

Drug prescribing for older people

Adapted from an initiative of Australia's North Coast Public Health Unit's
Stay on Your Feet Programme



Points to remember:

- Age related changes in drug absorption, metabolism, distribution, and excretion, as well as patient response, all contribute to the increased frequency of adverse drug reactions in older people.
- Patient confusion, and therefore problems with compliance, become increasingly common in older people.
- Polypharmacy, particularly the use of more than four medications, is associated with many problems including:
 - Increased risk of falling.
 - Increased incidence of adverse affects.
 - Increased incidence of drug interactions.
 - Decreased appetite and poor food intake.
- People “age” at different rates. These changes generally accelerate after 70 years, but be mindful of individual differences. Thus it is important to:
 - Keep prescribing to a minimum. Use low doses and simple regimes where possible.
 - Give a careful explanation of medication use.
 - Review regularly (e.g. every six months). It is wise to see all older patients who require a repeat prescription.
 - Inquire about OTC medications and prescriptions from other doctors.
 - Encourage the use of a patient-held medication card.
 - Inquire about adverse drug reactions and screen for postural hypotension.
 - Inquire about compliance and any related difficulties the patient may have.

Drugs to be avoided, if possible, in the older patient: Close monitoring required if cannot be avoided.

(potential problems in brackets)

- Anti Cholinergics* (confusion and memory loss)
- Benzodiazepines (sedation/confusion/ataxia)
- Chlorpromazine (postural hypotension)
- Chlorpropamide (shorter acting analogues preferred)
- Combination diuretics (hypokalaemia/hyperkalaemia/hyponatraemia)
- Co-Trimoxazole (hyper-sensitivity reactions to sulphonamide component)
- Dextropropoxyphene (CNS effects/respiratory depression)
- Doxycycline (oesophageal problems)
- NSAIDs (GIT/renal damage/CNS effects/can precipitate heart failure)
- Methyldopa (depression/CNS effects)
- Prazosin (dramatic postural hypotension/incontinence)
- Tetracyclines (renal toxicity—minocycline and doxycycline excepted).

*Commonly used drug groups which have significant anticholinergic activity include the neuroleptics, tricyclic antidepressants, antispasmodics, antiparkinsonian agents and antihistamines.

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Drugs that require close monitoring in the older patient:

- Allopurinol (increased risk of acute gout/sensitivity reactions)
- Digoxin (toxicity)
- Theophylline (toxicity)
- Aminoglycosides (ototoxicity/nephrotoxicity)
- Narcotic analgesics (excessive sedation/respiratory depression/hypotension)
- Thyroxine (take care when initiating treatment for myxoedema)
- Cimetidine (may rarely cause confusion)

Certain drug combinations have been targeted as potentially dangerous in the older patient:

- ACE inhibitors + Potassium sparing diuretics (hyperkalaemia)
- ACE inhibitors + Thiazide diuretics (dramatic hypotension/hypokalaemia)
- ACE inhibitors + Potassium (hyperkalaemia)
- Beta Blockers + Sulphonylurea (may disturb diabetic control/may mask early signs of hypoglycaemia)
- Benzodiazepines + Amitriptyline (drowsiness and anticholinergic effects)
- Benzodiazepines + Cimetidine (enhanced side effects of benzodiazepines)
- Captopril + Allopurinol (hypersensitivity reactions e.g. Steven's Johnson syndrome)
- Carbamazepine + Dextropropoxyphene (increased carbamazepine levels)
- Digoxin + Ca Channel blockers (increased serum digoxin levels)
- Digoxin + Quinidine (increased serum digoxin levels)
- Digoxin + Quinine (increased serum digoxin levels)
- Potassium sparing diuretics + Potassium (hyperkalaemia)
- NSAIDs + Lithium (increased serum Lithium levels)
- Nifedipine + Atenolol (hypotension and heart failure)
- Nifedipine + Timolol eye drops (theoretical risk of hypotension and heart failure)
- Theophylline + Ca channel blockers (theophylline toxicity possible)
- Tricyclics + Anticholinergics (enhanced anticholinergic effects)
- Verapamil + Quinidine (quinidine toxicity)
- Warfarin + Allopurinol (enhanced anticoagulant effect)
- Warfarin + Aspirin (increased risk of bleeding)
- Warfarin + Cimetidine (enhanced anticoagulant effect)
- Warfarin + Clofibrate (enhanced anticoagulant effect)
- Warfarin + Co-Trimoxazole (enhanced anticoagulant effect)
- Warfarin + NSAIDs (increased risk of GI haemorrhage)

