IMPACT OF PHARMACEUTICAL CONSULTATION IN POLYMEDICATED PATIENTS WITH HIGH CARDIOVASCULAR RISK

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ABSTRACT

Background: The rise of pharmaceutical clinical services enables this professional to carry out actions directed at the patient, promoting the rational use of medicines and improving the quality of life. These actions can be performed from pharmaceutical consultations, in order to optimize the pharmacotherapy of the patient and periodically monitor their health conditions in order to evaluate the effectiveness of the treatment. **Objective**: to evaluate the impact of the pharmaceutical service on polymedicated patients attended at a large hospital outpatient clinic. **Methods**: were collected the data obtained from the consultations carried out during six months in the Pharmaceutical Attention Clinic and these data were analyzed statistically. **Results**: there was a significant increase in morbidity control between the first and second consultations, from 2.52 (± 1.465), on average, to 2.95 (± 1.519), p = 0.003, indicating potential health care benefits of the patient. There was also a persistence in the number of complaints and in the number of interventions performed, reiterating the need for continuous follow-up to resolve all patient problems. **Conclusions**: the outpatient follow-up by a clinical pharmacist presents potential for obtaining positive outcomes in the patient's health.

Key words: Clinical pharmacy. Polypharmacy. Pharmaceutical care.

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INTRODUCTION

The clinical pharmacy services represent pharmacological actions of the pharmacist, aimed at the patient, health professionals and community, focused mainly on the tracking of diseases, management of self-limited problems, health education, pharmacotherapy review, disease management and pharmacotherapeutic follow-up. These services are designed to optimize pharmacotherapy, thus improving clinical, humanistic and economic outcomes.[1-4]

Although the term "clinical pharmacy" has existed since the 1960s, in Brazil this idea is still under development. Pharmaceutical assistance policy was discussed for the first time at the National Meeting of Pharmaceutical assistance and Medicines Policy in 1988, but only in 2002, in the Brazilian Consensus on Pharmaceutical Care, this practice was better established in the country.[5,6]

Considering the world context, numerous publications have demonstrated the impact of clinical pharmaceutical services in different populations and care settings.[7-11] A recently published systematic review pointed to significant reductions in blood pressure, total cholesterol, and body mass index values in patients who received interventions from the clinical pharmacist.[8] In parallel, an overview of systematic reviews, published in 2015, pointed to significant benefits of clinical pharmaceutical services in patients with systemic arterial hypertension and diabetes.[9]

Recent evidence suggests that clinical pharmacy services tend to be more effective in patients who are more prone to the occurrence of pharmacotherapy problems.[12-15] These factors include the diagnosis of multiple comorbidities, polypharmacy and the presence of limitations for the management of pharmacotherapy, whether physical or cognitive.[16,17]

These situations can be attributed to the current demographic and epidemiological transition in Brazil and the world, contributing to the higher prevalence of chronic diseases, which require combined treatments such as systemic arterial hypertension and diabetes.[18,19] The concomitant use of several drugs, although often necessary and unavoidable, is related to the increase of adverse reactions, drug interactions, intoxications, physical and psychological damages.[20,21]

Outpatient pharmacy services have gained momentum as their imminent need is identified. Data from the World Health Organization indicate that non-adherence rates for treatment of chronic diseases may exceed 50%.[22] In Brazil, a survey conducted by the Ministry of Health, through the implementation of pharmaceutical consultations in the Unified Health System, indicated that more than 90% of the patients presented some adhesion problem.[23]

Pharmaceutical consultation represents a complex activity that incorporates different clinical pharmaceutical services according to the patient's needs in order to improve their health and quality

of life.[1,2] Despite the presumed benefit of this type of follow-up, unlike European and Anglo-Saxon countries, national data on this practice are still scarce.

Considering these issues, the present study aimed to describe the data from consultations performed in a Pharmaceutical Care outpatient clinic, located in an outpatient service of a large hospital, in addition to measuring the impact of these consultations to improve the health conditions of the patients attended.

