

SELF-MEDICATION: CONSEQUENCES OF THE INDISCRIMINATE USE OF NON- STEROIDAL ANTI- INFLAMMATORIES AND ITS IMPLICATIONS ON HEALTH

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Abstract: Non-steroidal anti-inflammatory drugs (NSAIDs) are one of the main classes of drugs widely consumed by the Brazilian population, due to their anti-inflammatory, analgesic and antipyretic properties. However, indiscriminate use and self-medication are intrinsically associated with serious implications for the health of the population, such as adverse events, intoxication, poisoning and death. Thus, the problem of this study was: What are the current and future challenges of the pharmaceutical professional regarding the practice of rational use of non-steroidal anti-inflammatory drugs, based on effective health promotion? The general objective was to analyze the consequences of the inappropriate and unsupervised use of non-steroidal anti-inflammatory drugs, as well as their adverse reactions, due to the practice of self-medication. The methodology consisted of a systematic review in the Lilacs, Medline and SciELO databases of articles published between 2015 and 2021. As a result of this work, it can be stated that there is a large amount of scientific evidence regarding the adverse effects and dangers of indiscriminate consumption of NSAIDs, being consumed especially among the young-adult public, in the age group of 20 to 60 years, highlighting the female public. The main adverse drug reactions observed in the studies were alterations in the gastrointestinal system, central nervous system, respiratory system, liver, kidneys and hypersensitivity. Given the above, maximum health education must be promoted regarding the indiscriminate use of anti-inflammatory drugs, which must only be used when prescribed by a qualified professional and in adequate doses. Making Pharmaceutical Care a relevant act in promoting the rational use of anti-inflammatories in order to avoid potential deleterious effects to the population.

Keywords: Self-medication. Non-steroidal anti-inflammatory drugs. Irrational use of

medication. Painkillers. Pharmaceutical attention.

INTRODUCTION

According to Fontes (2019), Law n° 5.991/73 (BRASIL, 1973) establishes the definition of medicine as “any pharmaceutical product, obtained or technically prepared, with prophylactic, curative, palliative or diagnostic purposes” or even as “a chemical substance for the purpose of healing”. The widespread perception that drugs are synonymous with “health” has played a significant role in encouraging self-medication, especially in the case of non-steroidal anti-inflammatory drugs (NSAIDs). However, it is important to highlight that this process carries intrinsic risks (BALESTRIN, 2019).

According to Rigato (2011), NSAIDs are widely recommended in certain therapies due to their analgesic, anti-inflammatory, antipyretic and antithrombotic properties. According to the same author, these drugs are often the first option in the treatment of mild to moderate pain, thanks to their high efficacy and prolonged action in pain relief.

NSAIDs encompass a wide class of heterogeneous compounds with varied chemical structures, and can be classified into subgroups according to their chemical group. It is observed, therefore, that the differences in the initial activity between these drugs are related to their specific subclass, in line with the selectivity of the substance used (SILVA; MENDONÇA; PARTATA, 2014).

Prolonged use of non-steroidal anti-inflammatory drugs presents risks and harmful effects on the health of patients. However, when receiving professional assistance based on responsibility and skill, it is possible to promote conscious pharmacotherapy for the sick individual, taking into account all the assumptions and needs of both the patient and the community in general (SILVA et al., 2019).

The administration of NSAIDs requires specific care, since it can result in adverse events, such as gastrointestinal bleeding, intestinal and gastric perforations. It is essential to treat these complications quickly, since the lack of adequate intervention can lead the individual to death (BANDEIRA; DAL PAI; OLIVEIRA, 2013).

It is essential to highlight that consumers of non-steroidal anti-inflammatory drugs must receive information about the dangers of indiscriminate use of these drugs through a complete and humanized service (GARCIA; GIMENES; VALE, 2018).

It is important to emphasize that, in the case of over-the-counter drugs, it is up to the Pharmacist to guide, monitor and advise on their proper use, through comprehensive and humane care. This way, pharmaceutical assistance is presented as an action aimed at meeting the needs of the society served, in order to prevent potential damage caused by the uncontrolled use of NSAIDs (GARCIA; GIMENES; VALE, 2018).