It is recommended that the following be used for a limited duration:

- Chloramphenicol eye preparations (severe haematological effects)
- Corticosteroid eye preparations (requires expert supervision)
- Diphenoxylate (adverse effects associated with longer use. Discontinue after 48 hours.)
- Loperamide (adverse effects associated with longer use. Discontinue after 48 hours.)
- Metoclopramide (extrapyramidal side effects)
- Phenothiazines including Prochlorperazine (tardive dyskinesias—possibly irreversible)
- Haloperidol (tardive dyskinesias—possibly irreversible)

Summary list of the most commonly prescribed medications that have been associated with increased risk of falls in the elderly

I. **Psychotropics**— drugs that have been associated with increased risk of falls in the elderly include:

Antidepressants:

Amitriptyline (Elavil)
Fluvoxamine (Luvox)
Venlafaxine (Effexor)
Citalopram (Celexa)
Trazodone (Desyrel)
Fluoxetine (Prozac)
Paroxetine (Paxil)
Sertraline (Zoloft)

Benzodiazepines:

Specially long acting ones such as:
Chlor diazepoxide (Librium)
Clonazepam (Rivotril)
Diazepam (Valium)
Flurazepam (Dalmane)
Anesthetics

Antipsychotics: (neuroleptics)

Chlorpromazine (Largactil)
Clozapine (Clorzaril)
Haloperidol (Haldol)
Loxapine (Loxapac)
Methotrimeprazine (Nozinan)
Perphenazine (Trilafon)
Prochlorperazine (Stemetil)
Risperidone (Risperdal)
Thioridazine (Mellaril)
Quetiapine (Seroquel)

Intermediate-acting:

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

Short-acting:

Triazolam (Halcion)
Olanzapine (Zyrex)

II. **Antihypertensives**

ACE Inhibitors:

Ramipril (Altace)
Enalapril (Vasotec)
Fosinopril (Monopril)
Lisinopril (Prinivil, Zestril)

Angiotensin II Receptor Blockers:

Irbesartan (Avapro)
Eprosartan (Teveten)

Beta Blockers:

Acebutolol (Sectral)
Atenolol (Tenormin)
Metoprolol (Lopressor)
Sotalol (Sotacor)
Bisoprolol

Calcium Channel Blockers:

Amlodipine (Norvasc)
Diltiazem (Cardizem)
Nifedipine (Adalat)

*Above become more potent if a
diuretic is involved such as:*

Hydrochlorothiazide
Furosemide (Lasix)
Dyazide

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Continued

III. Narcotics:

Acetaminophen-Codeine-Caffeine (Tyelonol # 1,2,3)
Fiorinal-C 1/4 or C 1/2
Codeine
Fentanyl (Sublimaze, Duragesic)
Hydromorphone (Dilaudid)
Meperidine (Demerol)
Morphine (MOS,MSContin)
Oxycodone (Percodan, Percocet)
Pentazocine (Talwin)

IV. Antiparkinsonian Agents*:

Amantadine (Symmetrel)
Bromocriptine (Parlodel)
Eldepryl (Selegiline, Deprenye)
Levodopa-carbidopa (Sinemet)
Levodopa-Benzerazide (Prodopa)

** Postural hypotension may occur with the above medications or specifically if patient is receiving antihypertensive drugs as well.*

V. OTC's

Gravol
Certain Cough and Cold preparations
Certain antihistamines
Certain Herbals

Reference: Categories I-IV adapted from "Baycrest Centre for Geriatric Care Falls Risk Assessment—medications within 24 hours."