

Deprescribing and managing polypharmacy in frail older people: a patient-centred approach in the real world

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ABSTRACT

Polypharmacy is common in people with multiple long-term conditions (LTC) to relieve symptoms and improve quality of life. However, it is also associated with poor outcomes and increased risk of adverse drug events in older people. Older people are seldom involved in therapeutic research, and when the results are applied to those with multiple LTCs, it can increase pill burden and adverse events without necessarily replicating the expected positive outcomes. This article describes a pharmacist-led, patient-centred approach to deprescribing in a 73-year-old diabetic man taking multiple medication, with gastrointestinal (GI) and pain symptoms as well as poor adherence to medicines. The approach considered his perspective and experience of taking his many medicines into account while using the best available research evidence and the clinician's experience. After six visits over 8 weeks, the patient was more involved with self-managing his diabetes, his pain and GI symptoms improved and overall pill burden was reduced.

BACKGROUND

There is no universally accepted or validated definition of deprescribing, however majority of the existing definitions describe it as a process or approach to drug reduction, withdrawal or cessation.¹ Although some definitions mention involving the patient in the process,² not much is available with regard to the most effective way to implement deprescribing in practice.³

Barnett *et al*³ described a patient-centred approach to deprescribing in practice, as part of an overall strategy to manage polypharmacy and optimise medicines' use. It involves (1) assessing patient's needs, (2) defining context and overall goals, (3) identifying all potentially inappropriate medicines (using a validated tool such as STOPP/START criteria⁴) from an accurate list of medication, (4) assessing risks and benefits in the patient context and discussing with the patient to identify the actual inappropriate drugs and priorities to review, (5) agreeing actions to stop drug or reduce dose, (6) communicating with other relevant parties as appropriate and (7) monitoring, reviewing and adjusting.

This case report is an example of how the patient-centred approach was embedded into a routine medication review by an integrated care clinical pharmacist (ICP) to optimise medicines' use. The ICP is an innovative role based in the community to support frail older people identified as having a medicines-related need to get the best

outcomes from taking medicines. They work within integrated teams for older people and receive referrals from community nurses, general practitioners (GPs), geriatricians and other practitioners. The ICP coordinates all aspects of medicines-related care for the patient by addressing polypharmacy, non-adherence and using a coaching approach to empower patients. Within the multidisciplinary teams, they lead the medicines agenda by enabling practitioners to optimise the use of medicines within their scope of practice by providing education, expert advice and support.

The report demonstrates how the ICP engaged with and focused on the patient's needs and experience rather than on the drugs. They sought to identify the various health and psychosocial factors that impacted on medicines' use. Where possible, the patient was given the opportunity to be involved as much as or as little as they wanted.

The medicines-related risks and benefits were prioritised based on the importance to the patient, immediate safety concerns of the ICP as well as best research evidence available.⁵ The ICP employed evidence-based tools to identify potentially inappropriate drugs. By engaging with the patient, the ICP identified drugs that had ceased to provide tangible therapeutic benefits, were adversely affecting functionality and quality of life or at best doing nothing, yet increasing pill burden. A care plan to stop, reduce or change medicines was jointly agreed with the patient. This was subsequently discussed and agreed with the patient's GP outlining who, when and how it will be implemented. Monitoring and follow-up after the review ensured that the changes led to the desired outcomes and minimised the risks of adverse events.

The case study demonstrates the importance of having a lead clinician⁶ to coordinate the care plan and communicate with the patient and others to ensure that the agreed actions are followed.

CASE PRESENTATION

Presenting features and symptoms

This patient is a 73-year-old man who was referred to the ICP by a community matron because of concerns about his medicines. He was struggling to manage his medicines and did not take some of them. The matron had explained the importance of taking his medicines and subsequently organised a 'blister pack' (multicompartment compliance aid) to improve his adherence, but neither intervention was successful.

He also had difficulties managing his diabetes, and his HbA1c fluctuated. He had recently been



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changed from administering his insulin using a syringe and phial to the pre-filled pen due to concerns about his poor vision.

