

# “Am I taking too many drugs?”



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A question frequently asked by elderly patients is: “Am I taking too many drugs?” Polypharmacy is particularly common in the

### The case of Mrs. Ross

Mrs. Ross, 85, lives alone in an apartment on the first floor of a duplex. She is independent in her activities of daily living and prepares her own meals. Her children help her with shopping and housekeeping. She has rarely gone out in the past five years and does not feel sturdy enough to use the stairs. Her medical history includes arterial hypertension and diverticulosis of the colon.

She is brought to the emergency department after falling and is diagnosed with a hip fracture. She has surgery (nailing) and starts rehabilitation. After staying in the hospital for three weeks, she returns home, but has regular physical therapy as an outpatient.

### In this article:

1. Which drugs should be avoided in the elderly?
2. What steps should be followed in prescribing new drugs for the elderly?
3. What is the family physician’s role?

geriatric population. In both the U.S. and Canada, it is estimated that people 65 and over (representing 13% of the population) account for 35% of the prescription drug use. There are many reasons for this, but the first thing to bear in mind is that with aging, the risk of presenting with one or more chronic diseases requiring pharmacologic treatment increases.

A better question for a patient to ask might be: “Are the drugs I am taking appropriate for my medical condition, taking into account my physiologic condition and possible drug interactions?” There is currently some rather disturbing information about drug use in the elderly.

In 1994, a study based on Quebec Health Insurance Board data examined the use of three

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categories of drugs (cardiovascular, psychotropic, and nonsteroidal anti-inflammatories) by the elderly. It showed that 52.6% of patients had obtained one or more prescriptions that carried a high risk (*i.e.*, justified only in certain circumstances), and 45% had a questionable prescription (*i.e.*, not justified except in rare circumstances).<sup>1</sup>

Another study, done in North Carolina, reported that one out of five community-living elders had at least one prescription that was inappropriate, as defined by a panel of experts.<sup>2</sup>

This phenomenon of overprescribing is of particular concern because the risk of side-effects is higher in the elderly due to age-related pharmacokinetic and pharmacodynamic changes. Furthermore, taking several drugs at the same time

increases the risk of drug interactions that have significant clinical consequences. Numerous serious, undesirable effects have been reported in geriatric patients taking multiple medications. These side-effects include delirium, falls, fractures, hypotension, electrolytic disorders, heart failure, depression, incontinence, hospitalizations, and even death.<sup>3</sup>

## More on Mrs. Ross

This patient has a history of repeated falls, the last of which resulted in a hip fracture. The medical assessment did not reveal any particular etiology, apart from a slight balance problem (Table 1). Could the drugs she is taking be a factor?

### Important questions to ask in the case of Mrs. Ross

#### 1. What were the exact circumstances of her fall?

She was standing by the stove making coffee. She thinks she lost her balance when she turned around, but she does not think she tripped on anything or lost consciousness. She could not get up by herself.

#### 2. Had she ever fallen before?

In the past year or two, she had fallen once or twice a month, always when moving around in her apartment. She never lost consciousness and the falls were never preceded by dizzy spells. She could get up by herself and was never injured before she fractured her hip.

#### 3. Usually, how mobile is she?

She doesn't use a walker, but tends to lean on the furniture because she feels that her balance is not very good.

#### 4. Are there any attendant symptoms?

She has no neurologic or cardiac symptoms. Her vision, hearing, and cognitive functions are well-preserved. She has no serious joint problems and the review of systems is completely negative. She does not drink alcohol.

#### 5. What drugs is she taking?

- Nifedipine, 60 mg, every second day
- Vitamin D, 400 IU, every second day
- Flurazepam, 30 mg, at bedtime
- Alendronate, 70 mg, once a week
- Propranolol, 10 mg, every second day
- Ranitidine, 150 mg, twice daily
- Calcium, 500 mg, twice daily

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After a careful review of her pharmacologic history from her previous file, hospital records, and the pharmacy she has been going to for a long time, some additional information was obtained. Nifedipine and propranolol were prescribed six years ago. She has been taking flurazepam for more than 10 years for insomnia. The alendronate, calcium, and vitamin D were prescribed during her last hospitalization, as was the ranitidine, for nausea and vomiting with post-operative epigastric pain. A gastroscopy has not been done lately.

## *What should be done?*

The propranolol and ranitidine are probably not involved in the fall. However, it is questionable whether they are currently useful. The prescribed dose of propranolol is subtherapeutic and it could probably be stopped. The same is true of the ranitidine, which is no longer indicated. As for the flurazepam, a real effort should be made to wean her off it or to replace it with a benzodiazepine with a short half-life if it is absolutely necessary.

