

Polypharmacy and falls

Polypharmacy is common among people living in residential aged care facilities (RACFs). The Royal Commission into Aged Care Quality and Safety has highlighted the high rates of polypharmacy and potential medication-related harm in RACFs. The prevalence of polypharmacy in RACFs, defined as 9 or more medicines, ranges from 12.8% to 74.4%. On average, residents are prescribed a median of 11 prescription medications and nearly two-thirds are prescribed at least one high risk medication.

Quality Indicator Program

The National Aged Care Mandatory Quality Indicator Program (QI Program) requires aged care facilities to report quarterly across five quality indicators - pressure injuries, physical restraint, unplanned weight loss, falls and major injury, and medication management. The medication management quality indicator requires data on the percentage of care recipients who are prescribed nine or more medications and who receive antipsychotic medications. The falls and major injury indicator require data on the percentage of care recipients who experience one or more falls and who experience one of more falls resulting in major injury.

What is polypharmacy?

The World Health Organization (WHO) defines polypharmacy as “the administration of many drugs at the same time or the administration of an excessive number of drugs”. Polypharmacy is commonly defined as concomitant use of 5 or more medications. However, 9 or more medicines is also used as an indicator for polypharmacy, especially in aged care.

It is important to recognise that prescribing multiple medications is often required among people with multiple conditions and can be appropriate. Residential medication management reviews (RMMRs) can be conducted by pharmacists to determine actual or potential medication-related harm and ongoing use of medications no longer indicated (inappropriate polypharmacy).

Polypharmacy can be associated with an increased risk of death, falls, drug interactions and medication-related hospitalisation. Polypharmacy increases the risk of falls by at least 20%. The risk of falling increases significantly with the number of medications used per day.

Falls in aged care

Falls occur in approximately half of all older people living in residential aged care and 40% will experience recurrent falls. Falls are a leading cause of hospitalisation. Many falls resulting in hospitalisation occur unwitnessed. A fall is defined as coming to rest unintentionally on the ground or a lower level with or without losing consciousness.

The prevalence of falls strongly increases with age. People over 80 years of age are at the highest risk of falls. Between 20% and 32% of residents who fall each year will experience a fall-related fracture.

Falls often occur at the bedside and when toileting. Common complications of falls include:

- Bone fractures
- Joint dislocation (often shoulders and knees)
- Closed head injuries with altered consciousness
- Subdural haematoma
- Bruising, lacerations and skin tears

Having a fall increases the risk of subsequent falls. Falls often result in loss of confidence from fear of falling again and depression. This can lead to increased frailty as a result of decreased mobility and safety. An estimated 5% of people who have a hip fracture die in hospital.

The risk of falling increases dramatically with the number of risk factors. Risk factors for falls include:

- History of previous falls
- Postural instability, unsteady gait, muscle weakness
- Cognitive impairment, delirium
- Increased urinary frequency and incontinence
- Low blood pressure, particularly postural hypotension
- Dizziness, fainting, syncope, vertigo
- Use of sedatives and antipsychotics
- Visual impairment
- Previous stroke
- Functional dependency

Slow walking speed may be an indicator of potential harm associated with polypharmacy and falls.

Modifiable risk factors for falling include pain, cognitive impairment, delirium, not using walking aids, and medications.

Medications can contribute to falls due to adverse effects such as drowsiness, dizziness, blurred vision, confusion and postural hypotension. Falls-risk-increasing drugs (FRID) include:

- Benzodiazepines and Z-drugs
- Antidepressants
- Antipsychotics
- Cardiovascular medications
- Opioids
- Anticholinergics
- Some hypoglycaemics (sulfonylureas, insulin)

Combinations of psychotropic medications increase the risk of falls. The highest risk of hip fracture is when a benzodiazepine and an SSRI antidepressant are started together. There is a five-fold increased risk, equating to one extra hip fracture for every 17 people aged 80 years and over who are treated for a year. The combination of SSRIs and opioids also significantly increases the risk of falls.

Cardiovascular medications that cause postural or orthostatic hypotension (beta-blockers, ACE inhibitors, calcium channel blockers, diuretics, nitrates) are commonly associated with fall-related hospitalisation. There is a strong association between medications that can cause orthostatic hypotension and fall-related hospital admissions. This association is strongest amongst residents with polypharmacy.

Falls-risk medications initiated after a fall such as opioids can contribute to subsequent falls risk. Administration of PRN opioids in addition to regular administration is linked with an increased falls risk.

Polypharmacy and falls

There is conflicting evidence on whether polypharmacy contributes to a higher risk of fall-related hospital admissions from aged care. However, there is strong evidence that falls-risk medications directly contribute to fall-related injuries. The risk of fall-related hospital admissions increases for each additional falls-risk medication. And this risk is strongest in residents with polypharmacy.

A recent analysis of Australian medication-related hospital admissions in aged care residents showed 87% of admissions for fractures occurred in people using falls-risk medicines. Only three-quarters of residents were prescribed a medicine to prevent fractures (denosumab, bisphosphonates, teriparatide).

Another study from South Australia showed all fall-related hospitalisations from residential aged care services were taking at least one high falls-risk medication. This study identified that falls risk may be elevated following initiation or increase in dose of medication associated with increased falls risk.

Discontinuing or reducing the doses of falls-risk medications significantly decreases the prevalence of falls. The risk of a fall is halved after withdrawal of all fall-risk-increasing drugs. The effect is greatest for withdrawal of cardiovascular medications. The withdrawal of antihypertensives in older persons has no effect on all-cause mortality and myocardial infarction and is not associated with substantial changes to blood pressure.

Summary

Polypharmacy is a common contributor to falls in residential aged care. Falls can have a large impact on functioning and quality of life of older people. Residential Medication Management Reviews conducted by a pharmacist in collaboration with a medical practitioner can identify high falls-risk medications. Falls-risk targeted medication reviews are recommended. Falls risk assessments should be conducted at regular intervals and when clinically indicated. Multifactorial strategies including medication reviews are associated with a reduction in falls.

References

- Journal of Evaluation in Clinical Practice* 2016;22(5):677-82.
Medical Journal of Australia 2021;214(9):432-33.
National Aged Care Mandatory Quality Indicator Program (QI Program) Manual 2.0 – Part B
British Journal of Clinical Pharmacology 2005;61(2):218-23.
BMJ Open 2017;7:e016358.
Australian Prescriber 2019;42:93–6.
Australasian Journal on Ageing 2021;40:e323–e331.
Aging Clinical and Experimental Research 2020;32:1947-57.
Drugs Aging 2017;34:625-33.
British Journal of Clinical Pharmacology 2006;63(2):232-7.

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