The process of deprescribing in older adults: a methodological protocol

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Abstract

Objective: To report, by means of a methodological protocol, the process of deprescribing implemented in a geriatric psychiatry outpatient clinic of a teaching hospital.

Methods: The topic of interest was comprehensively reviewed in the scientific literature. Instruments and tools necessary to develop the protocol were selected, including the Treatment Adherence Measure, Beers criteria, the EURO-FORTA List, the Brazilian Consensus on Potentially Inappropriate Medications for Older Persons, Drugs.com, and deprescribing algorithms.

Results: The protocol consists of the following steps: 1) Review: Assess older patients' physical and behavioral status and family context and list all medications used; 2) Analyze: Review patients' drug therapy; 3) Act: Initiate deprescribing (if indicated); 4) Adjust: Discuss patients' expectations, beliefs, and preferences and adjust the prescription to their real possibilities; 5) Monitor: Identify responses to treatment, assess adherence to the deprescribing process, and detect return of symptoms or worsening of the underlying disease.

Conclusions: Health care professionals need to work together to provide comprehensive care for older persons. The inclusion of deprescribing in more research groups focused on the geriatric population will increase attention to the safety of pharmacological treatment for older patients.

Keywords: aged; deprescription; prescription drugs; protocol.

Resumo

Objetivo: Relatar como ocorre o processo de desprescrição em um ambulatório de Psiquiatria Geriátrica de um hospital universitário, por meio de um protocolo metodológico.

Metodologia: O assunto foi revisado na literatura científica e foram selecionados instrumentos e ferramentas necessários para desenvolver o protocolo, incluindo a Medida de Adesão aos Tratamentos, o Critério de Beers, a Lista Fit for the Aged (EURO-FORTA), o Consenso Brasileiro de Medicamentos Potencialmente Inapropriados para Idosos, Drugs.com e algoritmos de desprescrição.

Resultados: O protocolo elaborado é composto das seguintes etapas: 1) revisar: avaliar o estado físico e comportamental e o contexto familiar do idoso e listar todos os medicamentos utilizados; 2) analisar: revisar a farmacoterapia do paciente; 3) agir: iniciar a desprescrição (se tiver indicação); 4) ajustar: pactuar expectativas, crenças e preferências do paciente, adaptando a prescrição às suas reais possibilidades; 5) monitorar: verificar as respostas ao tratamento, avaliar a adesão à desprescrição, detectar ressurgimento dos sintomas ou agravamento da doença de base.

Conclusões: Os profissionais da saúde precisam trabalhar em conjunto para proporcionar atenção completa ao idoso. A inserção da desprescrição em mais grupos de pesquisa com o foco na população geriátrica possibilitará maior atenção à segurança dos tratamentos farmacológicos dos pacientes.

Palavras-chave: idoso; desprescrição; medicamento; protocolo.
INTRODUCTION
Polypharmacy is a common practice that occurs with 30 to 70% of persons aged 60 years or older. Although medications are essential to treat clinical conditions, if used inappropriately, they can be associated with negative health outcomes and increase the risk of adverse drug reactions (ADRs), non-adherence to treatment, drug-drug interactions, and intoxication.

The risk-benefit ratio of medications can be affected by physiological changes inherent to the aging process. Therefore, it is essential that health care professionals be able to distinguish between appropriate and inappropriate medications for older people. Criteria and consensus policies have been developed in several countries to help detect potentially inappropriate medications (PIMs) for older persons, such as Beers criteria (United States) and the Screening Tool of Older Persons’ potentially inappropriate Prescriptions (STOPP) (Ireland). Based on these instruments, the Brazilian Consensus on PIMs for Older Persons was also developed.

Deprescribing is a modern and innovative strategy that focuses on safely and carefully reviewing the patient’s treatment; it can be used to reduce polypharmacy and PIM use in older adults. The process of deprescribing aims to reduce or discontinue potentially harmful medications or those that are no longer beneficial to the patient. Some deprescribing protocols have been proposed to date, of which the one proposed by Scott et al. is the most frequently used.

Within this context, this study aimed to report, by means of a methodological protocol, the process of deprescribing implemented in the geriatric psychiatry outpatient clinic of a teaching hospital in Porto Alegre, capital of Rio Grande do Sul, the southernmost state of Brazil. As a secondary objective, we provide information that might help improve the assessment of medications and the provision of multidisciplinary care for older adults.

METHODS
We present a methodological protocol for deprescribing medications in older people. It was developed for the evaluation of older patients seen at the Geriatric Psychiatry Outpatient Clinic of Hospital São Lucas (affiliated with Pontificia Universidade Católica do Rio Grande do Sul [PUCRS]) who participated in the Aging and Mental Health Program (PESM, for the acronym in Portuguese).