The patient presented with chronic pain, feeling dizzy and had fallen a few times recently. He attributed the adverse effects that he experienced to some of his medicines and said this was partly responsible for his non-adherence.

Medical history

- ▶ Type 2 diabetic (insulin-dependent)
- ▶ Right eye diabetic retinopathy
- ▶ Diabetic neuropathy
- ▶ Erectile dysfunction
- ▶ Hypertension
- ▶ Incontinence
- ▶ History of urinary tract infection
- ▶ Falls
- ▶ Cataracts
- ▶ Chronic obstructive pulmonary disease (queried)
- ▶ Memory impairment

His estimated glomerular filtration rate was 55 mL/min/1.73 m² and body mass index was 22.53 kg/m², but both results over a year old. His most recent blood pressure (BP) was 110/62 mm Hg. His latest HbA1c result was 7.9%, but he was unable to provide information on recent blood glucose levels. His mini mental state examination was 16/30, and he admitted to forgetting to attend his memory clinic appointment for example.

His alcohol consumption was 28 units/week. He smoked 20 cigarettes a day, had tried varenicline a few years ago, but stopped taking due to side effects.

Social history

The patient lived alone on the third floor of an apartment block. He had no input from social services, but had a private carer who provided support two to three times a week with meal preparation and cleaning. The patient was mobile and often out and about.

Current medication (GP records)

1. Humulin I KwikPen 100 units/mL—every morning
2. Metformin 500 mg tablets—2 twice a day (BD)
3. Vardenafil 20 mg tablets—as directed when required
4. Oxybutynin 2.5 mg tablets—1 BD
5. Gabapentin 100 mg caps 1—three times a day
6. Paracetamol 500 mg tablets—2 when required
7. Movelat Gel—when required
8. Quinine sulfate 200 mg tablets—1 at night
9. Lansoprazole 30 mg caps—1 once a day
10. Amlodipine 10 mg—every morning
11. Ramipril 5 mg caps—1 BD
12. Simvastatin 40 mg tablets—1 at night
13. Salbutamol 100 mcg chlorofluorocarbon (CFC)-free inhaler—when required
14. Seretide 125 CFC-free inhaler—1–2 puffs BD
15. Tiotropium 18 mcg caps for inhalation—once a day
16. Unistik 3 Comfort Lancet (28G 1.8 mm)
17. Contour Next blood glucose testing strips
18. BGStar glucose testing strips
19. OneTouch UltraSoft Lancets

Pharmacist actions

The ICP visited the patient to undertake an in-depth assessment of his medicines-related needs. First, a reconciliation of medicines was performed using the recent hospital discharge summary list, GP brief summary and the patient's own

medication present in the home. Then, the ICP used a locally developed tool designed to identify and assess unmet medicines' needs in older people relating to access, adherence and therapeutics.⁷ In line with evidence-based practice,² the ICP considered for each problem, the patient's views, current research evidence and their own expertise. Then, the needs were prioritised, the options discussed and a care plan agreed with the patient. The pharmacist took responsibility to ensure that relevant healthcare professionals received clear communication about the actions to be taken and when. A copy of the care plan was documented in the patient's record.

INVESTIGATIONS

His seated BP was 110/62, and standing BP after 1 min (115/59 mm Hg) was measured to assess for postural hypotension (defined as a difference of 20 mm Hg systolic or 10 mm Hg diastolic), because it is common in older people and diabetics, and given the patient's history of dizziness and falls. eGFR was requested as there was no record of one in the preceding 12 months. This was needed in view of the patient's history of type 2 diabetes mellitus and because some medicines like ramipril, metformin and gabapentin require close monitoring of renal function for safe dosing and frequency.

MEDICATION REVIEW ACTIONS

Access to medicines

At the time, the patient received his medicines dispensed in a multicompartiment compliance aid (MCA) 'blister-pack', which he collected every 2 weeks from his community pharmacy. The pharmacy staff ordered and collected his prescriptions on his behalf, but only for the items in the MCA. As a result, he ran out of medicines on some occasions and often had difficulty getting his insulin and consumables. He was unclear whether this was down to him forgetting to send in a repeat request to the GP or to collect the medicines from the pharmacy. The patient was reluctant to agree to have his medicines regularly delivered to him at home, as he was often out. However, he decided that when he needed help, for example, in the winter, he could ask for a delivery service.

