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RESEARCH ARTICLE

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PHARMACOTHERAPEUTIC FOLLOW-UP IN POLYMEDICATED ELDERLY

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ABSTRACT

As a result of aging, the elderly become more prone to pathological developments, increasing drug consumption. This increases the possibility of errors related to drugs, such as interactions and adverse reactions. The pharmacotherapeutic follow-up has become indispensable in the care of the polymedicated elderly. This work aims to perform a pharmacotherapeutic follow-up in polymedicated elderly patients, identifying the main drug interactions that occur in this patient, evaluate the possible adverse reactions caused by the drugs used by the patient, analyze the pharmacotherapy, pointing out the main clinical indications of the drugs used and reduce the unnecessary use of drugs, demonstrate the importance of pharmacotherapeutic follow-up for pharmacotherapy of the patient. The present study had a qualitative, exploratory, descriptive, explanatory approach, through a case study, a pharmacotherapeutic follow-up to an elderly polymedicated patient, residing in the city of Monte Belo, South of Minas Gerais. For the pharmacotherapeutic approach and medication reconciliation, the Dáder methodology was applied. We could observe that the patient E.A.B.M. used polypharmacy, where 3 drug-related problems (DRPs) and 3 prevention and resolution of drug-related problems (P/R DRPs) were identified, requiring articulated interventions between the physician, the pharmacist and the patient. It can be observed that the development of the practice of pharmacotherapeutic follow-up is of great importance for a better quality of drug therapy, promoting the rational use of medicines and consequently a better quality of life for elderly patients. However, the collaboration of the physician is of fundamental importance for the performance of the pharmaceutical work, because the integration between these professionals, through the combination of specialized and complementary knowledge, leads to efficient therapeutic results, benefiting the patient.

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INTRODUCTION

The numbers of elderly people have increased in the Brazilian population, which portrays a new profile of morbidity and mortality with a predominance of chronic degenerative diseases. This new profile demands a greater consumption of medicines, which can cause health risks, considering that the elderly are more sensitive to adverse effects and drug interactions, due to organic changes produced by aging (ASSIS et al, 2016). Taking multiple medications correctly is a very complex task, especially for older adults. In addition to being susceptible to many chronic diseases, memory deficits can affect the performance of this task. To deal with this difficulty, they typically employ external memory strategies to record and organize this information, as well as remember to take the right medication at the right time and in the right dose.

Visual elements are always present in most records in the memory strategies of the elderly (DA SILVA; SPINILLO, 2016). This age group is more susceptible to multiple comorbidities and can receive multiple medications, which is associated with an increase in the number of its constituents, which can lead to an increase in medication consumption. In addition, the physical changes that occur with age can increase medication-related risks. Therefore, it is understandable that there are several peculiarities in the medical treatment of the elderly and in the acquisition of specific skills for the physician (TEIXEIRA, 2014). According to the World Health Organization (WHO), polypharmacy is the routine use and simultaneous use of four or more drugs (with or without a prescription) by a patient (WHO, 2016). And this can cause major problems such as: inappropriate use of drugs, drug interactions, side effects, self-medicating and some patients consume drugs of the same therapeutic class without knowing the risk they can cause to their

health and, without their doctor's knowledge, because the prescriptions come from different specialties (CIGGA, 2016). According to Hepler, "pharmaceutical care is the responsible dispensing of pharmacotherapy, with the aim of achieving concrete results that improve the quality of life of each patient". Therefore, it is essential to carry out pharmaceutical care for the elderly in the use of polypharmacy, which can lead to numerous benefits (HEPLER, 2000). The pharmacist, through pharmaceutical care, can accompany the pharmacotherapy, guiding and intervening when necessary, seeking to improve health education and the patient's quality of life (ANTUNES; LO PRETE, 2014). This article aims to carry out a pharmacotherapeutic follow-up in a polymedicated elderly patient. Identify the main drug interactions that occur in this polymedicated patient, evaluate the possible adverse reactions caused by the drugs used by the patient, analyze the pharmacotherapy pointing out the main clinical indications of the drugs used by the patients, reduce the unnecessary use of drugs in the elderly, demonstrate the importance of pharmacotherapeutic follow-up for patient pharmacotherapy.

