Conscientious family physicians and polypharmacy

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One of the traditional goals of internist geriatricians and of family physicians providing care for elderly patients has been to review and reduce the amount of medication patients are taking. This can be one of the great pleasures of geriatric medicine, with obvious and proven benefits for older patients.

Polypharmacy can be defined as the concomitant use of many medications. The more medications older patients take, the greater the risk of drug interactions and hospitalizations due to adverse drug reactions. Medication compliance is a serious issue for older patients and decreases when patients take many medications. In a recent study of a frail elderly population attending a geriatric day hospital, patients were taking in the last month, on average, 10.5 medications, which included over-the-counter medications. For all these reasons, decreasing medications remains an important part of geriatric care.

In the last few years, physicians working with elderly patients have emphasized health promotion and prevention and have attempted to apply evidence-based medicine to geriatric care. These positive strategies have, however, paradoxically affected the relationship between conscientious family physicians and polypharmacy. Two examples of the relationship between health promotion, evidence-based medicine, and medication use can be found in managing osteoporosis and heart disease.

Osteoporosis

Osteoporosis is very common in frail elderly patients, particularly women. The burden of illness with osteoporosis is tremendous, and the effect on patients’ lives and independence can be great. Despite the evidence for pharmacologic prevention and treatment of established osteoporosis, family physicians have been shown to undertreat it. Conscientious family physicians who appropriately identify and treat patients with osteoporosis are faced with the dilemma of adding more medications to their patients’ list in order to follow guidelines and to adequately address a substantial clinical problem.

Canadian guidelines suggest that patients with established osteoporosis take 1000 to 1500 mg of elemental calcium and 400 to 800 IU daily of vitamin D. Bisphosphonates are recommended for established osteoporosis, and estrogen should still be considered for elderly women. Unfortunately, this means that patients, who are typically asymptomatic, must take three large 1250-mg calcium carbonate tablets daily, vitamin D either daily or weekly, and a bisphosphonate (with or without estrogen) daily.

In Ontario, etidronate disodium and calcium carbonate (eg, Didrocal) are covered by the Drug Benefit Program. This results in a complicated regimen where patients take one calcium tablet from the package for 2.5 months with two additional 1250-mg tablets to get an adequate intake but limit calcium supplementation for 2 weeks of each cycle when taking the etidronate.

It is easy to see why compliance can become a problem for older patients; it would for anyone taking such a complicated regimen. Calcium tablets are often large and difficult to swallow. Nausea is a common side effect of calcium and bisphosphonates. Calcium might interfere with the absorption of antibiotics and bisphosphonates. Educating patients about the proper use of medications and about side effects can be time-consuming, and the effectiveness of educational intervention on compliance is questionable. Although the potential benefit of reducing fractures is important, the effect of treatment on a patient’s life is also relevant.

Although a qualitative approach to the definition of polypharmacy might identify inappropriate medication use more effectively, higher absolute numbers of medications taken is still associated with bad outcomes. More drug-related problems at time of admission to acute care has been associated with multiple medication use. In nursing home residents, a higher number of scheduled medications was associated with increased risk of adverse drug events. Medication compliance is inversely correlated with number of medications taken.

Cardiovascular disease

Another challenging clinical area with older patients is managing cardiovascular disease using evidence-based strategies. Once again, the burden of disease is substantial, and the amount of evidence for the benefits of treating a variety of cardiac conditions in older patients is growing.
rapidly. For some patients, however, the resulting polypharmacy might be debilitating. A large proportion of older Canadians fulfil criteria outlined in the Heart Outcomes Prevention Evaluation (HOPE) Study for use of ramipril. Patients being seen by conscientious and up-to-date family physicians or geriatricians now almost automatically end up taking ramipril, enteric-coated acetylsalicylic acid, and sometimes spironolactone. Angiotensin-converting enzyme (ACE) inhibitors can cause renal failure and hyperkalemia in older patients, as well as more subtle effects, such as cough and postural hypotension. Optimization of cardiac medications once again complicates the medication regimen and adds to the risk of therapeutic misadventure. Are conscientious physicians, who are paying attention to risk factors and prevention, contributing to other problems for patients?

Outcomes versus negative consequences

Conscientious family physicians generally attempt to use an evidence-based approach to providing care. This involves the “conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients.” Applying evidence-based medicine involves integrating evidence from systematic research with a physician’s individual clinical expertise and experience. The balance between these factors is particularly relevant for frail elderly patients where outcomes might be less clear and negative consequences of treatment subtle and clinically significant.

