HOW MEDICINES INCREASE THE RISK OF FALLS

Medicines that increase the risk of falling

PSYCHOTROPICS

Psychotropics increase falls in older people by up to 47 percent (Landi et al 2005). They do so by causing sedation and postural hypotension, and causing or worsening impairments in movement and cognition.

- Falls risk increases with higher doses and additional psychotropics (Sano et al 2012).
- Risk appears greatest in the first three days after the person starts, or increases the dose of, their medicine (Echt et al 2013), but the risk continues while the older person is being treated.

Anti-psychotics (eg, risperidone, quetiapine, haloperidol) are often used to treat behavioural and psychological symptoms of dementia (BPSD). Dementia increases the risk of an older person falling, no matter if they are taking any medicine (Allan et al 2009). Anti-psychotics further increase the risk (Hill and Wee 2012).

- Anti-psychotics are similar in terms of falls risk despite different ADE profiles.(Mehta et al 2010)

Antidepressants (eg, citalopram, venlafaxine, amitriptyline) are used to improve mood and reduce anxiety. Antidepressants increase the risk of the older person falling (Woolcott et al 2009) and also increase the risk of fracture. This is likely due to the role that serotonin plays in bone metabolism (Iaboni and Flint 2013).

- Fracture risk is highest in the first two weeks of therapy, but increased risk continues throughout treatment (Iaboni and Flint 2013) – with higher doses linked to increased fracture rates (Vestergaard et al 2013).
- Antidepressant use is associated with recurrent falls (Marcum et al 2016), although the causal role of these medicines is quite controversial (Gebara et al 2015). The question is, do depressed people fall? Or do antidepressants make people fall?

Hypnotics and sedatives (eg, benzodiazepines such as diazepam, lorazepam, triazolam; zopiclone), used to treat anxiety or insomnia, increase the risk of a fall, especially in older people with cognitive impairment or who have fallen previously (Gallagher et al 2008).

- Both long-acting and short-acting agents increase the risk of falling (Landi et al 2005).
- Hypnotics have only a small and limited positive effect in improving sleep (Glass et al 2005).

MANAGING THE BALANCE BETWEEN BENEFIT AND RISK

- Start using psychotropics only if the benefits outweigh potential risks.
- Use the lowest dose possible, for the shortest duration.
- Review therapy regularly; when using psychotropics for BPSD, taper down and/or stop as soon as possible.
- Educate both caregivers (Fossey et al 2006) and the older person (Salonoja et al 2010) about the adverse effects of using psychotropics. Reducing a dose or stopping use might not cause any behavioural issues to re-emerge.

MEDICINES WITH ANTICHOLINERGIC EFFECTS

Numerous medicines have **anticholinergic** activity which is often distinct from their therapeutic mechanism of action. Such medicines include antipsychotics, tricyclic antidepressants, antispasmodic agents (eg, oxybutynin and hyoscine) and sedating antihistamines. Anticholinergic activity increases the risk of ADEs, including falls (Berdot et al 2009) by causing cognitive impairment, delirium and postural hypotension.

- Anticholinergic burden differs within classes, and those with a lower burden have fewer ADEs (Rudolph et al 2008).

MANAGING THE BALANCE BETWEEN BENEFIT AND RISK

- Avoid medicines with anticholinergic activity or choose an alternative agent where possible.
- Choose a medicine with a lower anticholinergic burden (eg, nortriptyline has less anticholinergic activity than amitriptyline).

ANTIHYPERTENSIVES AND DIURETICS

Antihypertensives (eg, metoprolol, felodipine, cilazapril) are used to treat hypertension, ischaemic heart disease and atrial fibrillation, and for secondary prevention of cardiovascular disease.

Diuretics are used to reduce fluid retention (eg, furosemide) and/or reduce blood pressure (eg, bendrofluazide).

All classes of antihypertensives and diuretics have been shown to increase the risk of falls (Gribbin et al 2011; Tanaka et al 2008). Risk is greatest in the first 1–2 weeks from the start of the medicine or from its increase in dose (Berry et al 2012; Butt et al 2013; Gribbin et al 2011).

