



Drugs and the Elderly Cheat Sheet (for Eldercare Professionals)

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Adverse Drug Events (ADEs) rampant

ADE types:

- PIMs (Potentially Inappropriate medications)
- TEAS (Treatment Emergent Adverse Events) are the adverse events that were not present prior to the treatments OR any event already present symptom that worsens in intensity following exposure to the treatments
- CATASTROPHES, resulting in 4.3 million outpatient visits yearly, ½ to ER; 2.5 M are elderly. Elderly have significant increased risk of falls taking more than 3-4 drugs.
- Drugs work ≤ 60% of the time
- Antidepressants work ~30% of the time
- Plavix benefits (the #2 selling drug in the world) are offset by death rates due to GI bleeding

BAD COMBINATIONS:

- Plavix & Aspirin → bruising/bleeding
- Proton Pump Inhibitors (PPIs) + Antibiotics → C Diff infections
- SSRI & PPI → falls/fractures
- Grapefruit juice with any CYP3A4 enzyme drugs, of which there are many
- DEMENTIA DRUG TREATMENTS:
- Acetylcholinesterase inhibitors (e.g., Aricept, Exelon, Cognex)
- Not indicated for vascular related dementias, use only with mild to moderate conditions.
- Alleged to slow disease progression for ~6 months. This has not been clinically demonstrated.

“Treatment of dementia with cholinesterase inhibitors and Memantine can result in statistically significant but clinically marginal improvement in measures of cognition and global assessment of dementia.”

Raina, P et al. **Effectiveness of Cholinesterase Inhibitors and Memantine for Treating Dementia: Evidence Review for a Clinical Practice Guideline** *Ann Intern Med.* 2008;148[5]:379-397)

ADEs with Acetylcholinesterase inhibitors:

- Weakness, loss of appetite, nausea, vomiting, diarrhea (~30% incidence)
- Dizziness, headache, drowsiness, hypotension, edema
- Bleeding: *avoid use of NSAIDs due to increased bleeding risk*
- Use caution with cardiac arrhythmias, ulcers and lung problems.

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NMDA antagonists (e.g., Memantine, trade name Namenda)

> Anecdotally effective for 1/3, 1/3 no effect, 1/3 get worse

- Appears to speed thought processing for some but does not slow disease progression!
- Adverse Effects: **agitation**, dizziness, fatigue, rash, anemia, Adjust dosage down for renal insufficiency

NSAIDs (Non-Steroidal Anti-Inflammatory Drugs include Aspirin, Indocin, Ibuprofen, and its cousins, Aleve, Motrin, etc.): interfere with platelet aggregation, impair kidney function, lead to gastric ulcers and hidden blood loss manifesting as anemia. *They should never be given with Coumadin due to uncontrollable bleeding.*

PPIs (PROTON PUMP INHIBITORS) (e.g., Nexium, Protonix, Prevacid) reduce gastric inflammation by neutralizing stomach acid. Should not be used for more than 6 weeks, or during a course of antibiotics, due to high risk to contract an opportunistic infection of the gut (e.g. Clostridium difficile).

STATINS: (Lipitor, Crestor, etc.) Many experience muscle weakness, dizziness, headache, diarrhea or constipation. Known to contribute or cause DEMENTIA. If taking a statin, should supplement with Coenzyme Q10.

SSRIs (Selective Serotonin Re-uptake Inhibitors, Prozac and cousins): dizziness, drowsiness, headache, fatigue, insomnia, diarrhea, tremor

Anti-hypertensive: weakness, dizziness, drowsiness, fatigue, insomnia, memory loss, orthostatic hypotension. Inappropriately high dosage leads to frequent falls.

Anticoagulants: Coumadin: occult internal bleeding as evidenced by weakness, anemia, falls; bruising, brain bleeds Plavix: depression, dizziness, fatigue, headache, occult blood loss. Xeralto (Rivaroxaban) and Eiliquis (Aplxaban) are still new. Use with caution, and avoid concomitant use with NSAIDS, SSRIs and SNRIs.

Antibiotics: penicillin, cephalosporin, quinolones and macrolides significantly boost long-term diabetes risk. The worst of the lot are the quinolones (Levaquin, Cipro), which will boost the risk of the disease by 15 percent after two courses and 37 percent after five. Bacterial imbalances in the gut due to antibiotic use have been linked to GERD symptoms, obesity, multiple sclerosis, dementia... Most common side effect is diarrhea.

Anticholinergics: Cholinergic neurons project to most cortical and subcortical structures and are **influential in cognition, attention, sleep, movement, motivation, metabolism and the modulation of other neurotransmitter systems.** Types:

- Antihistamines
- Tricyclic antidepressants
- Antipsychotics
- Urinary tract antispasmodics
- Antiparkinson medication
- Benzodiazepines

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- The use of multiple medications with such properties may be particularly problematic because of the cumulative effects.
- Common *nonspecific adverse effects* on the nervous system include headache, pain, anxiety and insomnia. The person may hyper-react or their cognitive processing will slow, in a brain fog similar to a hangover. With higher anticholinergic concentrations **dysarthria, confusion, agitation, delirium, hallucinations, delusions, coma and seizures may occur.**
- Anticholinergics directly counteract cholinesterase inhibitors, contributing to poorer clinical outcomes.
- The use of antipsychotics (Risperidone, quetiapine, haloperidol) is strongly associated with early death when used on elderly people with delirium.