

## Sensible prescribing for older adults: illustrated cases

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Older adults are especially vulnerable to adverse drug events leading to emergency hospitalisations. Clinicians should aim to ensure the maximum benefit from medications and few adverse effects by avoiding excessive, inappropriate or inadequate prescribing. Sensible prescribing for older people requires knowledge of guideline based therapy, principles of safe prescribing, drug interactions and checking patient compliance in taking medications correctly. Real case examples are provided here to allow application of these principles and to highlight several important points in sensible prescribing for older people.

**Key words:** Geriatrics, Drug information, Medication safety, Pharmacy education

### INTRODUCTION

Older adults are especially vulnerable to adverse drug events leading to emergency hospitalisations<sup>1</sup>. Clinicians should aim to ensure the maximum benefit from medications and few adverse effects by avoiding excessive, inappropriate or inadequate prescribing<sup>2</sup>. Several resources are available to assist with this endeavor. The World Health Organization has published a practical manual to provide general guidelines to good prescribing<sup>3</sup>. STOPP criteria and Beers criteria offer a list of potentially inappropriate medicines, which are to be avoided in older people<sup>4</sup>. Practical steps are available for de-prescribing medicines in patients who experience polypharmacy<sup>5</sup>.

Pharmacists play an important role in teamwork with clinicians to ensure high quality prescribing and should be aware of these guidelines. However, while the literature provides the science, these will never replace clinical experience in applying the art of sensible prescribing. Real case examples are provided here to allow application of these principles and to highlight several important points in sensible prescribing for older people.

### CASE 1

#### BACKGROUND

73 year old female admitted 3 weeks prior for sepsis from left leg cellulitis and gangrene. She has a background of peripheral vascular disease with right below knee amputation, ischaemic cardiac disease and congestive cardiac failure with stents inserted two and four years prior, hypertension, hyperlipidaemia and type 2 diabetes. She was diagnosed with septic shock requiring admission to intensive care unit for inotropic support and intubation and left below knee amputation before she improved and was transferred to the wards. She was subsequently fully dependent on all activities of daily living including feeding.

#### PROGRESS

Her inpatient stay was also complicated by left arm cellulitis from a cannula site, aspiration pneumonia, sacral pressure ulcer and an acute haemoglobin drop requiring transfusion with gastroscopy confirming erosive gastritis. She was referred for Geriatric Medicine input for ongoing management and discharge planning. On review, she complained of stump pain. She was reluctant to sit up due to dizziness. She was tearful during

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the conversation. Clinically, she was malnourished and dehydrated with dry mucous membranes and low jugular venous pressure. Blood pressure 120/70 mm Hg. Cardiorespiratory examination was normal. The left arm cellulitis area, bilateral lower limb stumps and pressure ulcer were clean. Serum potassium was 5.3 mmol/L and creatinine 60 mmol/L.

#### MEDICATION LIST

Drug name	Dose, frequency, route	Indication
Amlodipine	10 mg OD PO	Hypertension
Irbesartan	300 mg OD PO	Hypertension
Clopidogrel	75 mg OD PO	Ischaemic heart disease
Isosorbide mononitrate	60 mg OD PO	Ischaemic heart disease
Digoxin	0.125 mg OD PO	Cardiac failure
Furosemide	60 mg BD IV	Cardiac failure
Spironolactone	25 mg OD PO	Cardiac failure
Gliclazide	60 mg OD PO	Diabetes
Ceftazidime (day 10)	1000 mg BD IV	Aspiration pneumonia
Metronidazole (day 10)	500 mg TDS IV	Aspiration pneumonia
Cloxacillin (day 7)	1000 mg Q6H IV	Upper limb cellulitis
Omeprazole	20 mg OD PO	Gastritis
Sodium chloride 0.9%	2.5 mL QID NEB	Respiratory secretions

OD: once daily; BD: twice daily; TDS: three times daily; QID: four times daily; PO: oral; IV: intravenous; NEB: nebulisers

#### MEDICATION CHANGES

As she was clinically dehydrated with possible symptomatic postural hypotension, amlodipine, irbesartan, furosemide and spironolactone were ceased with regular fluid balance review. Due to her gastrointestinal bleed, clopidogrel was withheld and Omeprazole increased to 40 mg daily. All three antibiotics were stopped as the courses were completed. Saline nebulisers were discontinued and Physiotherapy was requested to assist with clearing respiratory secretions.