METHODOLOGY

The present study had a qualitative, exploratory, descriptive, explanatory approach through a case study, where a pharmacotherapeutic follow-up was carried out in a selected elderly with chronic diseases and polymedicated, residing in the city of Monte Belo, South of Minas Gerais. The study was carried out between February 2022 and July 2022. The project was approved by the Ethics Committee of the Universidade José do Rosário Vellano (Unifenas) and all the patient's rights were respected during the follow-up.

Interview: The information was collected through interviews, using a questionnaire guided by the adapted Dáder Method. The methodologies proposed by the Dáder Program for Pharmacotherapeutic monitoring and the Pharmacotherapeutic Monitoring Guide. The Dáder methodology for Pharmacotherapeutic Follow-up is intended to verify safety of use, to assess whether it meets the criteria of need and effectiveness for the detection of MRP according to certain classifications:

- **Need:** Drug-Related Problem (DRP) 1 – by not using the necessary drug, the patient has a health problem; DRP 2 – when using a medication unnecessarily, the patient has a health problem.
- **Effectiveness:** DRP 3 – when using a poorly selected medication, the patient has health problems; DRP 4 – when using a dosage lower than what is needed, the patient has a health problem.
- **Safety:** DRP 5 – when using a higher amount of medication, the patient presents a health problem; DRP 6 – because of adverse reactions the patient has a health problem.

Data Collection: In the first interview in the pharmacotherapeutic follow-up, the following data were collected: full name, age, sex, weight, height, Body Mass Index (BMI), occupation, complaint of health problems, which aroused interest in the follow-up, medication history, life habits, expectations regarding the study program and scheduling of possible new meetings. The interviews took place through monthly meetings. During the Pharmacotherapeutic Follow-up, a total of five direct interviews were carried out with the patient, and during this period a Plan and Conduct Form was applied with the following activities planned during the pharmacotherapeutic follow-up:

- Pharmacotherapeutic history.
- Identification of the patient's health problems and the drugs used for them.
- Identification, registration and resolution of Problems related to the drugs used.

- Resolution and expected results. During the AFT, biochemical, physiological and anthropometric parameters were monitored, and these data were recorded on a pharmacotherapeutic follow-up card prepared during the study.

CASE REPORT

This study was carried out in accordance with the ethical standards contained in the Declaration of Helsinki and its updates. The patient was invited to participate in the study and informed about the purposes, and an informed consent form (ICF) was previously signed. Patient E.A.B.M, male, 74 years old, weighing 90 kg, measuring 1.72 m (BMI= 30.5), widowed, retired, born in Monte Belo-MG, Brazil. He started pharmacotherapy at his residence in Monte Belo-MG, Brazil, for a general assessment of his health and evaluation of the pharmacological therapy used. He reports being allergic to acetylsalicylic acid. Patient reports having a good diet, uses alcohol on weekends and does not do physical activity. In 1991, he had an Acute Myocardial Infarction (AMI), according to him, due to a nervous crisis, since then he uses Clopidogrel Bisulfate 75mg (1-0-0) and Diltiazem Hydrochloride 30 mg (1-0-1), reports having a burning sensation after the use of Clopidogrel Bisulfate. In 2018 he had bouts of high blood pressure. He was prescribed by the cardiologist, Losartan 50mg (1-1-1), and in the same year he had Herpes Zoster, which triggered intense pain (neuralgia) and since then he has been using Duloxetine Hydrochloride 30mg (0-1-0). He reports still having intense pain in the late afternoon. In 2019, he started using Dexamethasone 30mg (1-0-0) by prescription, due to gastric reflux and intense heartburn, but he reports little improvement. In 2021, he started using Simvastatin 20mg (0-1-0), due to changes in the cholesterol rate, prescribed by the doctor, but he uses it after lunch. Patient reports self-use of *Passiflora incarnata* + *Crataegus oxyacanta* + *Salix alba*, (0-0-1), to help sleep, multivitamins A/Z (0-1-1), Caffeine + carisoprodol + sodium diclofenac + paracetamol (1-01) when needed for back pain. He also uses dipyrone + adifenine hydrochloride + promethazine hydrochloride, for possible headaches. Patient reports having asthmatic bronchitis since childhood and to alleviate symptoms he makes continuous use of beclomethasone dipropionate 250 mcg (aerosol) and fluticasone propionate 50 mcg/dose, which were prescribed in 2020 by the otolaryngologist, and has been using it continuously since then. She has been using tadalafil 5mg (0-0-1) without prescription for more than five years. Patient had hearing problems and sleep apnea in 2021 and sought medical help and was indicated to use continuous positive airway pressure (CPAP) and hearing aid, but until the date of the last follow-up visit. When the patient's medication checklist was carried out, it was noticed that he removes them from their original packaging and puts the pills loose in two bottles, one to take in the morning after breakfast and the other after lunch, ingesting them all at once. only once.