PESM is an assistance program for mental health care, monitoring, and research in older people. The program is a partnership between the hospital’s psychiatry department, the Neuroscience Training Center at PUCRS Medical School, and PUCRS Institute of Geriatrics and Gerontology.

Ethical considerations
This study is associated with the PESM, which was approved by the PUCRS Research Ethics Committee (number 89158218 5 0000 5336).

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Protocol development
Initially, the topic of interest was comprehensively reviewed in the scientific literature by collecting up-to-date studies, protocols, and guidelines. Research groups of excellence in the field were also observed. Pharmacists held meetings to select the instruments and tools needed to develop the steps of the methodological protocol. Once developed, the protocol was presented to the multidisciplinary team and adjusted according to the characteristics of outpatient care. The protocol is under constant evaluation and review; in this study, we present its latest version.

RESULTS
Protocol description
1. Review: assess older patients’ physical and behavioral status and family context and list all medications used.
   - Collect data on patient identification, level of education, occupational and economic status, spirituality/religion, and health status;
   - Record all medications used by the patient (including vitamins, supplements, herbal medicines);
   - Identify dose, shift of administration, amount, self-medication or medical indication, reasons for use;
   - Ask patients about lifestyle habits (smoking, alcohol, and caffeine consumption);
   - Identify a possible history of ADRs;
   - Assess adherence to treatment using the Treatment Adherence Measure (TAM).
2. Analyze: review patients’ drug therapy.
   - Classify drugs according to the Anatomical Therapeutic Chemical (ATC) classification system;
   - Identify polypharmacy (use of 5 or more regular medications);
   - Identify PIMs using Beers criteria, the EUROFORTA (Fit FOR The Aged) List, and the Brazilian Consensus on PIMs for Older Persons;
• Identify possible drug-drug interactions and ADRs (Drugs.com);17
• Analyze and discuss the individual aspects of the patient’s health in a multidisciplinary manner.

3. Act: initiate deprescribing (if indicated).
• Identify possible medications to be deprescribed;
• Decide on medication withdrawal (shared decision-making);
• If deprescribing is indicated, develop pharmacological goals and interventions using a deprescribing algorithm;18
• Prioritize the order of drugs for discontinuation;
• Initiate the tapering or withdrawal process (medical staff).

4. Adjust: discuss patients’ expectations, beliefs, and preferences and adjust the prescription to their real possibilities.
• Determine patients’ realistic expectations and preferences before implementing a deprescribing process;
• Adjust the prescription to the patient’s individual characteristics.

5. Monitor: identify responses to treatment, assess adherence to the deprescribing process, and detect return of symptoms or worsening of the underlying disease.
• Monitor for possible withdrawal symptoms, disease rebound syndrome, flare-up reactions, and effects resulting from drug-drug interactions;
• If necessary, change pharmacological treatment by developing new interventions;
• Monitor older patients closely for their health status.

Implementation of the protocol in the geriatric psychiatry outpatient clinic
Older patients treated at the outpatient clinic were initially seen by a psychiatrist and evaluated with the use of anxiety,19 depression,20 and neurocognitive assessment scales.21,22 Subsequently, they were interviewed by pharmacists from the multidisciplinary team. Patient health data were collected at both visits.

Details on the implementation of the protocol steps in the outpatient clinic are as follows:

1. Review: during the psychiatric visit, a general questionnaire was applied to collect sociodemographic data:
   a. patient identification;
   b. level of education;
   c. occupational and economic status;
   d. spirituality/religion; and
e. general health, including main complaints, diagnostic hypotheses, comorbidities, tests, and presence or not of a caregiver.

Patients were then interviewed by pharmacists and asked about their pharmacological treatment. The pharmacists recorded all the medications used by the patient, describing how they were reported (older patients’ recall of information, a list of medications, or help from a family member/caregiver).

Details on each medication were collected:
   a. dose;
b. shift of administration;
c. amount used;
d. prescription drug (medical indication) or non-prescription drug (self-medication); and
e. reasons for use. Patients were also asked about lifestyle habits, such as tobacco, alcohol, and caffeine use.

Finally, the pharmacists collected data on previous ADRs (medications, dates, symptoms, treatment) and assessed adherence to pharmacological treatment using the TAM.13

2. Analyze: pharmacists classified each drug on the patient’s medication list according to the ATC classification system.14 Patients were then assessed for the presence of polypharmacy, defined as the use of 5 or more regular medications.2 PIMs were reviewed based on Beers criteria,15 the Brazilian Consensus on PIMs for Older Persons,4 and the EURO-FORTA List.16 Possible drug-drug and drug-food interactions were assessed using the Drugs.com Interactions Checker tool.17 The pharmacists and medical team reviewed and discussed the individual aspects of the patient’s health, including life expectancy, cognitive impairments, comorbidities, and palliative care.

