

Long-Term Care Updates

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Appropriate Deprescribing in Older Adults

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Introduction

As Americans continue to live longer, the number of older adults increases. In 2014, adults aged 65 years or older made up 14.5% of the population (46.3 million people), and that number is expected to reach 23.5%, or 98 million people, by 2060.¹ More comorbidities and medications to manage are a direct consequence of this longevity. Between 1988 and 2010, the median number of prescription medications among patients aged 65 years and older doubled from two to four, and the proportion of patients taking greater than five medications tripled from 12.8% to 39%.² It is important that these medications are frequently evaluated to ensure they are both safe and effective for patients. Medications that patients were prescribed in their 40s may no longer be needed or even appropriate once they are in their 70s or 80s. However, deprescribing is not appropriate for every patient. Pharmacists can play a vital role in deciding whether or not medications should be deprescribed.

Deprescribing

Deprescribing is defined as discontinuing or decreasing the dose of potentially inappropriate medications under the supervision of a health care professional.³ High levels of inappropriate medication use within the older population poses a unique opportunity for deprescribing. Medications prescribed for chronic conditions may be continued indefinitely or inappropriately due to lack of follow-up or a change in primary care provider or care setting.³

There are multiple benefits to deprescribing, but the most significant is improvement of patient safety.⁴ Many clinical practice guidelines do not adequately address appropriate care for older adults with multiple comorbidities, and there is often a lack of evidence-based medicine among this population.⁴ As patients age, changes in body composition can affect the response to medications. Changes in absorption, distribution, metabolism, and excretion may necessitate discontinuation or dose reduction of a drug.⁵ Drug distribution may be altered due to an increased fat to water ratio, and protein binding can be affected by poor nutritional status or medical conditions. Renal and hepatic function also decline with age, influencing the excretion of medications and leading to potential adverse effects.⁵

A systematic review and meta-analysis was conducted that included 41 randomized controlled trials evaluating deprescribing in nursing home residents (n=18,408) at least 60 years of age.⁶ Primary outcomes included all-cause mortality,

falls, hospitalizations, and potentially inappropriate medication use. The rate of all-cause mortality was reduced with deprescribing (OR 0.90, 95% CI 0.82 to 0.99) and on further subgroup analysis, was reduced by 26% (OR 0.74, 95% CI 0.65 to 0.84) when medication review directed deprescribing was used. No difference was noted in hospitalizations, but potentially inappropriate medication use was reduced by 59% (OR 0.41, 95% CI 0.19 to 0.89). The number of patients experiencing falls was reduced by 24% (OR 0.76, 95% CI 0.62 to 0.93) when medication review directed deprescribing was used.⁶

Statins

Statins are one of the most commonly prescribed medications in the United States because of their effectiveness in preventing adverse cardiovascular events.⁷ It is not uncommon for patients to take statins for many years, as they are generally well tolerated and relatively low-cost. However, statins are a good medication class to assess when deprescribing.

Kutner et al. assessed the discontinuation of statins in 381 patients with a life expectancy of one year or less and found that 68.3% had been taking a statin for five years or longer.⁸ The primary objective of this study was to evaluate the impact that discontinuation of statin medications would have on safety, clinical, and cost outcomes for patients in the palliative care setting. The study was a multicenter, parallel-group, non-blinded pragmatic clinical trial. Patients were included if they had a life expectancy of at least one month but less than one year, had been on statin therapy for 3 or more months regardless of if it was used for primary or secondary prevention, had a recent decline in functional status, and had no recent cardiovascular events. The patients were randomized to either continue or discontinue their statin therapy and were followed for one year. Results showed that there was no difference in the proportion of deaths at 60 days between the groups, and statin discontinuation improved patients' quality of life and decreased medication burden and medication costs by \$3.37 per day per patient.⁸

Anti-hypertensive medications

Many patients require multiple anti-hypertensive medications to control their blood pressure. As patients age, the risks associated with hypotension can be far more pronounced. Hypotension in older adults can lead to an increased risk for falls which can be detrimental to older adults. Patients can also be taking multiple anti-hypertensive medications due to a prescribing cascade. For example, amlodipine can cause peripheral edema and a patient experiencing this side effect may be prescribed a diuretic such as hydrochlorothiazide.⁴ Several studies have looked at the clinical impact of deprescribing anti-hypertensive medications in older adults.

