WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 8, Issue 13, 1656-1665. Research Article ISSN 2277– 7105

EVALUATION OF COMPLIANCE WITH GOOD PRESCRIPTION PRACTICES IN THE CHILDREN'S MATERNAL HOSPITAL IN CAPIATÁ, PARAGUAY

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Article Received on
21 Oct. 2019,
Revised on 11 Nov. 2019,
Accepted on 01 Dec. 2019,
DOI: 10.20959/wjpr201913-16630

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ABSTRACT

The evaluation of "Good Prescription Practices" is essential to know what are the most frequent mistakes that health's professionals develop at prescribing a drug to their patients and quantify it these errors are associated to serious adverse reactions. Errors in medical prescriptions are a health problem that can result in patient's health damage. Each Health institution must know these errors in order to perform actions to minimize them. The objective of this work is to quantify prescription errors in the Maternal-Children hospital in Capiatá, Paraguay in order to detect the points that require improvements. **Methods**: It is a cross-sectional study that analyse pharmacological prescriptions, and type and quantity of medical errors. Variables studied were calligraphy, legible or illegible of letter; presence or lack of signature & stamp of the doctor; presence or lack of date; paper prescription with/without letterhead or institution stamp; concentration of the pharmaceutical form; omission of the pharmaceutical form; prescription by trade name; amendments in recipes. **Results**: 7836 prescriptions were analysed with a total of 15429 prescribed medications. It was detected 18.25% of an illegible prescription; 0.06% lack of doctor's signature or stamp; 12% omit the date; 1% were recipes without letterhead or seal of the institution; 18.4% drug concentration not registered; 14.5% do not clarify the pharmaceutical form or quantity to be dispensed; 34.6% had error or omission in the unit of measure; 0.9% carry out the prescription with a trade name and 0.16% submit an amendment to the recipe. **Conclusion**: the present study reveals that Good Prescriptions Practices are poorly performed

in Paraguay's Maternal & Children Hospital. As consequence, prescription errors are frequent, mostly of them severe; and potentially patient's health is in risk. From this knowledge, the errors are now detected and can be corrected.

KEYWORDS: Prescription errors, drugs, practices.

BACKGROUND

Prescription error, according to the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) is any preventable event that may cause or lead to inappropriate medication use or cause harm to the patient or consumer. Such events may be related to professional practice, health care products, procedures and work systems, including activities such as prescription, communication of medical orders, labelling, packaging, drug preparation, dispensing, distribution, supply, education and monitoring in the use of medicines.[1]

Medication errors occur mostly at the hospital level, and according to Spanish Health Care System, medication errors are as frequent as 10% of all prescription[2]. The main causes of medication errors were human factor (56.7% of cases); problems of labelling, design and packaging of medicines (15.3% of errors); and problems in the interpretation of prescriptions (15.1%).[2]

In Cuba, some institutions such as the National Institute of Oncology and Radiobiology, the occurrence of prescription errors is higher.[2]

The complexity of drug therapy and drug dispensing, the lack of incorporation information technologies, the segmentation of health care and the high consumption of medicines by the population were identified by several researchers as major causes of this problem. It is common for inpatients in Paraguay to receive up to 15 medications a day and in the outpatients more than 661 million annual prescriptions were dispensed to 3 million beneficiaries of the National Health System. However, only 1% of ambulatory prescription error rate lead to high morbidity and mortality.[3]

There are multiple ways to classify the adverse event due to prescriptions errors. One of the most useful classification regard to the definition of ethical, criminal, civil and administrative responsibility of drug prescription or utilization is the one that divides the adverse event into preventable and non-preventable ones. The non-preventable adverse event is the complication

that cannot be avoided given the current state of knowledge; on the contrary, the preventable adverse event is the poor result of the attention that can be avoided with the state of knowledge.

About 70% of adverse events are considered preventable, that means that errors can be avoided if system is prepare to show and detect difficulties, mistakes and performance.[4]

The strategies for the prevention of medication errors are fundamentally based on the development of safe, error-proof drug utilization systems. In this sense, it is interesting to know how the chain of the use of medicines in a health organization can be described from the perspective of the system. In 1989 a panel of experts convened by the Joint Commission on Accreditation of Healthcare Organizations (JCHCO) defined the drug utilization system as the "set of interrelated processes whose common objective is the use of medicines in a safe, effective, appropriate manner and efficient. The panel of experts initially identified four processes as members of said system in the hospital setting, which were subsequently extended to five: selection, prescription, preparation and dispensing, administration and monitoring.

Although each process is usually the responsibility of a specific health professional, in practice, many of them usually involve several people (doctors, pharmacists, nurses, assistants, administrators, caretakers, patients, etc.) depending on the organization and procedures of work of each institution. The overall functioning of the system will therefore depend on each and every one of these professionals and their ability to coordinate and work in teams.

This is an important aspect that involves a cultural change in professionals, who must understand and assume their competences and functions, as well as advocate their interdependence with those of the rest of those involved in the chain.[5]

Medication safety must be the core value of health organizations and individual professionals, particularly pharmacists. Preventing and providing maximum safety conditions to patients requires a great collaboration of all those involved in the system.

