Monitoring: To infinity and beyond!

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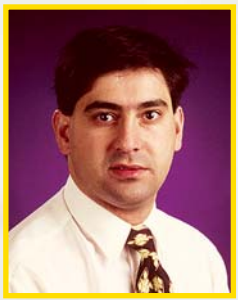

This is the final article in this series on general practice prescribing which has focussed on developing a practical, rational and evidence based approach to prescribing.

BACKGROUND For many patients, the initial prescription is only the beginning of the prescribing process, with the prescription needing to be repeated, sometimes for the life of the patient.
OBJECTIVE This article discusses the factors to consider when reviewing a patient for a repeat prescription and some approaches to long term pharmacotherapy.
DISCUSSION When writing repeat prescriptions it is important to take time to consider the physiological changes of aging, emergence of new contraindications in the patient, emergence of new evidence regarding drug therapy, and whether it is appropriate to consider drug withdrawal. The role of the pharmacist in the prescribing process, particularly in performing home medicine reviews, is also briefly discussed.

In this prescribing series we have covered the process of prescribing from start to finish. Increasingly, this process has to be repeated many times as patients return for their repeat prescriptions for lifelong conditions. So what should we be considering when rewriting prescriptions for patients? Look at the case of June.

Case history – June

June is 74 years of age, lives alone, and presents for a repeat prescription of her medications. She is currently on a low dose thiazide diuretic for hypertension and takes inhalers for her asthma. She is on a hormone replacement therapy for menopausal symptoms. June also takes aspirin to thin her blood but does not need a prescription for this.

Many general practitioners prescribing for June would review her asthma management and check her blood pressure on a regular basis. Because she is on a thiazide diuretic, many GPs may also check her electrolytes on a six monthly or yearly basis. It is also a good opportunity to organise a mammogram and Pap test (if appropriate) and perform an annual breast examination. Many GPs also take the opportunity to perform routine blood tests such as cholesterol, and fasting or random glucose in patients over 50 years of age.

The requirement for repeat prescriptions also gives GPs an opportunity to check for drug compliance, reinforce lifestyle issues, and check puffer technique. So what else should GPs be aware of? Four additional areas are to appreciate:

- the physiological changes of aging (eg. in digoxin therapy)
- the emergence of new contraindications in the patient (eg. in warfarin therapy)
- the emergence of new evidence regarding drug therapy (eg. hormone replacement therapy), and
- whether it is appropriate to attempt drug withdrawal (eg. with antihypertensives).

How is aging affecting the patient?

Many GPs would be aware of the need to prescribe differently for elderly patients. Frequently, however, the gradual physiological processes of aging are not considered when reviewing prescriptions.

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Aging can affect the pharmacokinetics of many medications. Although absorption is usually not affected, alterations in body water/fat ratios can alter the volume of distribution (remember that term from student pharmacology days?) of many medications resulting in increased or decreased peak concentrations after single loading doses. In most cases this does not result in dramatic alterations in response to drugs.

Drug elimination

The major changes occur in drug elimination. There is a gradual reduction in the renal clearance of drugs that is reasonably estimated by calculating the creatinine clearance using the equation by Cockcroft and Gault[1] (there is a button on Medical Director software for this where you just have to put in the weight and the serum creatinine). It is important to appreciate that, because of the reduction in muscle mass which results in reduced production of creatinine, serum creatinine by itself is a poor indicator of renal function in the elderly. Hence, an 82 year old woman typically weighing about 60 kg can have a serum creatinine of 0.10 mmol/L which is normal, but only have a creatinine clearance of about 30–40 mL/minute.

There are also changes that occur with hepatic clearance which have been shown to be related to changes in the hepatic sinusoids.[2] This can result in a substantial reduction in the clearance of hepatically cleared drug, with a resultant increase in the serum concentration and half-life. Unfortunately, unlike the case with renal function, there is no ready way to measure this process of aging. Drugs with high hepatic first pass clearance (eg. morphine) are particularly affected because the reduction in hepatic clearance results in a larger amount of the dose reaching the systemic circulation, as well as the drug 'hanging around' much longer.

Altered sensitivity

Apart from altered pharmacokinetics that may result in alterations in drug concentrations, it appears there is also increased sensitivity to certain medications with the aging process (what is termed increased 'pharmacodynamic effect'). For example, central nervous acting agents such as analgesics, sedatives, antiepileptics, antihistamines, and anticholinergics have a greater incidence of adverse effects in the elderly and can also lead to paradoxical reactions such as disinhibition, or contribute to ataxia and falls.

Have circumstances changed?

