How overmedication is injuring and killing the elderly—a world-first study

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Elderly taking multiple high-risk medications for sleeping, pain or incontinence are twice as likely as others to fall and break bones, with many dying within a year of their injury, new research shows.

The University of Otago, Christchurch study is the first in the world to

measure the impact of taking multiple medications on fractures in the elderly. In elderly, 90 per cent of fractures are the result of a fall. Between 20 and 30 per cent of elderly die within a year of suffering a fracture.

The information will now be used in a nationwide study of pharmacy databases to see if prescriptions of certain high risk drugs can be reduced in the elderly.

The overmedication and fractures study was led by geriatrician and University of Otago, Christchurch researcher Dr. Hamish Jamieson. Professor Phil Schluter from the University of Canterbury was the lead biostatistician. The study also involved scientists from six other universities, including Harvard and John Hopkins Universities and the Universities of Sydney and Canterbury. It was funded by the Government's Ageing Well National Science Challenge.

Dr. Jamieson says the impact of fractures on individuals and the community is immense. They result in loss of mobility, poorer quality of life, early entry into an aged care facility, and in up to a third of people with a broken hip, death within a year of the injury. Specifically, the research team found:

- People taking more than three Drug Burden Index medications (specific medications that sedate or affect a person's cognition) are twice as likely to break their hip than those taking no medications.
- Between 20 percent and 30 percent elderly who broke their hip died within a year.
- In the elderly, 90 percent of all broken bones are the result of falls.

Dr. Jamieson says understanding how taking multiple medications

impacts on falls and broken bones is a significant piece of information for patients, their GPs and pharmacists. The reason multiple medications cause falls is because drugs have side effects and each medication may react with others to create additional effects, he says.

Medications linked with significantly increasing the risk of broken bones had 'sedatory' and 'anticholinergic' side effects. These medicines are common and prescribed for many conditions such as sleeping, pain and incontinence. Side effects of the medicines include sedation, a dry mouth, blurred vision, dizziness and confusion, Dr. Jamieson says.

"All medications have beneficial impacts. However, increasingly we are studying the long term side effects of medications in the elderly. The impacts can be subtle but this can cause a major impact in the frail elderly and can cause falls, loss of independence and even premature death."

Dr. Jamieson says a number of factors predispose the elderly to medication side effects. This includes not being able to metabolise medications as well as young people, being on multiple medications, and frail and more susceptible to side effects.

Rather than stopping medications themselves, elderly patients should regularly get their GP to review their medication.

Dr. Jamieson says New Zealand's world-leading dataset on the elderly, called InterRAI, made the study possible. InterRAI is a Ministry of Health database of results from comprehensive assessments of elderly New Zealanders health and wellbeing. The Ministry does more than 100,000 InterRAI assessments every year.

Provided by University of Otago