This will be possible with the rational use of medicines that contributes significantly to the well-being of the individual and therefore to that of society. However, this is not an easy situation to achieve and maintain. Experience has shown that in the path between

prescription, dispensing and the final use of the drug by the patient, problems sometimes arise that lead to improper use of the drug or the appearance of unwanted effects.[6]

INTRODUCTION

The prescription is a logical deductive process, based on global and objective information about the health problem that affects the patient. In this process, based on the knowledge acquired, the prescriber listens to the patient's symptom report, performs a physical examination for signs, performs clinical exams, if applicable, and concludes in a diagnostic orientation and makes a therapeutic decision. The prescription should be then considered as a formal act, between the diagnosis and the execution of the treatment and not as a reflex act that built up a recipe or a response to commercial or patient pressures.

The medical prescription corresponds to a complex act, which requires knowledge, professional experience, specific skills, a great sense of responsibility and an ethical attitude. It should also be remembered that the prescriber assumes legal responsibility for the implications of the prescription.[7]

Patient safety is one of the main objectives of medical care. It is a complex activity that includes decisions and actions involving doctors, nurses, pharmacists, patients and family members. The publication, in November 1999, of the report of the Institute of Medicine (USA) entitled To err is human: building a safer health system, which has been a reference for many studies, provided a great propulsion to concern with patient safety. This indicated that, in US hospitals, between 44,000 and 98,000 Americans died due to errors caused by health professionals, which many of them could have been prevented.[8]

In 2002, the World Health Organization (WHO) recommended, through Resolution WhA 55.18, to adopt patient safety as a matter of high priority in the policy agenda of member countries.[9]

Medication error is classified as preventable and not preventable. It can be produced in: a) writing or writing, either in the name of the drug, in the units of measure, in the use of the decimal point, in the route of administration, infusion time or interval; b) interpretation of the dose by the personnel in charge of the preparation, as well as in the route of administration; c) the difficulty to dose some medications, in which due to its presentation it is necessary to make dilutions for its application. There are other factors such as poor transcription of an

indication, failure to consult medical care protocols or dosage manuals, stress, noise, time pressures, excessive work in critical areas, night shift, level of preparation or training, overtime and fatigue.[10]

Therefore, the quality of the prescription is becoming a permanent social and political requirement, in relation to the adequacy of the efficiency of the prescription and the rationalization of pharmaceutical expenditure, as a measure of social and economic nature in the process of containment of the health expenditure, attributing to the inappropriate prescription some resources, which could be directed to other areas of health care, and influencing the responsibility of the doctor in this matter that, in any case, will be shared with other agents involved in the care process and in the medicine (Administration, Pharmaceutical Industry, Pharmaceutical dispensers and patients).[11]

Studying the errors produced during the prescription is very important since this compromises the patient's health; and pharmacists as professionals of the medicine have the obligation and responsibility to provide their patients with safety and quality of the pharmacotherapy they receive. This is difficult to guarantee if the recipes received and to be dispensed do not have the minimum data; For this reason, this study tries to demonstrate all the most frequent errors that require improvements for the patient's well-being, which must be the most important for every health professional.

In order to evaluate compliance with good prescription practices and analyse the main medication errors in a Maternal and Child Public Hospital of the State of Paraguay, this work was carried out.

MATERIALS AND METHODS

This is a cross-sectional and retrospective study of outpatient and inpatient medical prescriptions (filed in the pharmacy office) of the Maternal and Children's Hospital of Capiatá, Paraguay.

Data collection period: It was a month period (August 2019).

Prescriptions included were all those received at the Pharmacy Office (drugs from Essential Medicines List of the Ministry of Public Health and Social Welfare).

A checklist was prepared for the collection of the data required by the project. Errors were selected after the observation of the mistakes usually made by the prescribing professionals and taking as a reference the Guide to Good Prescription Practices of Chile.[12]

The study variables were the different types of errors made by professionals when prescribing of dispensing drugs to patients. These errors were grouped into:

1. Unreadable letter that lends itself to broad interpretations: at this point the importance of calligraphy and proficiency in reading the dispensing pharmacist is notorious.
2. Lack of signature or stamp of the prescribing physician: this item establishes the importance of knowing who is responsible for prescribing the patient.
3. Lack of treatment start date: it is observed whether or not the prescription meets the date of issuance of the prescription.
4. Prescription in any recipe book, without letterhead or stamp that identifies the institution: This item establishes whether the prescription was issued by professionals belonging to the institution.
5. Lack of clarification of the concentration of the pharmaceutical form: it is established whether the dose of the prescribed medication is included in the prescription to avoid errors or confusion.
6. Lack of pharmaceutical clarification or the amount to be dispensed: in this case it is observed if all the data are available for the accurate identification of the medicine to be dispensed.
7. Error in the unit of measure or non-use of the International System: this item detects the proper use of the units of measure.
8. Prescription with a trade name: when avoid the prescription with a generic name is taken into account.
9. Recipe amendments: this item takes into account if the recipe has smears or cross-outs.