## *Are there any drugs that one should avoid prescribing for the elderly?*

Long-acting benzodiazepines are associated with an increased risk of falls, fractures, and delirium (Table 2). They do not provide any advantages over short-acting benzodiazepines and thus, their use is not recommended in the elderly.<sup>4</sup> If it is absolutely necessary to prescribe

Table 1

### Mrs. Ross's medical examination results

- Generally in good health
- Blood pressure: 135/80 mmHg (lying and standing)
- Pulse: 68 beats per minute
- Vision: 20/30 with glasses, but starting to develop cataracts in both eyes
- Neck, heart, lungs, and abdomen: Normal
- Neurologic exam: Normal, except for slightly reduced pallesthesia in her toes
- Balance is slightly reduced (walks with a cane)
- Folstein mini-mental status: 30/30

Table 2

### Half-life of long-acting benzodiazepines in the elderly

Benzodiazepine	Half-life
Diazepam	26-200 hours
Chlordiazepoxide	8-200 hours
Flurazepam	96-250 hours
Clorazepate	30-200 hours

a benzodiazepine, you should choose one with a short half-life, such as oxazepam, temazepam, or lorazepam.

Many other drugs should not be prescribed for the elderly because of their high potential for serious, undesirable reactions in this population (Table 3).<sup>5</sup>

## Prescribing a new drug

Before writing a new prescription for an elderly person, the prescriber should think carefully: Is the diagnosis clear? Remember, there is often atypical presentation of several diseases in geriatrics. Could the symptoms seen be drug-related side-effects? Beware of the drug cascade phenomenon, where an undesirable effect is misinter-



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Table 3

## Drugs to avoid in the elderly

### Psychotropics

- Long-acting benzodiazepines
- Barbiturates (except phenobarbital)
- Fluoxetine: Half-life too long
- Amitriptyline and imipramine: Increased risk of side-effects related to anticholinergic effects; use nortriptyline or desipramine

### Narcotics

- Meperidine: An active metabolite with long half-life, resulting in risk of accumulation

### Anticholinergics

- Benztropine and procyclidine: Very high risk of delirium

### Gastrointestinals

- Cimetidine: Risk of interactions; highest risk of side-effects on the CNS among its class
- Metoclopramide: Dopamine antagonistic activity; crosses the blood/brain barrier and leads to risk of extrapyramidal syndrome

### Nonsteroidal anti-inflammatories

- Indomethacin: Has more side-effects on CNS
- Piroxicam: Toxic; long half-life
- Diclofenac: Risk of hepatotoxicity

CNS: Central nervous system

preted as a medical condition and results in a new prescription that could also cause other side-effects.<sup>6</sup> One frequent example of this is hypertension secondary to taking anti-inflammatories.

### *What are the treatment objectives?*

Is the purpose of a prescription to prevent, cure, or relieve? In geriatrics, the primary goal is to maintain autonomy and quality of life. Preventive treatments must take comorbidity and life expectancy into account. Physicians must ask themselves if there are any non-pharmacologic treatment alternatives and whether the benefits of certain drugs outweigh the risks?

## What is the family physician's role?

Family physicians are at the centre of the process of managing their patients' drug use. They occupy a privileged position because of their knowledge of their patients, the longitudinal followup they can provide, and the coordination role they must play when their patients are followed simultaneously by different specialists. To be able to do all this, family physicians must constantly be on the lookout for new knowledge about age-related pharmacokinetic and pharmacodynamic changes.

Table 4

## Drug rationalization strategies

1. Get a list of all the drugs actually being used from the patient and his/her family, as well as from the pharmacy/pharmacies.
2. Determine how long the medications have been used.
3. Make sure each diagnosis in the file is properly sustained.
4. Correlate the treatment with the diagnoses.
5. Stop the most harmful drugs or those for which the indication is most questionable. Don't make too many changes at once.
6. Always arrange for a followup when a treatment is modified.

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They must know which drugs to avoid and they must turn to specialists for advice when necessary. Above all, they must take a structured approach to monitoring and reviewing drugs and remember that there are certain risks involved with stopping some drugs, especially cardiovascular drugs (Table 4).<sup>7</sup> The best time to do a drug review is when seeing a new patient, during regular medical exams, and after hospitalization or consultation with a specialist.

## The ultimate responsibility

Iatrogenic problems related to inappropriate drug use are a major cause of morbidity, loss of autonomy, and even mortality in the elderly. Diagnoses should never be accepted at face value and you must verify, by carefully checking the files, that diagnoses are properly substantiated. You must schedule time for observation and use appropriate care structures to wean the patient off certain drugs if necessary (*e.g.*, day hospital, geriatric units). Physicians have the ultimate responsibility for prescribing drugs. They must show leadership in an effort to achieve more rational drug use. [CME](#)

### Take-home message



- Before prescribing medications to the elderly, the diagnosis must be absolutely clear.
- On examination, beware of symptoms which may be drug-related side-effects.
- Long-acting benzodiazepines should be avoided in the elderly, as should many other drugs (Table 3).
- Be aware of age-related pharmacokinetic and pharmacodynamic changes when prescribing new medications, as well as when stopping medications.

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