METHODS

This is an observational descriptive and analytical study. Data were collected retrospectively from the pharmacy records of the Pharmaceutical Care Service of the Complex of Clinical Hospital of the Federal University of Paraná (CHC-UFPR). This service has been in force in the hospital for more than 5 years, which is intended for the care of patients who have the following characteristics: older than 18 years, previously attended at the CHC-UFPR's medical and outpatient cardiology units and polymedicines. These were directed to the outpatient clinic by other health professionals, at the invitation of the pharmacists themselves (active search from the medical records of patients previously hospitalized at the hospital's cardiology units) or by the patient's interest. For inclusion in this research, the patient should present the characteristics and express their consent through the signing of a free and informed consent term.

The data evaluated came from the records of the medical records of consultations performed in said service by pharmacists who are part of the Integrated Multiprofessional Residency Program in Hospital Care of CHC/UFPR, Cardiology concentration area. In addition, the outpatient clinic has the collaboration of volunteer pharmacists with clinical experience for more than 3 years, who act as preceptors, assisting in decision making during consultations. In addition, at the end of all consultations, case discussions are held together with the entire team of pharmacists. The medical records are exclusively for pharmaceutical use, which were developed by the team of preceptors; however, the responsible pharmacist should also record the care in the patient's chart, available for viewing by all hospital health professionals.

Resident pharmacists only started attendance after a theoretical-practical training course of six months previously implanted in the service. The pharmaceutical consultations had as focus the promotion of the rational use of the medicines, the stimulation to the adhesion of the patient to the pharmacotherapy, as well as the resolution of the problems related to the same one.

For the present study, information was collected on all consultations performed at the outpatient clinic during a period of 6 months, from September 2016 to March 2017.

The following data were collected: number of pharmacotherapy problems and interventions performed at each consultation, comorbidities and their situational status. The situational status of the clinical conditions was classified by the professional who carried out the consultation according to the classification into categories previously defined in the service: CON (controlled), NCO (uncontrolled), SAD (underdiagnosed), DES (unknown), MPA (partial improvement), PPA (partial worsening) and CUR (cure). This classification was performed according to anamnesis directed to the clinical condition involved, laboratory and clinical exams, when pertinent, requested by the pharmacist or other health professionals who accompanied the patient in the period.[24]

The study was conducted according to the regulatory standards for human research (CNS Resolution 466/12 and complements), and was approved by the Human Research Ethics Committee of the HC/UFPR (CAAE: 17675013.0.0000.0096).

For the statistical analysis, the normality of the distribution of the parameters "comorbidities", "problems of pharmacotherapy" and "pharmaceutical interventions" was determined through the Komolgorov-Smirnov test. Considering that the variables presented normality, the results were expressed as mean and standard deviation. In addition, the T test was used for paired analysis between the consultations. All analyzes were done in SPSS software for Windows version 20.0 and Microsoft Excel 2010.

RESULTS

Data were collected from 116 patients. Of these patients, 60 (51.72%) had only one consultation during the data collection period, 15 of them (25%) were previously being followed up and discharged from the study. Of the 56 patients, 30 (25.86%) were followed up in two consultations, 19 (16.38%) in three consultations, 4 (3.45%) in four consultations and 3 (2.59%) in five. Table 1 shows the average number of comorbidities presented in each situational state in the first three consultations.

As shown in the table, the data compared demonstrate a significant increase in "controlled" comorbidities, as well as a reduction of "uncontrolled" between the first and second consultations. This corroborates with the expected results, considering that interventions included guidelines on drug therapy, requesting laboratory tests, referral to consultations with other health professionals, and dose management. In the third consultation, there was a tendency to reduce uncontrolled comorbidities together with an increase in partial improvement, but possibly due to the drastic reduction of the sample number, these results did not reach statistical significance.

The most prevalent comorbidity was systemic arterial hypertension, present in 94.8% of the patients, followed by coronary artery disease, present in 69.8%, and dyslipidemia in 62.9% of the patients. Other comorbidities presented were: diabetes (41.1%), heart failure (26.7%) and stomach problems (22.4%). Figure 1 illustrates the correlation between comorbidities and situational status at the first pharmaceutical consultation.