He was unable to use the lancing device to draw blood; so, the matron gave him a supply of Unistik 3 Comfort Lancets, but he had run out and was unsure of how to get further supply.

The ICP discussed and agreed with his community pharmacist to put a robust system in place as part of repeat ordering and collection service to check the need for insulin and consumables at the same time the MCA medicines are ordered.

At follow-up, systems had been put in place, and there were no further problems with supply.

Adherence

Generally, the patient was adherent with his morning doses, omitted the afternoon doses and took some of his evening doses. He was recently changed from Humulin I phials to Humulin I KwikPen due to concerns about his poor dexterity, and also because large air bubbles were observed in the syringe when he tried to draw up the insulin from the phial. He could not see the air bubbles because of his poor vision, which led to variable dosing. The patient had gone back to using his old phial and syringe, because he was unable to remember how to use the KwikPen device.

Also, previously, the patient used a Contour machine and testing strips that had been changed to BGStar machine and strips by his GP. He was unsure of how to use them and as a result was not checking his blood glucose levels prior to insulin administration.

The ICP showed the patient how to use the KwikPen and visited him daily for 3 days to assess his ability. He still required prompts at various stages and was not comfortable with using the device. The ICP discussed the option of a referral to the district nursing team to teach him or for daily visits to administer insulin. This was not acceptable to the patient as he was not willing to wait indoors for the district nurse to arrive every morning.

As the patient's community pharmacy was <2 min walk from his house and he often passed by on his way out, the ICP suggested that the community pharmacist observe and prompt where necessary with his injection technique. The community pharmacist agreed, and the patient was prepared to visit the pharmacy in the morning to demonstrate his insulin administration technique. After five visits over a 2-week period, the patient was confident in using his KwikPen. The ICP also taught the patient how to use BGStar machine, and he agreed to take the machine on a few occasions to demonstrate how he was using the machine in front of his community pharmacist.

Metformin and gastrointestinal symptoms

The patient was prescribed 15 medicines (excluding appliances) and a total of 19 doses per day (excluding topicals, inhalers and 'when required' doses). He had a general complaint about taking too many medicines and felt some were not working for him. Specifically, he felt metformin contributed to his gastrointestinal (GI) symptoms, which is why he needed lansoprazole. To remedy this, he reported that he took one instead of two metformin tablets two times per day to minimise his symptoms. However, on closer examination of his MCA, the ICP found that he was not always taking the evening metformin tablets, because he could not tell the difference between amlodipine and metformin tablets.

The ICP explained the importance of taking a suitable dose of metformin regularly and suggested a change to metformin 1 g modified release formulation once daily to reduce the risk of GI effects⁸ and also reduce pill burden. Metformin is a rational choice in the patient, and his last HbA1c was fairly controlled at 7.9% (62.8 mmol/mol) in spite of the non-adherence. Targets can be relaxed in frail older people, those with dementia or at risk of falling.⁷⁻⁹ His latest eGFR was 63 mL/min/1.73 m², and so metformin dose was continued with close monitoring of eGFR. The 6-monthly HbA1c trend (7.4% (57.4 mmol/mol), 6.9% (51.9 mmol/mol), 7.3% (56.3 mmol/mol), 6.7% (49.7 mmol/mol), 7.9% (62.8 mmol/mol)) was checked to establish an overall picture of stability over a period of time. A change of 0.5% or more is considered a clinically significant change in diabetic control and may indicate that the patient's non-adherence had an impact on his blood glucose levels.

The patient had been taking lansoprazole for a number of years since he had *Helicobacter pylori* eradication treatment and found it beneficial for his dyspepsia. Although he did not take it regularly, he was reluctant to stop or reduce the dose.

