

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.

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)
- Urinary alkylisers (systematic alkalosis/hypernatraemia)
- Nitrofurantoin (peripheral neuropathy)

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:
Chloradiazepoxide (Librium)
Clonazepam (Rivotril)
Diazepam (Valium)
Flurazepam (Dalmane)
Anesthetics

Intermediate-acting:

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

Antipsychotics: (*neuroleptics*)

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

Short-acting:

Triazolam (Halcion)
Olanzapine (Zyrex)

II. Antihypertensives

ACE Inhibitors:

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

AAI Receptor Blockers:

Irbeserton (Avapro)
Eprosorton (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

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

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, Deprenyl)
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."