Regular Paracetamol and Morphine as required was given for the stump pain. As there was a possible neuropathic component and depression, she was commenced on Amitriptyline. She had a nasogastric tube for high protein supplementation for malnutrition and to facilitate healing of the pressure area.

#### DISCHARGE MEDICATIONS

Paracetamol 1 g three times daily.  
Amitriptyline 20 mg at night.  
Omeprazole 40 mg once daily.  
Carvedilol 12.5 mg twice daily.

## LEARNING POINTS

During sepsis, vasodilation may cause hypotension requiring significant fluid resuscitation and possibly inotropic support. Anti-hypertensives and diuretics should be withheld until recovery (unless diuretics are required for pulmonary oedema). The clinical fluid status should be assessed daily and gradually adjusted or recommenced after recovery from the acute phase <sup>6</sup>.

Treatment with intravenous antibiotics should be reassessed after 48 hours. When culture results are available, the narrowest spectrum antibiotic should be used. Change to oral therapy should be considered unless there is a persistent focus of infection requiring ongoing intravenous therapy such as abscess, osteomyelitis or endocarditis <sup>7</sup>.

Risk versus benefit of antiplatelet agents or anticoagulants must be considered during each clinical presentation. They should be withheld in the setting of an acute bleed. Pain assessment includes determining the type and severity of pain. Stump pain responds well to paracetamol and opiates, while phantom limb pain or neuropathic pain may be treated with tricyclic antidepressants or gabapentin. If the pain is quite severe, a step down approach may be preferred <sup>8</sup>. It is important to plan follow-up analgesia prescriptions, especially for opiates so that requirements may be reassessed for down-titration once the injury has healed.

## CASE 2

### BACKGROUND

85 year old female was referred to Geriatric Medicine Clinic for intermittent abdominal pain and perianal discomfort. She was seen by a Renal Physician for chronic renal disease with creatinine stable at 120 mmol/L. She has background of diabetes, hyperlipidaemia and an unremarkable gastroscopy and colonoscopy for the abdominal pain. At the Renal Clinic review, the Nephrologist identified polypharmacy and discontinued Ferrous Fumarate (constipation), Ranitidine, Multivitamins and Gliclazide (random blood glucose 3 to 4 mmol/L).

### PROGRESS

On review, abdominal pain was described as intermittent cramps throughout the abdomen. This worsened when passing bowel motions which were usually hard and infrequent. However, there was watery stool up to three times daily during the previous two days. She was clinically dehydrated. Blood pressure was 90/60 mm Hg. Examination identified abdominal fullness in the descending colon without tenderness. Bowel sounds were present. She declined a rectal examination due to discomfort. Faecal impaction with overflow diarrhea from constipation was strongly suspected.

## MEDICATION LIST

Public hospital		
Drug name	Dose, frequency, route	Indication
Gliclazide	80 mg BD PO	Diabetes
Losartan	50 mg OD PO	Chronic renal disease
Atorvastatin	10 mg OD PO	Hyperlipidaemia
Folic acid	5 mg OD PO	Supplement
Vitamin B complex	1 tab OD PO	Supplement
Private clinic		
Drug name	Dose, frequency, route	Indication
Pantoprazole	40 mg OD PO	Dyspepsia
Prucalopride	2 mg OD PO	Stimulate colon motility
Mebeverine	200 mg BD PO	Antispasmodic: abdominal pain
Proctosedyl ointment	15 mg BD TOP	Haemorrhoids
Soluble dietary fibre	1 tsp BD PO	Constipation
Vitamin B complex	1 tab OD PO	Supplement

OD: once daily; BD: twice daily; PO: oral; TOP: topical

## MEDICATION CHANGES

Fortunately, all medications were brought in separated into two boxes (one from hospital and the other from private clinic). Duplication in vitamin B complex supplement was identified. She was continuing to take Gliclazide even after advice to discontinue it.