Following the change to metformin MR tablets and dose reduction, his GI symptoms improved; so, the patient agreed to reduce lansoprazole to 15 mg daily. It was agreed that this would be dispensed in standard containers, so that he could take two 15 mg capsules if he felt his symptoms worsen. At 8 weeks, he was taking lansoprazole 15 mg three to four times a week.

Oxybutynin

The patient could not recall experiencing urinary symptoms recently. Oxybutynin has strong anticholinergic properties, which can cause falls and worsen cognitive impairment in older

people. Furthermore the immediate release formulation should not be prescribed in older people like the patient who are more predisposed to these adverse effects.¹⁰

The patient and the GP were in agreement with the ICP suggestion to stop the oxybutynin and monitor.

It was agreed that if the patient experienced bothersome symptoms, then another medication would be trialled.

Analgesia

The patient's description of the pain in his legs was neuropathic. He seemed to think gabapentin was working well even though he omitted the midday dose due to being out. The patient also took two paracetamol tablets regularly every day for the pain and applied Movelat Gel to his legs, but he did not find either helpful; so, they were stopped.

His gabapentin dose was suboptimal for neuropathic pain, which should be initiated at 300 mg OD and increased accordingly to between 600 and 1800 mg daily in three divided doses, if eGFR is 50–80 mL/min/1.73 m². The patient felt his current dose was sufficient, and he did not want to increase his tablet burden; so, the dose was changed to 100 mg BD to reflect what he was taking.

The patient was taking quinine *prn* for occasional leg cramps, which he felt was beneficial. He had not taken any for a few months and was regularly disposing off it after taking out of the MCA. As the patient was not experiencing regular nocturnal leg cramps, the ICP suggested stopping the quinine. The patient was agreeable, but he wanted to keep some at home, just in case. So, the quinine was dispensed in its original box, and use monitored over the next few weeks.

The ICP considered the possibility that the leg cramps could be an adverse effect from the interaction of simvastatin and amlodipine. However, it was difficult to ascertain for sure, because the patient did not always take the simvastatin tablets and did not associate it with the cramps. The maximum dose of simvastatin in combination with amlodipine should be 20 mg.¹¹

National Institute for Health and Care Excellence recommends high-intensity statins for diabetics; the lower dose was appropriate for the patient in view of his leg cramps. However, simvastatin 40 mg at night was changed to atorvastatin 20 mg in the morning, to facilitate adherence.

BP, falls and dizziness

The patient had experienced falls and dizziness for which he was receiving strength and balance exercises from the physiotherapist. The falls clinic letter indicated that his falls were more mechanical in nature due to the cluttered flat, and his alcohol consumption may have contributed.

Orthostatic hypotension is more common in diabetes, and an HbA1c below 7% (53.0 mmol/mol) can increase the risk of falls, especially in those taking insulin.⁸

Deciding on the optimal BP target in older people is controversial, and guidance ranges from 140/90 to 150/90 mm Hg in older diabetics.⁷⁻⁸ However, a recent study showed that a BP of 165/85 mm Hg in patients over 75 years was associated with lower mortality.¹² Ramipril and amlodipine are rational drug choices for the patient, considering his comorbidities and non-adherence. There is no difference in BP-lowering effect between once and twice daily ramipril dosing.¹³ Since the patient was not taking the evening dose of ramipril, it was agreed to stop the evening dose. Amlodipine was reduced to 5 mg, as the patient had presented with swollen ankles in the past. The ICP monitored his BP on subsequent visits, and there was no significant increase in BP.

Respiratory

The patient had an expired Seretide 125 mcg inhaler, and his tiotropium inhalation capsules did not have the HandiHaler device. He was not taking either of them as he was not experiencing any breathlessness, cough or wheezing. His FEV₁ was 75% in 2009, and FEV₁/FVC=0.65. He mentioned that he was diagnosed with asthma many years ago, but he had not experienced any respiratory symptoms that prevented him from his activities of daily living, and therefore did not want any further investigations. He used salbutamol inhaler when he had a cold or was feeling tired after or on exertion, and this seemed to control his symptoms.