It is observed that, for the three main comorbidities presented in the first consultation, less than 70% of the patients were in a controlled situation. Systemic arterial hypertension was the most frequently uncontrolled comorbidity, with 29.1% of patients in this situational state. Of the patients who presented dyslipidemia, in addition to only 50.7% presented controlled comorbidity at the first consultation, 20.5% presented this unknown situation, that is, where there was no diagnosis confirmed by the physician, or lacked results of laboratory tests for their evaluation.

The data related to these comorbidities in the second consultation are described in figure 2, in which it is possible to perceive that there was an increase in the control of these comorbidities.

Although the number of hypertensive patients in a controlled situation did not increase, 8.9% of these had a partial improvement condition, reducing the amount of uncontrolled. The number of patients with controlled coronary artery disease and dyslipidemia increased markedly, from 64.2% to 78.9% and from 50.7% to 75.7%, respectively. In addition, the number of patients with dyslipidemia in an unknown situation decreased to 8.1%.

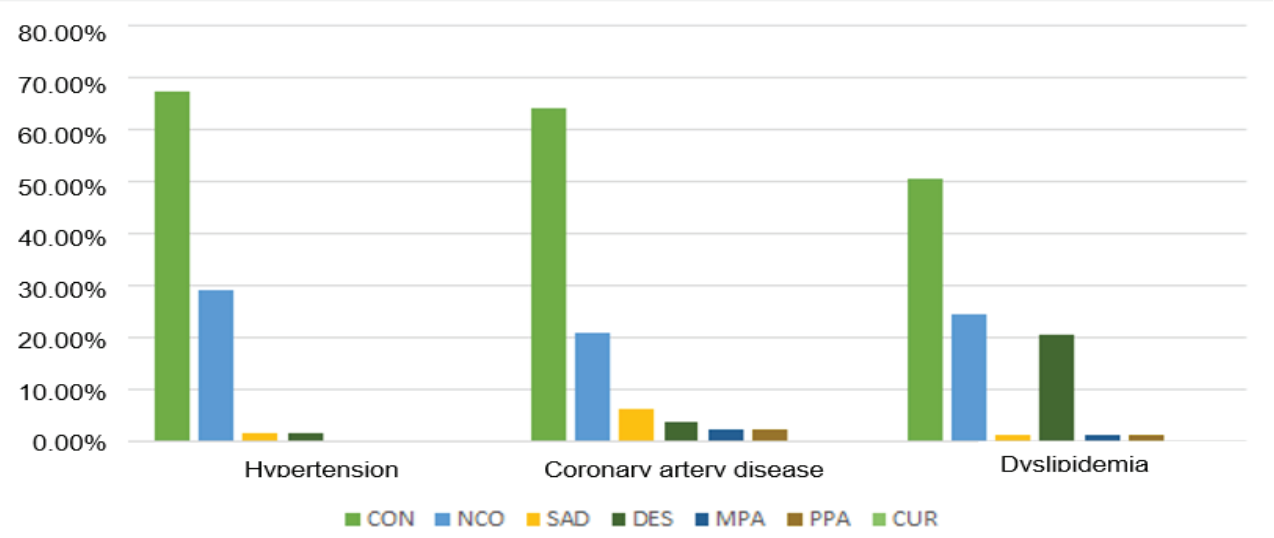
The mean number of pharmacotherapy problems was 2.14 (± 1.571) at the first consultation, 1.93 (± 1.661) at the second consultation and 1.77 (± 1.883) at the third consultation. At the same time, 3.03 (± 1.803) interventions were performed at the first consultation, 3.04 (± 1.858) at the second and 3.19 (± 2.020) at the third consultations.