OBJECTIVES

MAIN GOAL

To analyze the consequences of inappropriate and unsupervised use of non-steroidal anti-inflammatory drugs, as well as their adverse reactions, due to the practice of self-medication.

SPECIFIC OBJECTIVES

- Classify the main health complications resulting from the indiscriminate use of non-steroidal anti-inflammatory drugs.
- Identify the main policies aimed at promoting the responsible use of non-steroidal anti-inflammatory drugs.
- Demonstrate the process of self-medication in the context of the use of non-steroidal anti-inflammatory drugs.

- Highlight the importance of the Pharmacist's role in promoting the responsible use of non-steroidal anti-inflammatory drugs.

METHODOLOGY

KIND OF STUDY

The present work is an integrative literature review, with a qualitative, exploratory, descriptive nature. According to Galvão and Pereira (2014) systematic review studies are characterized by a type of investigation focused on a well-defined question, which aims to identify, select, evaluate and synthesize evidence, and must be comprehensive and unbiased in its preparation.

For the selection of studies in the period from 2015 to 2021, the steps proposed by Botelho, Cunha and Macedo (2011) were adopted, namely: identification of the theme and selection of the research question, establishment of inclusion and exclusion criteria, identification of pre-selected and selected studies, categorization of selected studies, analysis and interpretation of results and presentation of the knowledge review/synthesis, as illustrated in Figure 1.

DATA COLLECTION, PROCEDURE AND ANALYSIS

In the first stage, the theme identification process was carried out: The negative impact of self-medication with non-steroidal anti-inflammatory drugs such as analgesics and its consequences for health. Simultaneously, the central question that guides the entire research was formulated: What are the current and future challenges faced by pharmaceutical professionals in relation to the dissemination of technical knowledge and adequate patient guidance on the rational use of non-steroidal anti-inflammatory drugs, aiming to promote effectively health?

After that, the second stage of the procedure was started, which was to establish the inclusion and exclusion criteria of the research, as seen in Table 1.

INCLUSION CRITERIA	EXCLUSION CRITERIA
Articles, monographs and magazines written in Portuguese.	Articles, monographs and journals written in a language other than Portuguese.
Free publications and written in full, published in the range of 2015 to 2021.	Publications that do not contemplate the established period and the characteristics of integrity and gratuity.
Papers that address the participation of Pharmacists in combating self-medication with non-steroidal anti-inflammatory drugs.	Studies that did not include only the Pharmacist as the professional responsible for monitoring and guiding the patient on the use of non-steroidal anti-inflammatory drugs.

Table 1: Research inclusion and exclusion criteria.

Source: Authors (2023).

The research was carried out through surveys in the Scientific Electronic Library Online (SciELO), Latin American and Caribbean Health Sciences Database (LILACS), Medical Literature Analysis and Retrieval System Online Database (MEDLINE), using the Boolean operator "AND" and, as keywords based on Decs (Health Sciences Descriptors) / Mesh (Medical Subject Headings): self-medication, non-steroidal anti-inflammatory drugs, irrational use, analgesics and Pharmacist.

The third step was based on the identification of pre-selected and selected studies. Thus, 190 articles were found in the consulted databases, 33 in MEDLINE, 89 in SciELO and 68 in LILACS. However, only 10 articles satisfactorily met all the aforementioned inclusion criteria, and fully met the sample space. Among the 190 articles found, 33 articles appeared duplicated in more than one database, and the others did not meet any of the requirements that make up the aforementioned inclusion criteria.