When using numbers needed to treat (NNT) for preventive strategies, factors that need to be weighed include severity of outcome, treatment options for the event if it is allowed to happen, potential for adverse events from the intervention, and effectiveness of the intervention. Another factor is whether frail elderly patients will live long enough to get the benefit of risk reduction.

Weighing these factors for elderly patients with osteoporosis is interesting. The outcome of hip and vertebral fractures can be devastating, and treatment is limited to surgery and analgesics. Intervention is relatively effective, with an NNT for calcium and vitamin D between 20 and 40 people treated for 3 years to prevent one hip fracture. The NNT for alendronate is approximately 60 patients treated for 4 years to prevent one vertebral fracture and 37 patients for those with more advanced osteoporosis. Analysis of the cost-effectiveness of using vitamin D and calcium is surprising in that there was a substantial cost to prevention even with a relatively inexpensive intervention. Potential adverse events for frail elderly patients include the risks of polypharmacy; potential effect on quality of life; and common adverse effects, such as nausea and constipation. My own frail elderly patients already taking many medications consider the number of medications as a more important factor than the benefits gained over many months to years.

The NNT in the HOPE trial was 67 patients for 4.4 years to prevent one stroke; to prevent one myocardial infarction, the NNT was 42. The mean age of patients was 66, and almost 75% were men. Twenty-nine percent of subjects discontinued ramipril during the study. Although the NNT for these serious outcomes was quite good, it is hard to know how to generalize them to frail elderly patients, who do not appear to have been well represented. The high rate of discontinuation of treatment might be an even greater problem with older patients taking many medications already.

In a recent study, average doses of ACE inhibitors at time of discharge from a medical unit were below target range. The benefit of lower doses of ramipril is unclear. In my clinical experience, low doses are common in very elderly patients, and a study of adequacy of dosing in this population would be relevant.

Striking a balance

Making medical decisions is particularly complex in this population because of the difficulty of successfully striking a balance between “hard-to-sort-through” evidence and clinical judgment. In addition, the effects of personal values and experiences, societal values, and economic considerations could influence decisions to a greater degree than with younger patients. Given the potential for oversimplification of a very complicated process, indiscriminate use of evidence-based approaches is worrisome.

Unfortunately, little research looks at preventive prescribing for the elderly or their views of this approach. A MEDLINE search using the MeSH heading health promotion and prevention/over age 65 discovered few articles other than studies of the effectiveness of interventions. The one study looking at patients’ perspectives found that very elderly patients reported having little interest in cancer screening, exercise, and dietary interventions because they felt they had lived a long time and did not wish to prolong life. The lack of literature might reflect the difficulty of doing this research and perhaps the
fact that pharmaceutical companies would not be likely to fund such research.

Researchers would face the difficult task of adequately measuring or defining many important clinical outcomes for older patients. How multiple medication use, compliance, and adverse drug events affect quality of life is difficult to measure or define for individual patients. It is difficult to weigh intangible outcomes and values against more easily quantifiable values, such as blood pressure, fracture rates, and cardiovascular events. For many older patients, the burden of multiple medication use could be as important a topic for research as the rate of cardiovascular events. The only evidence family physicians have to use in clinical decision-making, however, relates to outcomes in clinical trials. Studies looking at even more quantifiable outcomes are also of limited value for older patients because many RCTs do not include older patients or they exclude people with any degree of frailty.20

Many still resist

Despite physicians’ best intentions to provide evidence-based medicine, they often find it easier when treating frail, elderly patients to simply provide medications rather than engage in the explanations and collaborative decision making mandated by evidence-based principles. In my experience, decisions about drug therapies are frequently made without older patients’ input. Yet even when my patients are fully informed about potential benefits, they still complain about the number of medications they are taking and frequently resist adding a new medication to decrease risk or improve outcomes.

Geriatric medicine is a field where the absence of evidence has done older patients a disservice. Rote application of evidence to frail older patients has some negative outcomes that can be difficult to measure. The burden and risk of multiple medication use and polypharmacy is one such risk. Asking ourselves the question, “Will this treatment lengthen or improve the quality of this patient’s life?” might help to strike the necessary balance between evidence and clinical expertise. Emphasis on treating people and not just managing their “outcomes” is one of the strengths of geriatric care by family physicians. Ignoring this puts us at risk of “not seeing the forest for the trees!”

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