Table 1 – Situational status of comorbidities presented by patients during consultations from September 2016 to March 2017

	First consultation*	Second consultation*	Third consultation*	Comparison 1st and 2nd consultation – p value**	Comparison 1st and 3rd consultation – p value**
Number of controlled comorbidities	**2.52 ± 1.465**	**2.95 ± 1.519**	**2.69 ± 1.543**	**<0.001**	**>0.05**
Number of uncontrolled comorbidities	1.66 ± 1.554	1.32 ± 1.428	1.12 ± 1.633	0.002	>0.05
Number of comorbidities under diagnostic evaluation	0.29 ± 0.619	0.3 ± 0.570	0.35 ± 1.018	>0.05	>0.05
Number of comorbidities in unknown state	0.5 ± 0.839	0.29 ± 0.653	0.27 ± 0.553	>0.05	>0.05
Number of comorbidities in partial improvement	0.2 ± 0.479	0.32 ± 0.606	0.54 ± 0.761	>0.05	>0.05
Number of comorbidities in partial worsening	0.08 ± 0.420	0.09 ± 0.438	0.08 ± 0.272	>0.05	>0.05
Number of cured comorbidities	0.03 ± 0.293	0.02 ± 0.134	0.04 ± 0.196	>0.05	>0.05

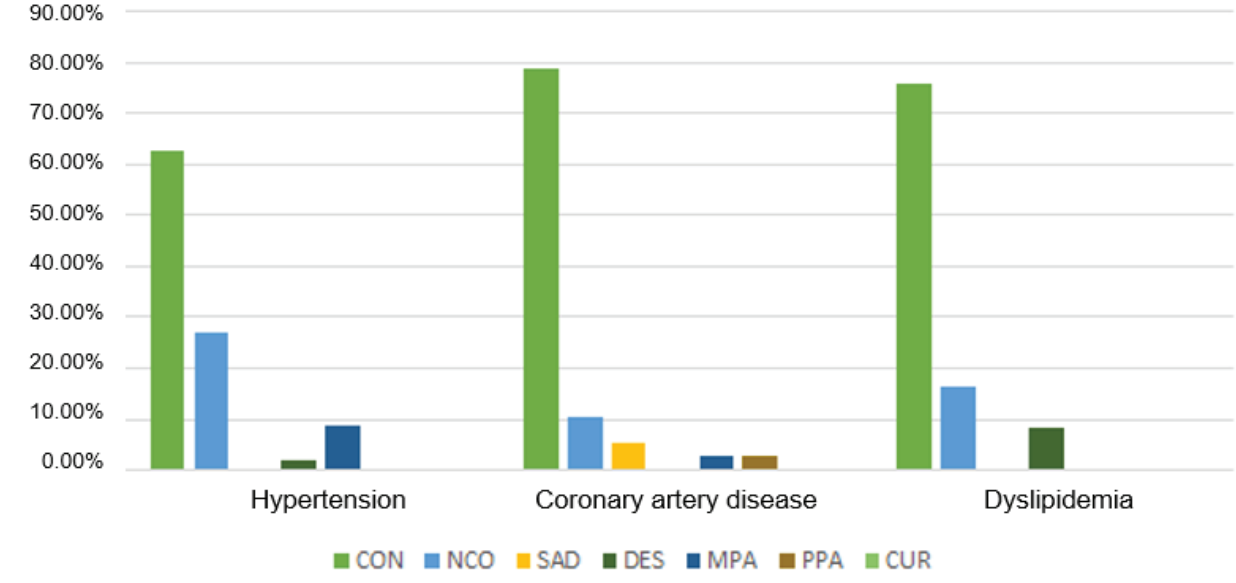
*Data expressed as mean ± standard deviation; **Paired T-Student Test

Figure 1 – Situational status of comorbidities at the first consultation



SUBTITLE: CON = controlled; NCO = uncontrolled; DES = unknown; MPA = partial improvement; PPA = partial worsening; CUR = Cured

Figure 2 - Situational status of comorbidities at the second consultation



SUBTITLE: COM = controlled; NCO = uncontrolled; DES = unknown; MPA = partial improvement; PPA = partial worsening; CUR = Cured

Table 2 - Paired comparison of the number of problems and interventions between the first and second consultations

	Consultation 1	Consultation 2	"P" value
Number of pharmacotherapy problems	2.14 (± 1.571)	1.93 (± 1.661)	>0.05
Number of interventions	3.03 (± 1.803)	3.04 (± 1.858)	>0.05

*Data expressed as mean ± standard deviation

Considering the number of problems and pharmaceutical interventions between the first and second consultations, there was no significant difference in paired analysis.

