

New Drugs, Old Folks: Prescribing for the Elderly



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Presented at McGill University's 38th Annual Course in Drug Therapy, Montreal, Quebec, May 2007.

Prescribing medications for the elderly is an ongoing challenge. The yearly approval of new drugs for use in Canada adds to the task of assimilating new information and making best prescribing choices. This article will describe some of these new drugs and their appropriate use in elderly patients. Although the development and use of medications has resulted in many treatments that prolong and improve quality of life, side-effects and drug-related illness are situations all clinicians wish to avoid. Table 1 lists some of the many factors involved.

Q What are some recently-approved drugs?

The following is a small selection of the drugs recently approved for use in Canada and their appropriate use in the elderly.

Rasagiline

Rasagiline is a new irreversible and selective monoamine oxidase B inhibitor for use in Parkinson's disease. It can be given as monotherapy in early disease and as adjunct therapy in advanced disease. Key features of this drug are:

- Absorption not influenced by food (as opposed to levodopa)

- Liver metabolized, involving cytochrome P450 1A2 (e.g., ciprofloxacin or fluvoxamine can lead to increased drug levels)
- Potential for serotonin syndrome with selective serotonin reuptake inhibitors, tramadol and methadone
- Need to avoid foods high in tyramine content which can lead to a hypertensive crisis
- Troublesome side-effects (e.g., headache, arthralgias, dyspepsia, depression, orthostatic hypotension, hallucinations, somnolence, delirium)
- Dosing: 1 mg q.d. (0.5 mg in hepatic insufficiency)
- Cost: approximately \$200 per month

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Table 1

Some factors responsible for drug-related illness

Type	Example
Drug-drug interactions	Warfarin and ciprofloxacin (risk of bleeding)
Drug-disease	Metoclopramide in a patient with Parkinson's disease (leads to worsening of Parkinson's symptoms)
Drug-alcohol	Chronic benzodiazepines (risk of falls)
Drug-food	Levodopa and protein meals
Drug-herbal products	Acetylsalicylic acid and Ginkgo biloba (risk of bleeding)
Drug-nutritional state	Phenytoin and hypoalbuminemia (risk of phenytoin toxicity)
Dose too high	Diazepam 10 mg t.i.d. (risk of falls)
Therapeutic duplication	Clonazepam b.i.d. and lorazepam h.s. (risk of falls)
Pharmacokinetic changes	Ciprofloxacin and olanzapine (rigidity and falls)
Pharmacodynamic changes	Ciprofloxacin and glyburide (profound hypoglycemia)
Pill identification	> 300 "little white pills"

Pregabalin

Pregabalin is an atypical antiepileptic and works as a γ -aminobutyric acid receptor analogue. It is useful in neuropathic pains and post-herpetic neuralgia. Features include:

- Potency of 4:1 (900 mg of gabapentin is equivalent to 150 mg of pregabalin)
- No drug-drug interactions
- No comparison trials
- Taper or titrate by changing a half dose every seven days
- Renal dose adjustment (see Table 2)



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Anticholinergic agents for overactive bladder (OAB) syndrome

There are three new agents that are now available for OAB syndrome: trospium, solifenacin and darifenacin. All agents are effective in reducing urinary urgency symptoms, but there are no direct comparison studies. Drugs that are more selective for the M3 muscarinic receptors have the same efficacy but reduced systemic anticholinergic side-effects (e.g., dry eyes, dry mouth, possibly delirium). Although these new drugs have theoretical advantages, they should still be used cautiously in the elderly until more post-market experience is obtained. Table 3 compares the various drugs now available to treat OAB syndrome.

Table 2

Adjusting pregabalin in renal impairment

Estimated creatinine clearance (mL/minute)	Dose range
≥ 60 mL/minute	75 mg-300 mg b.i.d.
30 mL/minute to 59 mL/minute	25 mg-150 mg b.i.d.
15 mL/minute to 29 mL/minute	25 mg-150 mg q.d.
< 15 mL/minute	25 mg-75 mg q.d.

Table 3

Various drugs now available to treat overactive bladder syndrome

Drug	M3 selective	Elimination	Dose	Monthly cost
Tolterodine (long-acting)	No	Hepatic CYP 2D6/3A4	2 mg-4 mg q.d.	\$25
Oxybutynin	No	Hepatic CYP3A4	2.5 mg-5 mg b.i.d. to t.i.d.	\$24
Darifenacin	Yes	Hepatic CYP3A4	7.5 mg-15 mg q.d.	\$125
Solifenacin	Yes	Hepatic CYP3A4 and renal	5 mg-10 mg q.d.	\$49
Trospium	No	Renal	20 mg b.i.d.	\$45

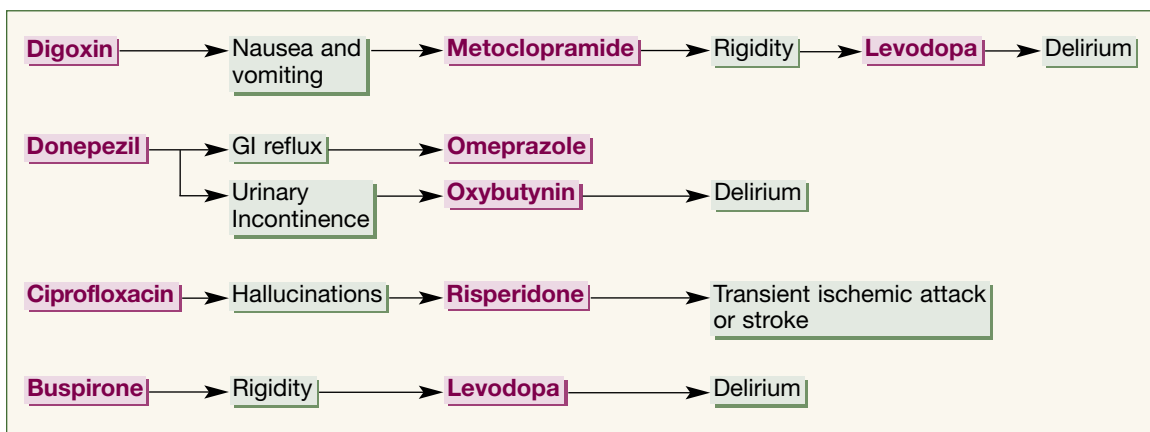


Figure 1. Examples of prescribing cascades.

Lubiprostone

This novel drug is a fatty acid which activates the intestinal chloride channel that enhances intestinal fluid secretion. Characteristics of this drug include:

- Highly protein-bound
- Metabolized rapidly in the stomach and jejunum; half-life is 1.1 hours
- Claims no drug interactions
- Results in a four-fold increase in spontaneous bowel movements
- Dosing: 24 mcg b.i.d.
- Cost: approximately \$90 per month


A prescribing cascade situation is created when the side-effect of one drug is misinterpreted as the presence of a new condition, which triggers the prescribing of a second drug.

Q What is the prescribing cascade?

Another important phenomenon all clinicians should be aware of is the prescribing cascade. This situation is created when the side-effect of one drug is misinterpreted as the presence of a new condition, which triggers the prescribing of a second drug. This situation can also lead to

multiple cascades. Figure 1 provides examples of prescribing cascades.

Q What are some final thoughts?

With increased knowledge of appropriate prescribing for the elderly and increased vigilance for possible drug-related illness, adjustments in drug therapy in the elderly can be made to maximize their benefits and improve the quality of healthcare. 

Resources

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