

Medication & The Risk of Falls in the Older Person

THE FACTS!

Polypharmacy is an independent risk factor for falls.

Patients on FOUR or more medicines are at greater risk of having a fall. Regular medication reviews play an important part in falls prevention.

Psychotropic drugs are those most clearly implicated in falls especially tricyclic antidepressants, antipsychotics & benzodiazepines.

They should be used for specific indications for the minimum time necessary.

Benzodiazepines & other hypnotics increase the risk of falling in a dose dependant way.

Even if gradual withdrawal is not an achievable goal, a reduction in falls risk is still gained from dose modification. For those who have difficulty withdrawing, switching to an equivalent dose of diazepam followed by dosage reductions in small steps is suggested (see BNF).

Hypotension is recognised as a key contributing factor to falls.

Orthostatic hypotension (OH) due to concomitant drugs commonly occurs. Symptomatic OH e.g. postural dizziness is likely to be a better predictor of falls risk than defined on BP criteria alone. To screen for postural hypotension **LYING & STANDING** blood pressures should be performed.

(OH is defined as a drop in systolic BP > 20mm Hg or diastolic BP > 10mmHg).

A good intervention for low blood pressure (in the absence of any signs of arterial disease e.g. intermittent claudication) is the use of compression hosiery to increase venous return.

The risk of having a fall or recurrent falls increases with the number of associated intrinsic risk factors below:

- previous fall
- poor mobility/ gait
- balance disorders
- cognitive impairment
- polypharmacy ie 4 or more drugs
- psychotropic drug use
- visual impairment
- alcohol >1 unit/day
- orthostatic hypotension
- hearing impairment

Patients with 4 or more risks factors identified above are at the greatest risk of having a fall.

There is clear evidence to show Calcium and Vitamin D supplementation reduces the risk of falls in ambulatory or institutionalised older people.

Daily supplementation of 1-1.2g Calcium (Ca) in combination with at least 800IU vitamin D as colecalciferol has been shown to improve both body sway and muscle function in elderly individuals, reducing overall falls risk by more than 20%. Supplementation should be considered in all older people aged 65 years or over who are either housebound, live in residential / nursing home accommodation, have a BMI < 19kg/m² or have 4 or more risk factors as identified above. **NNT to prevent one fall = 15.** Recommended Ca & vitamin D supplements available to prescribe:

Chewable Formulations - AdCal D3; Calceos; Calcichew D3 Forte. Dose = 2 tablets daily.

Dispersible Formulations - Cacit D3 (2 sachets daily) & Calfovite D3 (1 sachet daily).

NB. Patients also on thiazide diuretics should have U&E's & serum Ca regularly monitored.

There is NO 'safe' dose of oral glucocorticoids in reducing fracture risk.

The administration of oral glucocorticoids is associated with a significant increase in fracture risk at the hip and spine. Although the greatest increase in risk is observed with higher dose therapy, increased fracture risk is seen even at daily doses less than 7.5mg. All older people with either a previous fragility fracture, evidence of kyphosis, taking long term oral prednisolone ≥ 7.5mg /day or treated with intermittent oral glucocorticoids at doses ≥ 7.5mg /day for 3 months or more should be on bisphosphonate therapy in addition to Ca & Vitamin D supplementation (ref RCP Gio Scope audit guidelines). Measurement of bone density is not required **before** starting treatment.

Commonly Prescribed Drugs that May Contribute to Falls

This classification has been based upon a review of the clinical evidence of medicines implicated in falls and from an analysis of the most commonly used drugs with side effect profiles associated with an increase in falls risk.

The list is not meant to be fully comprehensive but intended to raise awareness of the types of drugs that can contribute to falls. Drugs have been graded as either a high, moderate or low risk in terms of their 'potential to cause falls'.