DISCUSSION

This study demonstrated that the most frequent comorbidities in the analyzed patients were chronic diseases, which require continuous care, from the use of pharmacological therapy and/or changes in lifestyle. Systemic arterial hypertension and dyslipidemia, which are more prevalent in the study population, are considered independent cardiovascular risk factors, and can lead to important clinical outcomes, such as coronary artery disease and other health problems, such as peripheral vascular disease and chronic kidney disease.[25]

Non-communicable chronic diseases are diseases caused by several factors that may or may not be avoided and are currently the leading cause of mortality in Brazil and the rest of the world. According to data from the Mortality Information System (SIM), 72.6% of all deaths occurred in the country in 2013 were caused by some CNCDs.[24] The chronic non-transmissible diseases that cause most deaths worldwide are cardiovascular diseases, chronic respiratory diseases, cancers and diabetes, diseases that could be effectively prevented or controlled by improving health care services to the needs of these patients.[26]

Another relevant point pointed out in this investigation was the consistency of the mean of problems and the recurrent need for pharmaceutical interventions. This indicates, not surprisingly, that a single query is not enough to identify and solve all the problems presented. This is associated with possible changes in the patient's clinical condition and the appearance of new problems between one consultation and another.

The clinical follow-up of the pharmacist has already been proven to be extremely important to obtain positive outcomes in the patient's health, such as the use of safer therapy, better adherence to treatment and improvement in quality of life.[27,28] Using the knowledge about the drugs, their adverse effects, possible interactions and mode of use, the pharmacist can evaluate the pharmacotherapy of the patient and verify the need to perform some intervention to improve its effectiveness and minimize its risks.[29]

In an innovative way, the present study, through an integral approach to the patient's health conditions, indicated a significant increase in the controlled comorbidities between the first and second consultations, reflecting the importance of the pharmaceutical interventions to improve the overall health condition of the patient. It is worth noting that a significant difference was observed in the short term.

In a retrospective study performed in a highly complex hospital published in 2008, Nunes et al.[29] statistically analyzed the pharmaceutical interventions performed and proved their effectiveness in the detection and prevention of adverse events caused by pharmacotherapy, reaffirming the importance of including the pharmacist in the team multiprofessional health.

According to the data presented, in a study conducted in rural areas of Alabama published in 2003, Taylor, Byrd and Krueger proved that the implementation of a drug education program, with monitoring of problems related to therapy and the inspection of prescriptions by the pharmacist from consultations, allowed a reduction of prescription errors, as well as a better control of the diseases and an improvement in the quality of life.[30]

Similarly, Jaber et al. (1996) conducted a randomized controlled trial in patients with diabetes to verify the effects of pharmaceutical care on this specific population. The group of patients who received the guidelines regarding disease, medications, physical exercises, diet and self-monitoring had a significant improvement in the results of glycated hemoglobin and plasma glucose when compared to patients who continued receiving standard medical care, demonstrating the effectiveness of the interventions in improving quality of life.[31]

As limitations of the present study, we emphasize the lack of a comparator group and the small sample size. However, given the scarcity of national evidence in the area, we believe that it contributes to the formulation of hypotheses and robust research through other methodological designs.

In summary, based on the obtained results, it is possible to infer a tendency of improvement of the results in the patient. However, in order to reaffirm the importance of pharmaceutical consultations on the health status of the patient, it would be interesting to carry out randomized controlled studies.

CONCLUSIONS

The analysis of the data obtained from the medical records of the patients, considering the overall health status of the patient, carried out in the six months period, showed that the pharmaceutical interventions contributed to the control of the comorbidities of the patients attended.

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Conflicts of Interest

The authors declare no conflict of interest.

Authors' Contributions

All authors also contributed to the design, analysis and interpretation of the data; essay writing, critical relevant revision of the intellectual content and final approval of the version to be published. In this way, everyone is responsible for the work information, ensuring the accuracy and integrity of any part of the work.

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