She was prescribed daily phosphate enemas for two days followed by Lactulose as required. Fibre was withheld initially as it may contribute to excessive gas and bloating<sup>9</sup>, which may be additional discomfort in addition to faecal impaction. She may resume this with plenty of fluids once bowel motions were regular.

Prucalopride is a 5-HT<sub>4</sub> receptor agonist which stimulates motility during chronic constipation<sup>10</sup>. Mebeverine is an antispasmodic without anticholinergic side effects mainly used in irritable bowel syndrome to reduce abdominal cramps<sup>11</sup>. The former will help with constipation but may exacerbate her cramps, while the latter may improve cramps but worsen constipation. Both were discontinued as they had antagonistic effects. Losartan was withheld due to hypotension. On further discussion of risks versus benefits, she wanted to discontinue the Atorvastatin, vitamin B supplement and Folic acid. At follow-up in two weeks, she had regular bowel motions and her abdominal pain resolved.

## DISCHARGE MEDICATIONS

Pantoprazole 40 mg at night.  
Proctosedyl ointment 15 mg twice daily.  
Soluble dietary fibre 1 tsp twice daily.

## LEARNING POINTS

It is useful to have patients bring in all their medications, including alternative therapies and supplements. This enabled us to identify that she has seen another clinician privately and is on additional medications not on public electronic records. Differences between medication prescriptions and what is taken at home may be identified as well.

Consider whether symptoms patients experience could be an adverse effect from a medication. Rather than start another drug for symptomatic treatment, the culprit drug should be ceased. Caution is required when patients are on similar drug classes or types, which increases the likelihood of adverse events. Similarly, there is a reduced benefit to patients with antagonists with an additional problem of polypharmacy and risk of other drug interactions.

Shared decision making is important to ensure alignment in goals of treatment between the health professional and the patient<sup>12</sup>. This is a useful process particularly with polypharmacy and in elderly or frail patients where the goal of treatment is quality of life rather than longevity.

## CASE 3

### BACKGROUND

85 year old female acutely admitted for reduced level of consciousness and hypoglycaemia. She has a background of Parkinson's disease, ischaemic heart disease, hypertension, hyperlipidaemia and type 2 diabetes. She had multiple recurrent admissions for hypoglycaemia; presumed secondary to poor oral intake as diabetes medications were discontinued previously.

### PROGRESS

She clinically improved after paramedics commenced her on intravenous dextrose. Clinical examination was unremarkable.

### MEDICATION LIST (ACCORDING TO CLINICAL RECORDS)

Clopidogrel 75 mg once daily.  
Co-careldopa 125 mg three times daily.  
Omeprazole 20 mg daily.  
Senna 7.5 mg at night.  
Lactulose 20 mL once daily.  
Fleet enema 1 bottle as required.

Relatives were requested to bring in all her medications from home. Her medications are shown in the Figure 1.

## MEDICATION CHANGES

All previously discontinued medications that the patient still had were discarded in hospital. For current medications, they had two boxes or bottles of each drug



**Figure 1.** Several drug labels in the image were blanked for anonymization. 1. Metformin; 2. Gliclazide.

returned. The main carer was educated regarding the medicines and a list was provided for their reference.

#### DISCHARGE MEDICATIONS

No changes to medication list.

Multiple medications from home removed.

#### LEARNING POINTS

It is useful to have all medicines from home brought in for drug reconciliation. There is a tendency to prescribe regular medications on discharge from hospital. For those with recurrent admissions, this risks accumulation of medications at home. They may also have picked up a new prescription before the admission. We should check whether the patient needs a prescription for regular medications before prescribing on discharge. Changes to regular medication should be highlighted to the patient, so they know which ones to discontinue when they return home.

## CONCLUSIONS

These cases are real examples of problems encountered in clinical practice that detract from safe prescribing and provides learning points to use in subsequent patient encounters. Sensible prescribing for older

people requires knowledge of guideline based therapy, principles of safe prescribing, drug interactions and checking patient compliance in taking medications correctly. It is hoped that these examples illustrate the principles that are required for sensible prescribing in older people.

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