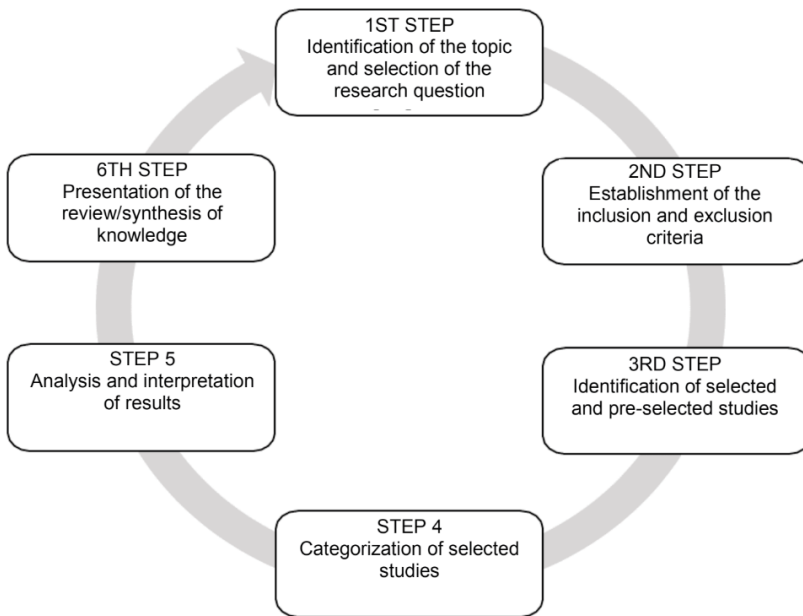


Figure 1: Steps of the integrative literature review

Source: Adapted from Botelho, Cunha and Macedo (2011).

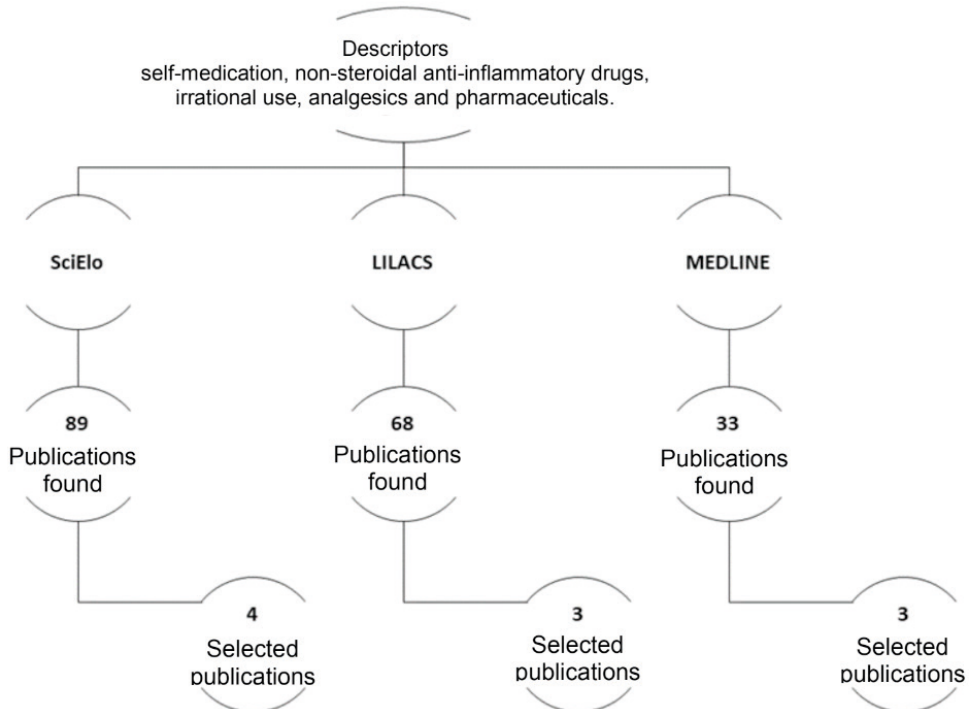


Figure 2: Sample selection process flowchart

Source: Authors (2023).

Thus, the final sample of this review consisted of 10 publications, as shown in the flowchart below (Figure 2).

Thus, it must be inferred that at the end of this study, the collected information is presented in an organized and consistent manner with the theme presented, with the purpose of responding to the research problem, as well as theoretical formulation regarding the proposed objective.

In the fourth step, the data found were categorized, which could be organized into two categories, as in Table 2: (I) pharmaceutical care/assistance in the use of non-steroidal anti-inflammatory drugs and (II) implications for the health of the individual who makes use of non-steroidal anti-inflammatory drugs.

IDENTIFICATION NUMBER	CATEGORIES	AMOUNT
I	Pharmaceutical care/ assistance in the use of non-steroidal anti-inflammatory drugs	4
II	Implications for the health of individuals who use non-steroidal anti-inflammatory drugs	6

Table 2: Categorization of data found

Source: Authors (2023).

