheimer's Disease:
 - Acetylcholine Esterase Inhibitors (ACHIs) Donepezil (Aricept), Galantamine (Razadyne), Rivastigmine (Exelon)
 - They slow disease somewhat, but do not improve cognition, nor cure the disease
 - Rivastigmine initially had the most ASEs, but the patch is better tolerated
- Side effects include:
 - Nausea/vomiting, lack of appetite, weight loss, diarrhea, slow heart rate
 - Risk versus benefits should be re-evaluated at each medical visit, or when problems occur
 - Source: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5751872/>

Medication issues in Dementia: ACHI's

- If patients are taking Donepezil (Aricept) for Alzheimer's Dementia and taking anticholinergic medications it will significantly diminish the effect of the Aricept (or galantamine or rivastigmine)

Appetite Stimulation

- While Mirtazapine is sometimes used for its side effect of appetite stimulation is not prescribed for that alone. Treating depression with an appropriate antidepressant may help.
- **Megace Should NOT** be used in older adults according to the Beer's Criteria
- Evidence based studies note minimal effect on weight with **increased risk of blood clots** and possibly death
- Avoiding polypharmacy is a better strategy
- Avoid constipation!

Avoid Sedative Hypnotics

SLEEPING pills should be **avoided**

- Find the underlying cause of insomnia:
 - Medical problems, Anxiety, Depression, Caffeine, Alcohol, Medications, **PAIN, Computers**
- Realize that sleep patterns change with age
- Understand the risks,(falls, confusion, habituation) including any over the counter (OTC) agents
- Sleeping pills may change the quality of your sleep &
- May Mask underlying Medical Problems
- Low dose Melatonin (1-3mg) is acceptable in older adults. Avoid increasing the dose

Antibiotics

- Antibiotics are over prescribed for older adults, and some can cause confusion and other adverse effects
 - **Nitrofurantoin** (Nitrobid) has potential to be toxic to lungs, liver and cause peripheral neuropathy, especially in renal insufficiency
 - **Ciprofloxacin**- causes CNS effects and tendon rupture (rare, but very significant)
 - **Sulfa (Bactrim)** – can worsen renal function and cause hyperkalemia which can cause cardiac problems

POLL QUESTION - #1

- Benadryl (Diphenhydramine) is a good sleeping pill to use for older adults (FALSE)

POLL QUESTION - #2

- Tylenol PM is a safe drug to use for older adults. (FALSE)

POLL QUESTION - #3

- Antibiotics can cause confusion in older adults. (TRUE)

POLL QUESTION - #4

- Depression in older adults is a common cause of agitation and can be mistaken for dementia. (TRUE)

POLL QUESTION - #5

- Appetite Stimulants are a safe and effective way to improve appetite in an older patient losing weight. (False)

Why is polypharmacy a problem?



**ADVERSE DRUG REACTIONS ARE A COMMON
REASON FOR HOSPITALIZATION IN THE ELDERLY**

POLYPHARMACY PROBLEMS



ADVERSE SIDE EFFECTS

- Nausea/Vomiting
- Confusion
- Constipation
- ANOREXIA
- Abdominal Pain
- FALLS
- Bleeding
- Edema (swelling)
- Kidney damage
- High Blood Pressure
- Loose Stools
- “Super Bugs” (C. Diff etc)
- Stroke
- Very low blood sugar in diabetics on medications
- Blood Clots
- Pulmonary Fibrosis
- Death

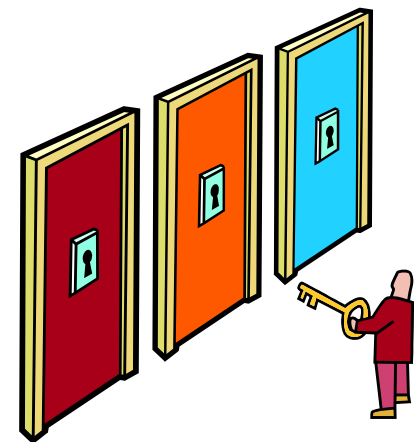
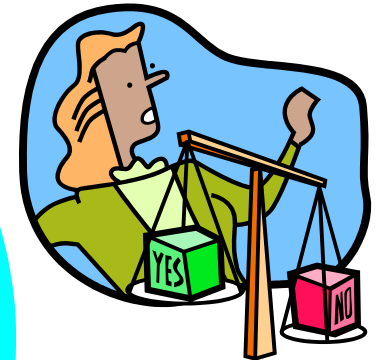
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HOW CAN WE IMPROVE?

CHOOSING WISELY

- www.AmericanGeriatrics.org
- Developed with the American Board of Internal Medicine Foundations and AGS; Part 1 & Part 2



Take Inventory often

Medication **RECONCILIATION** at every opportunity
(especially between locations)

- At Every Provider Visit
- Take a detailed list, AND, preferably, the bottles to appointments
- Your provider does not remember exactly what you are taking
- NO, the **computer does not know what** one is taking - only what's been prescribed— your provider needs your Kokua

Avoid Unnecessary Supplements

- Vitamin Deficiencies are common in older adults
- Check with health care provider before starting any supplements
- Supplements, including some vitamins can interact with other prescription drugs
- Medications for treating Ulcers, Esophageal reflux (GERD) can induce certain vitamin deficiencies and should be measured prior to starting supplements
- The Diabetes medication, Metformin can cause cause vitamin B12 deficiency

QUESTIONS ??😊
