

Geriatrics: Medications and Older Adults — Drugs List and Problems

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Aging is associated with diseases and decline. Drugs are required to either cure or control these conditions; therefore, older adults end up with a box full of medications for daily consumption which help them to prolong and improve the quality of their life. This, however, increases the likelihood of drug interactions, side-effects of the different medications, mix-ups, compliance problems and drug toxicity. The physician has to be careful when prescribing to the elderly to minimize these issues.



Drug-Disease Interactions

Age-related decline in renal and hepatic function can result in **slower metabolism of drugs**. In addition, a majority of older adults suffer from renal or liver diseases. A prescribing cascade may be set in motion when **a drug prescribed for one disease causes or aggravates another disease**. Although this can occur in any patient, it is more serious when it occurs in the elderly.

Occasionally, the adverse effect or side-effect of a drug may mimic clinical manifestations of a disease e.g. Donepezil, prescribed for dementia can cause urinary retention and the patient may then be treated with Oxybutinin to relieve the symptoms, although it is unnecessary.

Therefore, it is important for the physician treating the elderly to **consider a symptom or sign as being due to a drug-drug interaction** before prescribing another medication for relief. The 2015 Beers Criteria for medication use in the elderly provides updated guidelines for prescribing drugs in the elderly and should be every physician's guidebook when treating older adults.

Drug-Drug Interactions

When two or more drugs are consumed together, they may interact with each other leading to **unwanted side-effects or diminished or enhanced potency of one drug**, e.g., the potency of Warfarin, which is commonly prescribed in the elderly, can be diminished or enhanced by several drugs as well as dietary items (grapefruit juice, spinach etc) leading to adverse effects like **thrombosis or hemorrhage, respectively**.

Prescribing tricyclic antidepressants along with sedatives-anxiolytics can cause **an imbalance with impaired motor functioning**. Older adults may forget to mention the herbal supplements that they are consuming and which have the potential to cause drug interactions, e.g., Gingko Biloba taken in combination with Warfarin can lead to bleeding diathesis.

Diminished induction of hepatic cytochrome P450 enzymes may also contribute to an increased incidence of drug-drug interactions in older adults.

Improper Monitoring and Compliance

Due to **cognitive decline, poor memory, loss of dexterity, and visual problems**, the elderly may often forget to take their medications, spill medications or take the wrong medicines. **Financial problems** can also contribute to the elderly failing to purchase their medicines. **Hearing dysfunction** means that the elderly are unable to understand the physician/nurse practitioner's instructions about when and how to take the medicines.

Close monitoring of drugs is essential to prevent adverse effects, especially when new medications are added to the regimen. This helps to avoid duplication of drugs and consuming an incorrect dosage of a drug or taking a drug for prolonged periods of time. This can be accomplished by:

- Reviewing the patient's medical record and drugs prescribed at every visit
- Documenting indications for addition of new drugs
- Recording interactions and patient responses to drugs
- Monitoring clinical and laboratory findings to exclude drug side-effects
- Periodic review of drugs to discontinue/continue unindicated/indicated drugs respectively.

Physicians should take into consideration the limitations of their older patients prior to prescribing, while nurses and pharmacists can educate the elderly and review instructions at each visit.

Selection of Drugs

The Beers Criteria provides a list of drugs, according to their class, which could be potentially harmful to the elderly. A physician should ideally weigh the pros and cons of the drug prior to prescribing.

According to published statistics, **more than 20% of older community-living adults are prescribed one inappropriate drug**. This increases the risk of adverse events. This can also occur in hospitalized or older adults living in nursing homes. As OTC drugs and herbal supplements can be purchased without a prescription, physicians should inquire specifically about these as they may not be listed in the patient's medical records and, if a patient is known to be taking these, then it should be documented.

Occasionally, sedatives, anxiolytics or laxatives may be prescribed for a short duration, but the elderly may continue taking them or may become habituated to them. It may be worthwhile trying **non-pharmacological methods or decrease doses** of the drugs prior to discontinuing them.

Medications deserving caution in older adults

Antipsychotics	Glyburide	Benzodiazepines	Sedative	Anticholinergic drugs
<ul style="list-style-type: none"> • Associated with fall and fracture • Higher risk of mortality when applied as a behavioral control in dementia 	<p>Longer-acting sulfonylurea promotes higher rates of hypoglycemia</p>	<ul style="list-style-type: none"> • Risk of falls • Delirium 	<ul style="list-style-type: none"> • Falls • Delirium 	<ul style="list-style-type: none"> • Constipation • Blurry vision • Orthostasis

Overdosage of Drugs

When prescribing medications for the elderly, the physician must **consider age-related pharmacokinetics to avoid prescribing large dosages of drugs**. As in the pediatric population, lowest doses or weight-based doses should be prescribed to the elderly initially. It can be a subsequent increase based on the patient's response. **Monitoring for side-effects is essential.**

Overdose can occur also due to a renal or hepatic impairment or drug-drug interactions or due to duplication of a drug, e.g., when one physician is unaware that another physician has already prescribed that particular drug. This problem, however, is likely to be minimized by electronic health records.

Under-prescription of Drugs

Occasionally, drugs such as anti-depressants, pain medications, Warfarin, etc. may be under-prescribed by physicians who are worried about adverse events, but this **leads to an increase in morbidity, mortality and diminished quality of life** for the elderly. Physicians should especially be more proactive about providing vaccination which can reduce the incidence of morbidity tremendously.

Prevention of Drug-adverse Effects

Here are some of the measures physicians can adopt to decrease the risk of drug adverse effects in the elderly:

- Document and maintain records of medications being taken and being prescribed
- Periodic review of medications.
- Discontinue medications that are no longer considered beneficial.

- Consider non-pharmacological alternatives prior to prescribing drugs
- Prescribe safe alternatives, e.g., acetaminophen instead of NSAIDs for arthralgias
- Consider age-related, patient-specific pharmacokinetics and pharmacodynamics of a drug before prescribing and recommending a dose
- Prescribe as few drugs as possible
- Educate the patient and provide verbal, as well as written instructions in large and bold font regarding medication use, side-effects, and precautions when on medication
- To avoid prescription cascade, consider that a new symptom is due to a drug unless proved otherwise.
- Subscribe to electronic health records to improve access and avoid duplication of prescriptions by different physicians treating the same patient.

References

Ruscini, Mark J. and Sunny A. Linnebur. "[Drug-Related Problems in the Elderly.](#)" Available at:

<http://www.merckmanuals.com/professional/geriatrics/drug-therapy-in-the-elderly/drug-related-problems-in-the-elderly>

American Geriatrics Society 2015 Beers Criteria Update Expert Panel. "[CLINICAL INVESTIGATIONS American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults.](#)" Journal of the American Geriatrics Society. Vol. 63, no. 11. Available at: <http://onlinelibrary.wiley.com/doi/10.1111/jgs.13702/pdf>

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