3. Act: after pharmacological review, the pharmacists identified possible medications to be deprescribed and developed pharmacological goals and interventions to present to the multidisciplinary team. Deprescribing guidelines and tools such as the algorithms available at Deprescribing.org were used to assist in designing these interventions.18 The results were discussed with physicians and shared decisions were made on which drugs should be discontinued. If more than one medication was identified for withdrawal, priority for discontinuation was given to inappropriate medications with potential for serious harm, followed by preventive drugs and those used for the treatment of specific diseases, specific symptoms, or palliative care. In the return visit, the medical team was responsible for initiating and guiding appropriate deprescribing in older patients. As the process was conducted in a geriatric psychiatry outpatient clinic, physicians mainly
deprescribed psychotropic drugs. Regarding other clinical drugs, patients were instructed to consult with the prescriber for drug review and therapy cessation (if applicable).

4. Adjust: while guiding the process of deprescribing in older patients, the medical team considered the individual patient’s expectations and preferences in relation to the implementation of pharmacological changes. The following factors were considered: economic status, current clinical condition, family context, help from a family member/caregiver in the administration of medications, beliefs regarding the treatment, and possible complaints. Based on these factors, the prescriptions were adjusted according to the patient’s individual characteristics.

5. Monitor: in the subsequent clinical visits, the medical team closely monitored the older patients for their health status. The medical team assessed adherence to the deprescribing process and investigated possible withdrawal symptoms, disease rebound syndrome, flare-up reactions, and effects resulting from drug–drug interactions. These observations were reported to the other members of the multidisciplinary team, who discussed the patient’s health status. If there was a need to change treatment, new interventions were developed and implemented. The older patients remained under close monitoring throughout the outpatient follow-up period (Figure 1).

**DISCUSSION**

Deprescribing medications in older people is a modern and current practice, which is gradually gaining prominence and visibility in the scientific literature. Cross et al.,24 in a study conducted in a memory clinic in Australia, found that 93% of older patients had deprescribing recommendations from pharmacists. Potter et al.,25 in a study conducted in an Australian tertiary hospital, reported that 45% of participants were identified for deprescribing. In the SHELTER study, a longitudinal multicenter cohort study conducted in 7 European countries and Israel, deprescribing was indicated for 36% of nursing home residents.26

Some organizations are progressively implementing deprescribing worldwide. Major references include the Canadian Deprescribing Network, the Australian Deprescribing Network, the English Deprescribing Network, and the researcher-focused Northern European and United States Deprescribing Research Networks.27 These and other researcher groups share guidelines and algorithms with the purpose of assisting health

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**FIGURE 1.** Steps of the deprescribing process.

- **Review**
  - Responses to treatment;
  - Return of symptoms;
  - Worsening of underlying disease;
  - Adherence to deprescribing;
  - Develop interventions;
  - On a regular basis.

- **Monitor**
  - Physical and behavioral status, family context;
  - All medications used by the patient;
  - Treatment features;
  - Lifestyle habits;
  - History of ADRs;
  - Treatment adherence.

- **Analyze**
  - Polypharmacy;
  - PIMs;
  - Drug–drug interactions;
  - Adverse reactions;
  - Individual health aspects.

- **Adjust**
  - On an individual basis;
  - According to the patient’s beliefs, preferences, and real possibilities.

- **Act**
  - Identify medications to be deprescribed;
  - Develop goals and interventions;
  - Decide on medication withdrawal;
  - Prioritize the order of drugs for discontinuation;
  - Initiate deprescribing.
care professionals in the discontinuation of medications safely and with appropriate patient follow-up.11

Given the relevance of the studies conducted so far and following the example of these organizations, our research group introduced the process of deprescribing in a geriatric psychiatry outpatient clinic in the city of Porto Alegre. To develop the methodological protocol reported in this article, the authors relied on pre-specified guidelines, including those published by Scott et al.8 and Reeve et al.23 The method considers the relative risks and benefits of drugs and is perceived as a slow and gradual deprescribing approach.8 Guidelines and tools available in the literature were selected to contribute to each step of the process.8,12-18

The first step of the protocol is essential because it encompasses an in-depth review of older patients’ health and sociodemographic data. A list of all medications used by the patient is prepared, including prescription and non-prescription drugs. Self-medication is a common practice in older adults and requires questioning and attention from health care professionals. The use of caffeine, alcohol, and tobacco is also assessed, as these substances may interact negatively with certain medications.10