DISCUSSION

When analyzing the medications used by the patient, we can observe that he uses several medications without a medical prescription. According to Pereira, et al, several factors contribute to the growth of self-medication in the world: economic, political and cultural factors, which becomes a public health problem. The wide availability of products on the market generates greater familiarity of the lay user with medicines. The patient also uses prescription drugs from different therapeutic classes, as described in Table 1. It was reported by the patient that he does not make regular medical appointments, that he only goes to the doctor of the Basic Health Unit to "change" the medical prescription, to acquire medicines sold by prescription only. This conduct is known as automatic renewal of prescriptions, where the "exchange" of prescriptions, often even special control prescriptions, without direct patient care, without due clinical examination of the patient (CARVALHO, 2014). This conduct could be accepted as correct by some people if it were not against the current Code of Medical Ethics, in articles 37 and 80 which read:

Table 1. Medications used by the patient with or without medical prescription, at the beginning of the pharmacotherapeutic follow-up

Medication	Therapeutic class	Prescribed dosage	Dosage used
Bisulfate of clopiogrel 75mg	Antiplatelet	1-0-0	1-0-0
Diltiazem Hydrochloride 30mg	Beta blocker	1-0-1	1-1-0
Losartan 50mg	Inhibitors of Angiotensin II	1-1-1	1-1-0
Simvastatin 20mg	HMG Coa Reductase inhibitors	0-0-1	0-1-1
Duloxetine Hydrochloride 30mg	Serotonin-Norepinephrine Reuptake Inhibitor	0-1-0	0-1-0
Dexlansoprazole 30 mg	Proton pump inhibitor (PPI)	1-0-0	1-0-0
Tadalafil 5 mg	Stimulating (erectile function)	not prescribed	0-0-1
<i>Passiflora incarnata + Crataegus oxyacanta + Salix alba</i>	Ansiolitic	not prescribed	0-0-1
Caffeine + carisoprodol + diclofenac sodium + Paracetamol	Analgesic, muscle relaxant	not prescribed	1-1-1
Beclomethasone dipropionate 250 mcg (aerosol)	Antiasthmatics	1-0-1	1-0-1
Fluticasone propionate	Nasal corticosterone	0-0-1	0-0-1
Dipyron + Adifenin hydrochloride + Prometazine hydrochloride	Analgesic and antipyretic	not prescribed	1-1-1

Table 2. Problems related to drugs and pharmaceutical intervention

Drug-related problems (DRPs)	Prevention and resolution of drug-related problems (P/R DRPs)	Intervenção Farmacêutica
Incorrect storage of medicines.	Non-quantitative insecurity.	Guidance for storing medicines in their original packaging.
Over-the-counter medications.	Insecurity.	Guidance on the risks of self-medication
Do not follow the indicated dosage (Simvastatin).	Insecurity.	Take the medicine after dinner.
Myalgia (Diltiazem Hydrochloride + Simvastatin).	Insecurity.	See a doctor and report the interaction.