Coincident with these changes, may be other issues that also have to be reviewed at the time of prescribing. Visual, hearing, gait, dexterity, and intellectual problems can arise, and alterations to the patient's social environment such as increased social isolation, can impact on the appropriateness of drug therapy and related factors such as drug compliance. This particularly can impact medication such as warfarin, which may have been appropriate when first prescribed, but may be contraindicated in light of emerging falls or cognitive impairment. The appropriateness of prophylactic medications such as statins, angiotensin converting enzyme (ACE) inhibitors, and antihypertensives should also be reconsidered in light of the patient's overall functioning and life expectancy. Although it is difficult to cease such medications when the patient is gradually deteriorating, major life events such as admission to high level care, do provide an opportunity to stop such medications.

Is the patient actually taking these drugs?

Drug compliance (or adherence, or concordance, or whatever is the current term for this!) is an important issue with an aging population. Increasingly, multiple different effective treatments are used concurrently in the management of conditions such as cardiovascular disease. It is important to remember there is very little evidence for a 'dosette' by itself making a difference! Useful strategies include a combination of more convenient care, information, reminders, self monitoring, reinforcement, counselling, family therapy, and other forms of additional supervision or attention by a health care provider such as a GP, nurse or pharmacist.[3]

Is there new evidence to consider?

Frequently, the prescription needs to be reviewed in light of new evidence or paradigm shifts in patient management. Whereas it was once appropriate to write a prescription for a histamine-2 antagonist (H2A) for the prevention of ulcers, our approach now is to look for and treat Helicobacter Pylori instead.

In the case of June, the need for hormone replacement therapy should be reassessed in view of recent evidence from the Women's Health Initiative study[4] (an excellent summary of this study can be found at the National Prescribing Service website: nps.org.au/docs/pdfs/npscommentonhrtstudy.pdf).

Is drug withdrawal appropriate?

The final factor to consider is whether it is appropriate to initiate drug withdrawal. Although we tend to think of conditions such as hypertension as lifelong, there is evidence that some patients may eventually be able to go off their medication. A systematic review was able to identify lower blood pressure on treatment, the use of fewer agents and lower doses, and the willingness to accept dietary intervention as factors associated with successful cessation of drug therapy.[5] Similar results were found in the second Australian National Blood Pressure study (ANBP2).[6,7] On the basis of this information, a trial of withdrawal of antihypertensive medication might be recommended for patients who have mildly elevated, uncomplicated hypertension that is well controlled on a single agent, and who are motivated and likely to accept lifestyle changes.

Drug withdrawal can also be considered for many other conditions in which the treatment is symptomatic only, eg. H_2As or proton pump inhibitors for mild reflux disease, nitrates for angina, and NSAIDs for arthritis. There may often be an approach of, 'if it ain't broke, don't fix it', and if medication is withdrawn and the patient has a relapse of their condition, this can undermine the trust in the doctor-patient relationship. For this reason, communicating exactly why medication withdrawal is being attempted, what the risks are, what effects to look out for, and what to do if the disease recurs, are all important. Drug withdrawal, especially for conditions such as hypertension, requires an individualised plan such as halving the dose of medication, reviewing home blood pressure monitoring and GP review.

Given these factors it is easy to see why medication withdrawal is often not attempted, resulting in the unfortunate escalation in patient's medication therapy and the associated costs.

The role of the pharmacist

No mention of good prescribing would be complete without mentioning the vital role of the pharmacist. As pharmacists are often the first port of call for medical advice, they can be involved throughout the prescribing process. They:

- can help identify conditions
- they can be involved in providing information regarding and supporting nonpharmacological management
- frequently notify clinicians of drug-drug and drug-disease interactions that may affect the suitability of medications, and
- can also provide information in the provision of consumer medicine information.

Home Medication Reviews

An emerging important role for pharmacists is their involvement in drug monitoring and Home Medication Reviews. This is a government paid service whereby an accredited pharmacist – in collaboration with the GP – comprehensively reviews the patient's medication regimen in a home visit. The review covers issues such as compliance, adverse effects, drug interactions, over-the-counter medicines and educational needs. The pharmacist then prepares a report for the GP, who discusses a plan of medication management with the patient. Basically, a pharmacist goes to the patient's home, sits down with the patient with all of their medication and goes through them one by one. The pharmacist can see what the patient is actually taking, how they remember to take the medication, if they actually follow the instructions, whether they can open the containers or not, and if they are taking any other medications. How good is that? It is a great help for sorting out medication problems and medication compliance; it is simply good preventive care for at risk patients.

For more information on Home Medication Reviews visit the website: www.health.gov.au/epc/dmmr.htm.

Conclusion

Over the course of this series we have seen that good prescribing is not simply about legible handwriting or generic prescribing. It is a series of practices, skills and approaches that comprise determination of individualised goals and approaches, careful choice of medication, acceptable information presentation, and judicious monitoring and follow up. It aims to maximise the benefits of therapy, while minimising the risk and associated costs. It is not easy, it needs to be systematically approached, it is a lifelong habit that needs to be maintained.

Conflict of interest: none declared.

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