The DANTE (Discontinuation of Antihypertensive Treatment in Elderly People) study was a deprescribing trial that used a parallel-group, unblinded design.⁹ The main objective of the study was to determine if discontinuation of antihypertensive medications improved cognitive, psychological, or functional well-being. Patients at baseline had mild cognitive impairment; 45.8% had orthostatic hypotension and 61.5% took at least two antihypertensive medications. The discontinuation of antihypertensive treatment was managed by the patients' physicians, and they withdrew hypertensive medications until the patients' systolic blood pressure increased by 20mmHg. The study found that deprescribing antihypertensive medications in patients 75 years and older with mild cognitive impairment did not improve cognitive or general daily functioning at 16-weeks.⁹

A Cochrane systematic review published in 2020 evaluated the effects of withdrawal of anti-hypertensive medications in older people.¹⁰ The review included six randomized controlled trials and encompassed over 1,000 participants between 58 and 82 years of age. In three of the studies, the dose was tapered down slowly before discontinuation. The results of the meta-analysis indicated that there was no effect of discontinuing compared to continuing medication on all-cause mortality or myocardial infarction. However, the researchers noted that the evidence was low to very low certainty. The researchers suggested that future research should focus on the benefit to risk ratio of anti-hypertensive drugs in the frail elderly and patients with polypharmacy using patient-oriented outcomes, such as falls, quality of life, and adverse drug events.¹⁰

As can be seen by the reviewed studies, the benefits of deprescribing antihypertensive therapy are not 100% clear. When making the decision to discontinue antihypertensive medications, those that are dosed multiple times a day, are prone to

adverse effects, or have a high cost should be targeted first. The decision should also consider the risk of discontinuation of an antihypertensive.⁵ For example, discontinuation of beta-blockers may lead to rebound tachycardia. Additionally, the patient and family members should be involved in the deprescribing effort, with consideration of their attitudes and beliefs about the medication therapy regimen.¹¹

Proton pump inhibitors

Proton pump inhibitors (PPIs) are medications that can be prescribed or purchased over the counter. They are extremely effective in reducing stomach acid and the symptoms associated with gastroesophageal reflux disease (GERD); however, recent studies have highlighted the long term adverse effects associated with PPIs, such as hypomagnesemia, low vitamin B-12 levels, *Clostridium difficile* diarrhea, and increased risk of bone fractures.¹² PPIs have been targeted as medications to deprescribe due to their high use and overuse among patients.¹³

In a retrospective study performed by Chan et al, PPI use was evaluated among patients in residential care facilities in British Columbia. Of the 407 PPI orders for 334 patients, 33.9% had no documented indication for use and the average duration of orders was 190 days.¹⁴ In a cross-sectional study performed by Doell and others, 147 long-term care resident charts were evaluated to determine appropriateness for deprescribing of a PPI. Based on prespecified criteria, the researchers determined that 63% of residents were candidates for deprescribing; 20% of orders had no documented indication for use. Secondary outcomes included assessment of fall risk and vitamin B¹² status. Nine percent of residents had experienced a fall in the previous 30-day period, and 36% were receiving vitamin B¹² supplements or had low serum vitamin B¹² levels.¹⁵

When considering discontinuation of a PPI, it is important to have a taper plan in place to avoid rebound GERD symptoms and an over-production of stomach acid.³ An example of a taper plan would be to have the patient take the PPI every 48 hours for two weeks, then every 72 hours for two weeks, and then stop. It would also be important to counsel the patient on other alternative medications, such as antacids and H₂ receptor antagonists (famotidine and ranitidine), to help control their symptoms if they experience any GERD.¹⁶

Conclusion

As patients continue to age, the number of medications they take frequently increases. It is important to constantly evaluate these medications for safety and efficacy. Medications that patients took in younger years may cause adverse effects or may no longer be needed. When deprescribing, medications that are dosed multiple times per day, have a high cost, or are prone to causing adverse effects in elderly patients should be at the top of the list to discontinue. It is essential to involve the patient and their family in the deprescribing process to assess their attitudes and beliefs about their medication therapy regimen. The pharmacist can assist in determining if the benefits of medication discontinuation outweigh the risks. When done correctly, deprescribing can improve patients' quality of life.⁴

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