Polypharmacy, self-medication, and socioeconomic status can influence patient adherence to pharmacological treatment. Adherence may also be associated with individual characteristics of older persons, such as cognitive function, vision loss, lack of understanding, inability to administer several medications, and personality.28 Patient adherence to medications is assessed using the TAM, with the authorization of the authors. TAM is a free tool that can be administered quickly and consists of 7 easy-to-understand questions.13

The second step is a review of older patients’ drug therapy. An increasing number of medications is associated with increased risks for patients, thus making it essential to assess older persons for the presence of polypharmacy.29 No consensus has been reached on the number of drugs that characterize polypharmacy, with several cut-off points being adopted for different periods and care settings. In the present study, we used the most commonly reported definition of polypharmacy as the “use of 5 or more regular medications.”92

Careful assessment of ADRs is required, as they can increase the length of hospital stay or even lead to death if not correctly identified. In addition, they can be interpreted as new clinical conditions, resulting in a “prescribing cascade.”93 Most ADRs can be prevented if PIMs are identified and their use and undesirable interactions are avoided.4 Possible drug-drug interactions should therefore be evaluated, as they can function as triggers that potentiate the adverse effects or reduce the action of drugs.31 We used Drugs.com, a website that provides complete and reliable information about drugs, to identify potential drug-drug and drug-food interactions and ADRs. This tool shares independent, objective, comprehensive, up-to-date information in a clear and concise format for patients and health care professionals.17

Specific lists were used to identify PIMs. The Beers criteria are a pioneering instrument suitable for application in different scenarios that has undergone multiple revisions.13 The EURO-FORTA List was prepared by experts from several European countries and differs from other instruments in that it classifies medications as positive and negative, with medications being assessed according to their safety, efficacy, and age adjustment.16 As a complement to these tools, we also used a national instrument. The Brazilian Consensus on PIMs for Older Persons provides a list of medications adapted to the reality of the country, since many drugs available in Brazil are not included in international criteria.4

Studies have observed that multidisciplinary interventions are more effective at reducing polypharmacy and inappropriate medication use.10 For this reason, pharmacists present their results to physicians after pharmacological review. Medications identified for discontinuation are indicated and a meeting is held to jointly decide which ones should or should not be discontinued. To assist in shared decision-making, multidisciplinary groups preferably use the deprescribing algorithms developed in Canada by the Bruyère Research Institute, which has developed guidelines for 5 classes of medications (proton pump inhibitors, antihyperglycemics, antipsychotics, benzodiazepine receptor agonists, and cholinesterase inhibitors and memantine), where each guideline is accompanied by an explanatory algorithm, a patient pamphlet, an infographic, and a demonstration video.18 To complete the third step, the medical team is responsible for initiating the tapering or withdrawal process.

The fourth step requires an adjustment of the prescription to the individual characteristics of older patients, considering the patients’ care goals, current level of cognition, life expectancy, economic status, family context, health conditions, values, and preferences. Patients and their families need to create a trusting relationship with the multidisciplinary team in order to feel comfortable with the deprescribing process, thus facilitating the correct implementation of medication discontinuation or cessation.32

The last step of the protocol proposes careful and regular monitoring of patients by the multidisciplinary team. Older people should be closely monitored for potential withdrawal symptoms, disease rebound syndrome, and flare-up reactions, as well as for drug-drug interactions that may occur after withdrawal of a medication that was interfering with the effects.
of another medication. Therefore, if patients develop any symptoms after deprescribing has been initiated, the medical team should change treatment to ensure safe deprescribing.

The risks and benefits of medications change throughout a patient’s life, along with the physiological changes that come with aging, which may lead to a need for adjusting drug therapies or prescriptions. The protocol reported in this study operates as a continuous cycle. Therefore, it is essential to periodically reassess and monitor older patients during and after withdrawal.

CONCLUSION

The process of deprescribing is complex and challenging; the reviewing, analyzing, acting, adjusting, and monitoring steps require a multidisciplinary effort. The geriatric population is strongly related to the practice of polypharmacy, the use of PIMs, and the occurrence of clinical iatrogenesis. These factors trigger serious adverse reactions and drug interactions. The inclusion of deprescribing in more research groups focused on older patients will increase attention to the safety of their pharmacological treatment.

Conflicts of interest

The authors declare no conflicts of interest.

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Authors’ contribution

NML: conceptualization, investigation, methodology, validation, visualization, writing – original draft. PE: conceptualization, investigation, methodology, validation, visualization, writing – review & editing. ACN: investigation, project administration, supervision, validation, visualization, writing – review & editing. VS: conceptualization, investigation, visualization, methodology, supervision, validation, writing – review & editing.

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