Variables: Date of admission, Date of discharge, Age, Sex, Origin, Number, type, dose of medicines dispensed and type of administration, type and quantity of medical errors. Variables studied were calligraphy, legible or illegible of letter; presence or lack of signature & stamp of the doctor; presence or lack of date; paper prescription with/without letterhead or institution stamp; concentration of the pharmaceutical form; omission of the pharmaceutical form; prescription by trade name; amendments in recipes.

All recipes were photocopied for visual proof of the mistakes made.

Statistical analysis: The statistical analysis was performed with the EPI INFO statistical software, each variable was coded for the programme management, with its description and its categories. This programme allows expressing the results in frequency and percentage of each study variable.

Ethical aspects: This work was carried out according to international standards for biomedical research in human beings proposed by the Council of International Organizations of Medical Sciences (CIOMS) where the confidentiality of data obtained from patient records is respected, For this, the project was presented to the Research Ethics Committee of the Faculty of Chemical Sciences, National University of Asuncion (UNA) Paraguay Republic and each patient was asked to sign an informed consent for this purpose.

RESULTS

A total of 7836 prescriptions received and filed in the Pharmacy Office of the Maternal and Child Hospital of Capiatá were analysed. The proportion of prescriptions that presented errors was 74.8%.

The following tables show the results found for the different parameters under study.

Table 1: Frequency of recipes errors.

TYPE OF ERROR	QUANTITY	%
1. Unreadable letter	2780	18,25
2. Lack of signature or seal of the doctor	9	0,06
3. Lack of treatment start date	1833	12,03
4. Prescription in any recipe book or white paper without seal of the institution	158	1,04
5. Do not record the concentration of the pharmaceutical form	2810	18,44
6. Lack of clarification of the pharmaceutical form or quantity to be dispensed	2211	14,51
7. Error in the unit of measure or non-use of the international system	5276	34,6
8. Prescription with trade name	134	0,88
9. Recipe amendments	25	0,16

Total de errores observados en las recetas: 15236

Table 2: Number of medicines per medical recipe.

No. of medicines per recipe	Total
1	2855
2	6022
3	4314
4	1748
5	400
6	90

DISCUSSION

The present work confirms the findings of the study conducted by other researchers[13-16] on the importance of detecting prescription errors in hospital settings; and also for the work done by Sabino et al,[17] in the detection of medication errors.

All the prescriptions analysed were handwritten so they lend themselves to various interpretations depending on the experience of the dispenser, in certain cases serious errors can occur due to the confusion or misinterpretation of the person in charge of dispensing the medication so this It can generate a risk to the health of the patient who does not receive the medication that was prescribed for him.

It was observed that the percentage of recipes with errors was 74.8%, percentage that exceeds the threshold of 20% detected by other groups.

The most important error that was observed in 34.63% of cases was that in the medical prescription, the data of the unit of measurement was omitted or used erroneously, creating in certain cases confusion when placing a unit of measurement for other.

The second most frequent error in 18.44% of the recipes; was the absence of recording the concentration of the pharmaceutical form, which lends itself to confusion, because the same active ingredient is presented in different concentrations and the patient requires the medication with the correct dose for pharmacotherapy.

Also it was detected in 18.25% of the errors that the prescription was written with an illegible letter, it is the third most important error observed and that without a doubt can contribute greatly to the patient obtaining a medication that is not the one indicated for its pathology and that can produce adverse effects on your health.

The 4th most observed error was the pharmaceutical form or the amount to be dispensed is not clarified (14.51%), which is a very important fact since there are several pharmaceutical forms with the same active drug hence, errors can be involuntary incurred when dispensing one presentation for another or though an inappropriate amount for treatment is prescribed.

In 12% of the cases, prescriptions omit the initial date of the treatment and in 1% of the cases prescriptions were done in paper without letterhead or seal of the institution where the practice was issued.

In a smaller proportion, 0.88%, the prescription was performed by drug's commercial name, which is important because the patient is deprived of the possibility of switching the medicine by a cheaper one or the one that is currently available in the hospital pharmacy. In 0.16% of the prescriptions, amendments, deletions or erasures were visualized in the recipe.

It was also observed a lack of signature or stamp of the prescribing doctor in 0.06% of the cases which is essential in every medical prescription since someone must be held responsible for all the data written, and for the pharmacological treatment he will receive.

Abbreviations were also observed in the names of certain active principles which may lead to serious confusion.

In most cases the route of administration of the medications was not indicated. This was specially a problem in ovules, due to the ignorance in the form of use by the majority of the female patients of Paraguay and that lead to errors in the administration or therapeutic ineffectiveness due to misuse of the medicine.

CONCLUSION

The present work demostrated that the guidelines of good prescriptive practices are not used, and that associated with this fact, there is a high incidence of medical errors.

Public health authorities have the responsibility to help patients to find greater safety in their treatments and offer safe and quality care in their institutions.

The errors in medical prescription should be carefully identified in each institution, in order to propose selective strategies for their prevention.

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