Vardenafil

The patient reported that he was taking four tablets every 2 months, and he linked metformin to his erectile dysfunction (ED). The ICP reassured him that metformin was not the likely cause and explained that ED is a common complication of type 2 diabetes.

OUTCOME AND FOLLOW-UP

Following the review, the ICP visited the patient six times over 8 weeks to ensure that deprescribing was done safely. At the end of that period, the patient was more involved with self-administering his insulin and monitoring his blood glucose without compromising his much desired independence. His pain control and GI symptoms had improved. He knew he was able to go into his local community pharmacy if he had further problems with the supply of his medicines.

The overall number of medicines was reduced from 15 to 10 (excluding appliances), and dosing frequency reduced from 15 to 7 (excluding *prn* medicines).

DISCUSSION

Systematic reviews have looked into various interventions to manage polypharmacy in older people, many of which were undertaken by pharmacists in hospital, care home or clinical settings.^{14 15} Although they have demonstrated improvement in surrogate markers of appropriate prescribing, they are yet to prove their clinical significance or impact on patient-related outcomes. In addition, Spinewine *et al* concluded that interventions undertaken by skilled pharmacists working within a multidisciplinary team produced better results.¹⁴ Generally, the elements of the interventions in the publications include a review of the medicines and actions taken by healthcare professionals. However, there is little discussion about patient-centredness as described in this case study, for example, taking into account patient choices, the impact of the home environment, social circumstances and functionality.

There were key issues identified in recent literature,^{16 17} about managing polypharmacy in a patient-centred way, that were encountered in the process of deprescribing for the patient. The patient's views and understanding about his medicines and conditions affected his adherence and the extent to which his medicines were optimised. Poor vision, cognitive impairment, reduced ability to learn new tasks, all impacted on his ability to monitor blood glucose, inject insulin and obtain regular supplies of his medicines. Although he was offered help from district nursing service and local pharmacists, he was not always willing to compromise his independence, lifestyle and daily routine. He complained about taking too many medicines and generally was willing for medicines to be stopped, but, when faced with the reality, he was hesitant in a few instances.¹⁸ Good

communication, including exploring his anxieties and negotiating for a trial period, with the assurance that drugs will be monitored and restarted if need be, facilitated safe withdrawal.

Consideration was given to the patient's abilities, impairments and communication styles in order to engage with, educate and empower him to make informed decisions in the process. Established teaching techniques such as repetition, linking to familiar things, hands-on experience, demonstrations, feedback and sequenced visits to build on information proved valuable. In agreeing the action plan, a balance had to be struck between the clinician's therapeutic goals and quality of life from the patient's perspective.

In a similar case study about managing polypharmacy in an older patient with complex needs by Steinman *et al*,¹⁹ a physician used a stepwise process. He considered the multiple factors that affected medicines' use from a patient's, carer's and clinician's perspective, as well as rationalisation of drug therapy using research evidence. Specific interventions to resolve the needs identified were also agreed in collaboration with the patient and their carer. Changes to drug therapy were implemented slowly and sequentially over time and monitored closely for benefits and adverse effects.

In the authors' experience, the monitoring and follow-up stage is usually the most time-consuming aspect of the process. Furthermore, the patient's case required more than the average number of visits, and this reflects the complexities of the interventions needed.

Although the ICP is an independent prescriber, they did not prescribe for this patient. However, it is recognised that where there are changes to medicines, an ICP prescriber can facilitate prompt implementation of the action plan and improve outcomes.

Learning points

- ▶ The patient's perspective and involvement in the deprescribing process is important for drugs to be withdrawn safely and outcomes realised.
- ▶ Best available research is important for rationalisation of drug therapy.
- ▶ Pharmacists working within multidisciplinary teams can play an important role as a lead clinician to coordinate medicines-related care and collaborate with the patients and others involved.
- ▶ Deprescribing goes beyond identifying a list of medicines to be stopped, and there should be sufficient time built into the process to allow adequate monitoring and follow-up.
- ▶ The role of local community pharmacists providing ongoing support to stable frail older people is worth exploring to build capacity.

Competing interests None declared.

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