In the fifth stage, the analysis and interpretation of the results were carried out, which were organized in a table containing information such as the authors' names, year of publication of the journal, study descriptors, type of study, research objectives, results found, theme and data category.

Data analysis involved discussion and interpretation of the results and information obtained, in order to compare them with other research findings. In the data analysis step, each selected study was examined individually to ensure the validity of the review. Then, a critical analysis of the studies was carried out, seeking to explain the discrepancies or conflicts in the results between different

studies. Therefore, the studies that presented consistency in relation to the objectives, methodology, discussion and results were identified.

In the sixth stage, the presentation of the review/synthesis of knowledge took place, which will play a fundamental role in facilitating the reader's understanding of the subject in question. These mechanisms are essential to clearly and concisely convey the information covered.

It is important to emphasize that all work was carried out in accordance with ethical criteria, based on Copyright Law No. 9610/98 (BRASIL, 1998), in order to respect the copyright of each work used in the preparation of this study. The collected data were presented using interpretive procedures, leading to the final conclusion.

RESULTS

In the present study, a systematic reading of all selected material was carried out, followed by the categorization of articles according to the alphabetical order of the database, as shown in Table 3.

Thus, 10 works of a scientific nature were selected that made up the structure and basis of this integrative research. Given a global view, it is worth inferring that the main failures of the methodological segment revolve around the failure to identify the causes and all the factors associated with the culture of self-medication, and in a didactic way, elements that allow good management of care based on a service integral and humanized, seeking to add values regarding the greater participation of the Pharmacist in the processes of health care and education in society.

AUTHOR AND YEAR	TITLE	GOAL	KIND OF STUDY	RESULTS
BALESTRIN (2019).	Non-steroidal anti-inflammatory drugs (NSAIDs): guidance given by pharmacists on the use of these drugs.	To analyze the influence of the pharmacist on the use of non-steroidal anti-inflammatory drugs (NSAIDs).	Descriptive qualitative study.	Nonsteroidal anti-inflammatory drugs are widely used to treat inflammation and acute pain. Because it is one of the most widespread classes of drugs, and because it does not require a medical prescription, NSAIDs are consumed indiscriminately, without individuals taking into account the serious risks that inappropriate use can cause to health.
CONCEPTION; DALLASTA; MENEZES (2016).	Clinical use of non-steroidal anti-inflammatory drugs and adverse effects on the body.	Check in the literature the clinical application as well as the main adverse effects caused by NSAIDs in the body.	Descriptive-exploratory qualitative study.	The NSAIDs with the greatest clinical application involve paracetamol, diclofenac, acetylsalicylic acid, dipyron, nimesulide, ibuprofen and celocoxib, with the main attribute used for pain and inflammation, and as adverse effects, gastrointestinal and cardiovascular disorders stand out.
GONÇALVES; BOSSOLANI (2020).	Adverse effects of non-steroidal anti-inflammatory drugs (NSAIDs) on the gastrointestinal system: a literature review.	To carry out a bibliographic survey of the mechanisms of action and the adverse effects caused by non-steroidal anti-inflammatory drugs in the gastrointestinal system and to identify possible solutions to reduce the risks regarding the use of this class of medication.	Descriptive-exploratory qualitative study.	Nonsteroidal anti-inflammatory drugs are responsible for undesirable gastrointestinal effects with risks of ulcers and bleeding.
LAGEMANN; OKUYAMA; SILVA (2021)	Severe drug interactions in paracetamol poisoning in Brazil: cross-sectional study based on the National System of Notification of Diseases.	To describe paracetamol intoxications associated with other drugs and to analyze the factors associated with serious drug interactions.	Descriptive-exploratory qualitative study.	Serious drug interactions in cases of paracetamol poisoning have been associated with analgesics, anti-inflammatories, adults and suicide attempts.
LIMA et al. (2020).	Pharmaceutical assessment of the risks of using non-steroidal anti-inflammatory drugs.	Review the pharmacological aspects of NSAIDs, their imminent risks and emphasize the importance of the Pharmacist in contributing and rationalizing the use of medicines.	Descriptive-exploratory qualitative study.	gastrointestinal, gestational and fetal risks. Concluding that the prolonged and inappropriate use of the class poses risks to the individual's health.
MIOTI; CASTRO, (2017).	Hematological changes induced by non-steroidal anti-inflammatory drugs.	To elucidate the main hematological alterations caused by the use of the main non-steroidal anti-inflammatory drugs, as well as the main laboratory methods used in the detection of blood dyscrasias.	Descriptive qualitative study.	The actions of anti-inflammatory drugs on the hematopoietic system include leukopenia, hemolytic and aplastic anemia, as in the case of fenamates and dipyron concomitantly, by generating agranulocytosis. Ibuprofen, on the other hand, can cause thrombocytopenia as an adverse effect.