HIGH RISK DRUGS

Antidepressants	Avoid Tricyclic antidepressants esp TCAs with high anti-muscarinic activity eg Amitriptyline. SSRIs are associated with a reduced incidence of side effects in the elderly. Trial of gradual withdrawal should be attempted for all anti-depressants after 6 –12 months of initial treatment.
Antipsychotics including atypicals	Risk of hypotension is a dose related effect reduced by the 'start low go slow approach.' Attempted withdrawal MUST always be gradual to avoid precipitation of withdrawal symptoms e.g. rebound agitation etc. All anti-psychotics are capable of inducing extra-pyramidal disorders although incidence is less with atypicals. The phenothiazine Prochlorperazine (Stemetil) is frequently inappropriately prescribed for dizziness due to postural instability and the most frequently implicated drug causing drug induced Parkinson's disease.
Anti-muscarinic drugs (Anticholinergics)	Anti-muscarinic drugs are used in treatment of urinary incontinence and in Parkinson's disease. Oxybutynin may cause acute confusional states in the elderly especially those with pre-existing cognitive impairment.
Benzodiazepines & Hypnotics	Whilst complete withdrawal may not be an achievable goal there is still benefit to be gained in reducing use to the minimum effective dose. (Ref BNF). Avoid long acting benzodiazepines e.g. Nitrazepam. Newer hypnotics e.g. Zopiclone are associated with reduced hangover effects but all licensed for short-term use only.
Dopaminergic drugs used in Parkinsons disease	Sudden excessive daytime sleepiness can occur with Levodopa and other dopamine receptor agonists. Careful dose titration is particularly important in initiation of treatment because of additional risk of inducing confusion. As the patient ages, maintenance doses may need to be reduced.

MODERATE RISK DRUGS

ACE inhibitors / Angiotensin II antagonists	Risk of hypotension is potentiated by concomitant diuretic use. Incidence of dizziness varies from 4-12% of patients but affects twice as many patients with heart failure than hypertension.
Alpha – blockers	Doses used for treatment of BPH less likely to cause hypotension than those required to treat hypertension.
Anti-arrhythmics	Dizziness and drowsiness are possible signs of Digoxin toxicity – risks of toxicity greater in renal impairment or in the presence of hypokalaemia. Flecainide has a high risk for drug interactions and can also cause dizziness.
Anti-epileptics	Group with high risk for potential drug interactions. Incidence of dizziness drowsiness and blurred vision are dose related side effects observed with Carbamazepine but may be reduced by altering timing or choice of formulation. Phenytoin side effects such as dizziness blurred vision etc. may be signs of drug related toxicity.
Anti-histamines	Somnolence may affect up-to 40% of patients with older antihistamines e.g. Chlorpheniramine. The newer anti-histamines e.g. Desloratidine cause less sedation and psychomotor impairment. Risk of hypotension with Cinnarizine is a dose related side effect.
Beta-blockers	Reports of dizziness may be due to postural hypotension and can affect up to 10% of patients. Water-soluble beta-blockers can accumulate in renal impairment and therefore dose reduction is often necessary.
Diuretics	Postural hypotension, dizziness and nocturia are the most frequent problems seen in the elderly. Diuretics should not be prescribed for long-term use in the treatment of gravitational oedema.
Opiate analgesics	Drowsiness and sedation common with initiation of treatment but tolerance to these side effects is usually seen within 2 weeks of continuous treatment. Drowsiness and sedation is rare with Codeine unless concurrently used in combination with other drugs with CNS effects. Confusion also reported with Tramadol.

LOW RISK DRUGS

Calcium Channel Blockers	Incidence dizziness low especially for once daily dihydropyridone calcium channel blockers e.g. Felodipine
Nitrates	Dizziness may be due to postural hypotension. Advise patient to sit when using GTN spray or tablets
Oral anti-diabetic drugs	Dizziness due to hypoglycaemia but usually avoidable. Avoid long acting sulphonylureas e.g. Chlorpropamide.
Proton Pump Inhibitors (PPIs) & H₂ Antagonists	Avoid Cimetidine in polypharmacy patients – high risk of potential drug interactions. Cimetidine also associated with causing confusion in the elderly. Reports of dizziness, somnolence are uncommon and mental confusion or blurred vision rare with the other PPIs and H ₂ antagonists