- Newly initiated antihypertensives increase the chance of a fall leading to injury by up to 69 percent during the first 45 days of treatment and also increase the risk of hip fracture by 43 percent during this time (Butt et al 2013).

MANAGING THE BALANCE BETWEEN BENEFIT AND RISK

- Check whether therapy continues to be clinically indicated (eg, earlier angina or an earlier oedema may no longer exist or trouble the older person).
- Perform lying and standing blood pressure checks to exclude postural hypotension and/or educate the older person in how to manage it.
- Check the older person's blood pressure routinely, and reduce the dose of medicine if their blood pressure is consistently below normal limits. Blood pressure targets for older people may be higher than those for younger people. However, the impact of blood pressure goals on falls may be slight.

ANTI-EPILEPTICS

Anti-epileptics (eg, phenytoin, carbamazepine, valproate sodium, gabapentin) are used to control seizures, stabilise moods and control neuropathic pain.

Anti-epileptics increase the risk of falls, in addition to the increased risk associated with epilepsy (Ahmad et al 2012) by causing dizziness, ataxia and unsteady gait (Carbone et al 2010).

- Anti-epileptics change bone metabolism, and reduced bone mineral density increases the likelihood of falls-related fractures (Ahmad et al 2012).
- The risk of fracture increases with enzyme-inducing anti-epileptics (eg, phenytoin, carbamazepine) and multiple anti-epileptics (Carbone et al 2010) and longer duration of use (Ahmad et al 2012).

MANAGING THE BALANCE BETWEEN BENEFIT AND RISK

- Review the anti-epileptic therapy regularly, especially if it is being used for non-seizure-related indications.
- Discuss stopping anti-epileptic therapy with the older person if they are not driving, are free of seizures, and are taking only one anti-epileptic medicine.

OPIOIDS

Opioids (eg, morphine, tramadol, codeine, oxycodone, fentanyl) are used to manage moderate to severe pain. Opioids can increase the risk of falls by inducing postural hypotension, sedation and dizziness (Gallagher et al 2008).

- Opioids increase the risk of an older person falling, but this risk needs to be balanced against the benefit of providing adequate and appropriate analgesia (O'Neil et al 2012).

MANAGING THE BALANCE BETWEEN BENEFIT AND RISK

- Balance the risks against the benefits of treating pain.
- Taper down and stop the opioids as soon as possible when used to manage acute pain (eg, after a fracture).
- For severe pain, administer paracetamol regularly in addition to opioids.
- Use non-pharmacological methods of pain relief where possible (eg, massage, orthotics and heat packs).

Medicines that increase the risk of injury

ANTICOAGULANTS

Anticoagulants (eg, warfarin, dabigitran) are used to reduce the risk of blood clots. They increase the risk of bleeding in falls-related injuries.

- Among older people hospitalised after a fall, haemorrhage is more common in those on long-term anticoagulants compared with non-users (Pieracci et al 2007).
- However, warfarin treatment for atrial fibrillation is under-prescribed (by about 50 percent) for older people, and risk of falling is the most commonly cited reason for not prescribing. Even in older people at risk of falling, the benefits of warfarin can outweigh the potential risk of falls-related bleeding (Garwood and Corbett 2008).

MANAGING THE BALANCE BETWEEN BENEFIT AND RISK

- Educating older people and their caregivers about anticoagulation helps to reduce the risk of bleeding risk (Garwood and Corbett 2008).

PROTON PUMP INHIBITORS

Proton pump inhibitors (PPIs) (eg, pantoprazole, omeprazole) are acid-suppressive medicines commonly prescribed to treat conditions such as gastro-oesophageal reflux (GORD).

Emerging evidence suggests an increased risk of fracture, although the risk mechanism is unclear (Yu et al 2011).

MANAGING THE BALANCE BETWEEN BENEFIT AND RISK

- Review the use of PPIs regularly: often short courses (6–8 weeks) are sufficient to treat GORD or an ulcer.
- Stop PPIs prescribed to prevent potential medicine-induced bleeding (eg, related to warfarin, ibuprofen) when the original medicine is stopped.