Deprescribing in older people
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CHAPTER 1

GENERAL INTRODUCTION AND THESIS OUTLINE
PRESCRIBING IN OLDER PEOPLE

Worldwide, the population of older people is estimated to increase from 524 million in 2010 to 1.5 billion in 2050. [1] With ageing, the number of individuals with one or more chronic diseases is growing. [2] Medications are the most common intervention to cure, prevent or relieve symptoms of a disease. Older people aged 65 years and over use more medications than any other age group, 45–75% of this population uses 5 or more medications and 15–30% uses 10 or more medications. [3]

Several important factors complicate medication use in older people. Firstly, use of multiple medications increases the risk to experience adverse drug reactions (ADR). [4] Secondly, age-related changes in pharmacokinetic and dynamic responses to a medication may decrease an older person’s tolerance to medications. [5] Thirdly, scientific evidence on benefits and risks of medications in older people is often absent, as frail older people are rarely included in clinical trials to evaluate medication efficacy and safety. [6]

Prescribing of medications that might be inappropriate in older people has been widely studied. A number of definitions of potentially inappropriate prescribing (PIP) have been proposed and several criteria have been developed to detect PIP. [7, 8] The screening tool of older people’s prescriptions (STOPP) and screening tool to alert to right treatment (START) criteria [9] and Beers criteria [10] are among the best known. PIP is common among older people [11–14] and has been associated with increased ADRs, morbidity, hospitalisations and decreased quality of life. [15–20]

In this thesis, potentially inappropriate prescribing in two specific patient populations is explored. Firstly, prescribing of preventive medications at the end of life in older nursing home residents. Secondly, prescribing of anticholinergic and sedative medications in older community-dwelling patients.
PREVENTIVE MEDICATIONS AT THE END OF LIFE

Toward the end of life, in addition to considerations around potential medication related benefits and harms, the decision to prescribe a medication should also take life expectancy into consideration. As life expectancy decreases, the goals of care may change from decreasing mortality and morbidity, to symptom control. In light of limited life expectancy toward the end of life, the use of medications to prevent future onset of disease or complications, which need a long time until benefit, might become less appropriate than medications for symptom management, which have immediate benefits. [21] Few studies have investigated medication use in the last period of life in an older nursing home population. [22] Little is known to what extent preventive medications are still used in this phase. In Chapter 2 changes in prescribing of preventive and symptomatic medication at the end of life in older nursing home residents will be explored.

ANTICHOLINERGIC AND SEDATIVE MEDICATIONS

Anticholinergic and sedative medications are commonly identified as potentially inappropriate medications for older people. [9, 10] They have negative effects on cognitive and physical function in older people and increase the risk of falls, dementia, hospitalisation and mortality. [23–25] Despite these negative outcomes, they are frequently used in older people. [26, 27] Use of several anticholinergic/sedative medications, resulting in a higher anticholinergic/sedative load, is associated with increased risk of negative outcomes. [28–30] To date, most research has focused on quantifying the use of individual anticholinergic/sedative medications [31] or aggregating use in the form of a total load score. [32] Little is known about the prevalence of combinations of multiple anticholinergic/sedative medications used or subgroups of patients based on anticholinergic/sedative medication use. In Chapter 3 these gaps in knowledge will be addressed.

DEPRESCRIBING

The term deprescribing was first introduced in Australia, in 2003. [33] While the term was new, the process of withdrawing inappropriate medications was not. [34] Since the introduction of the term deprescribing, several definitions have been proposed. Based on a systematic literature review on all definitions, deprescribing was defined as ‘the process of withdrawal of an inappropriate medication, supervised by a health care professional with the goal of managing polypharmacy and improving outcomes.’ [35]

MEDICATION REVIEW

A widely proposed intervention to facilitate deprescribing is medication review. [36–38] Medication review is ‘a structured, critical examination of a patient’s medicines with the objective of reaching an agreement with the person about treatment, optimising the impact of medicines, minimising the number of medication related problems and reducing waste’. [39] An overview of systematic reviews showed medication review has the potential to improve appropriateness of medications and clinical outcomes. [40] To date, the effectiveness of medication review as a deprescribing strategy to reduce the use of anticholinergic/sedative medications in older people remains unclear. Two small Australian studies found that pharmacist-led medication reviews were effective in reducing the cumulative anticholinergic/sedative load. However, these studies included a pilot and a retrospective study both based on pharmacist recommendations without investigating actual implementation of recommendations by the general practitioner. [41, 42] Chapter 4 presents the study protocol for a randomised controlled trial, which had the aim to evaluate whether medication review is effective in deprescribing anticholinergic/sedative medications in older people with a high anticholinergic/sedative load. In Chapter 5 the results of this randomised controlled trial are shown.
NEW DEPREScribing INTERVENTIONS

Given the lack of effective interventions to support deprescribing of anticholinergic/sedative medications among older populations, there is a critical need for the development and testing of innovative strategies. Information technology (IT) is increasingly being used to identify patients in need of medication optimization. [43] In Dutch community pharmacy practice pharmacists use IT-based drug therapy alerts to monitor safety of a patient’s medication when it is presented in the pharmacy information system for initial supply. [44] None of these drug therapy alerts focus on anticholinergic/sedative medications. Using IT to identify older individuals with anticholinergic/sedative medication is worthwhile to explore. This approach can be used in a new deprescribing intervention.

Best practice for developing and evaluating an intervention is identifying the best available evidence and appropriate theory to develop the intervention, then to test the feasibility and perform an exploratory evaluation, before going on to a definitive evaluation followed by eventual implementation. [45]

Therefore, in Chapter 6 the feasibility, acceptability and potential effectiveness of a newly developed IT-based pharmacist-led intervention were explored based on best practice principles for intervention development and evaluation.

GAPS IN KNOWLEDGE

Prescribing patterns of several potentially inappropriate medications in older populations, such as preventive medications at the end of life in older nursing home residents and anticholinergic/sedative medications in older community-dwelling adults, remain undiscovered areas. It is unknown whether currently performed deprescribing interventions, such as medication reviews, are effective in older community-dwelling adults with a high anticholinergic/sedative load or whether innovative approaches for deprescribing are more successful.

THESIS AIM

Development and evaluation of interventions for deprescribing in older people, by identifying opportunities for deprescribing (chapter 2 and 3), evaluating a current deprescribing intervention (chapter 4 and 5) and developing and evaluating a new deprescribing intervention (chapter 6).
REFERENCES