In Chapter V - Relationship with patients and family

The doctor is prohibited from: Art. 37. Prescribe treatment or other procedures without direct examination of the patient, except in cases of urgency or emergency and proven impossibility of performing it, in which case, it must be done immediately after the impediment ceases.

In Chapter X- Medical documents 11: The doctor is prohibited from:

Art. 80. Issuing a medical document without having performed a professional act that justifies it, that is biased or that does not correspond to the truth.

Storage and Dosage: The patient E.A.B.M reported during the interviews that he has the habit of removing all medicines from their original packaging and storing them in reused bottles. According to the patient, he does this to take up less storage space. We observed that the patient puts the medicines in two plastic bottles, one that he takes in the morning (after breakfast) and another that he takes after lunch, he takes them all together. According to Figueredo, et al, 2011, home storage must comply with the guidelines provided by the manufacturer, as every drug has specific physical and chemical properties according to the route of administration. And the stability of drugs can be modified by intrinsic and extrinsic factors, and incorrect storage can lead to loss of this stability by factors such as temperature, presence of oxygen, sunlight, radiation and humidity. Another aspect that can be observed during the interviews is that the patient did not correctly follow the dosage prescribed to him, as we can see in Table 1, this is the case of Simvastatin, which belongs to the class of statins, the patient reported that he takes it afterwards of lunch and according to the Ordem dos Farmacêuticos de Lisboa the short half-life statins (simvastatin, lovastatin, immediate-release fluvastatin and pravastatin) cholesterol biosynthesis varies during the day, reaching a maximum peak between midnight and 5 - 6 pm morning. Therefore, it is typically recommended that they be administered at night (ORDEM DOS PHARMACÊUTICOS, LISBOA, 2019).

Drug interactions: Drug interactions are special types of pharmacological responses, in which the effects of one or more drugs are altered by the simultaneous or previous administration of others, or through concurrent administration with food (SECOLI, 2001). Analyzing the drugs that the patient uses, the following interactions can be observed: diltiazem hydrochloride when taken together with statins (used to treat dyslipidemia): increased plasma concentrations of statins, which in turn leads to the occurrence of adverse events

such as myalgia, myopathy and rare cases of rhabdomyolysis (ANVISA, 2021). The drug Losartan is contraindicated for patients with heart failure, as with other drugs that act on the renin-angiotensin system – a risk of severe hypotension and renal failure (usually acute) (ANVISA, 2022). The present patient's report suggests the possible presence of some problems related to pharmacotherapy, listed in Table 2. As soon as the DRPs and MRIs were identified, pharmaceutical interventions were prepared.

Pharmaceutical Interventions: Regarding the DRPs/RNMs identified in the user, the importance of pharmacotherapeutic monitoring can be verified, since this is a professional practice in which the pharmacist is responsible for the needs of patients related to medicines (BARROS; AZEVEDO, 2022).

Final Considerations: In view of the above, it is clear that polypharmacy, in the elderly, is a problem of great relevance today, since the use of three or more drugs is often related to adverse effects and drug interactions, especially in case of use of drugs. inappropriate drugs. Due to the great increase in health risk, especially in the absence of proper guidance by qualified professionals, this study demonstrated that pharmaceutical care is essential in this population group. It can be seen that the development of the practice of pharmacotherapeutic monitoring is of great importance for better quality of drug therapy, promoting the rational use of drugs and consequently a better quality of life for elderly patients. However, the physician's collaboration is of fundamental importance for the accomplishment of the pharmaceutical work, since the integration between these professionals, through the combination of specialized and complementary knowledge, leads to efficient therapeutic results, benefiting the patient. Thus, at the end of this article, it was possible to achieve all the objectives initially outlined.

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