OLIVEIRA et al., (2019).	Chronic use of non-steroidal anti-inflammatory drugs and their adverse effects.	Discuss a literature review on the subject, report the adverse effects caused by the chronic use of non-steroidal anti-inflammatory drugs (NSAIDs), addressing both COX-2 selective and non-selective NSAIDs.	Descriptive-exploratory qualitative study.	The increased risk of cardiovascular, renal and gastrointestinal diseases related to the use of non-steroidal anti-inflammatory drugs. Furthermore, factors such as gender, age, socioeconomic status and life habits can be determinant in the use of NSAIDs.
SAINTS; ESCOBAR; RODRIGUES (2021).	Indiscriminate use of non-steroidal anti-inflammatory drugs (NSAIDs).	Promote guidance on the correct use of drugs from the class of non-steroidal anti-inflammatory drugs (NSAIDs).	Descriptive qualitative study.	The NSAIDs drug class is irrationally used by the population, which leads to physical discomfort and even more serious health problems such as gastric and duodenal ulcers, anorexia, etc.
SOUZA; LIME; FIGUEIREDO (2021).	Poisoning by non-steroidal anti-inflammatory drugs: risks of use.	Discuss the risks of using NSAIDs.	Descriptive qualitative study.	It was possible to observe that ibuprofen and diclofenac were the most frequent NSAIDs and related to different ADRs capable of causing alterations in the gastrointestinal system, CNS, liver, kidney, respiratory system and hypersensitivity.
TONON et al., (2020).	Consequences of self-medication and indiscriminate use of the non-steroidal anti-inflammatory drug paracetamol in adults.	To quantify, among the interviewees, those who use paracetamol, the reasons that lead to self-medication and which are the main medications used.	Field study, descriptive and qualitative.	There is a large record of the use of Paracetamol without a medical prescription, in which patients are not aware of side effects and interactions with other medications. In addition, self-medication can delay diagnoses and make treatments difficult.

Table 3: Data collection instrument covering the following aspects: database, title, author, type of study and research results.

Source: Authors (2023).

DRUG CLASS	PHARMACEUTICAL - EXAMPLE	CLINICAL USE	ADVERSE EFFECTS
Selective COX-1 inhibitors	Acetylsalicylic acid	platelet antiaggregant	gastrointestinal problems, pulmonary, cutaneous, cardiovascular, hematological and hemorrhages.
Non-selective COX inhibitors	Acetylsalicylic acid (high doses), piroxicam, indomethacin, diclofenac, ibuprofen.	Inflammation	gastrointestinal problems, pulmonary, cutaneous, cardiovascular, hematological and hemorrhages.
Selective COX-2 inhibitors	Meloxicam, etodolac, nimesulide, naproxen.	Inflammation	gastrointestinal problems, pulmonary, cutaneous, hematological and hemorrhages.
Highly selective COX-2 inhibitors	Celecoxib, etorocoxib, rofecoxib.	Inflammation	gastrointestinal problems, pulmonary, cutaneous, hematological and hemorrhages.

Table 4: Summary of adverse effects from NSAIDs.

Source: Batlouni (2010).

DISCUSSION

THE MAIN HEALTH COMPLICATIONS CAUSED BY NSAIDs

Self-medication and its consequences represent a serious public health problem, affecting the entire country and involving several classes and groups of drugs, especially NSAIDs. The consequences of this practice range from unwanted side effects, delay in treatment, masking of diagnoses and symptoms, to worsening of the disease, which can even lead to the death of the patient (ROMAINE; LOUREIRO; SILVA, 2021).

Oliveira et al. (2019) state that the chronic use of non-steroidal anti-inflammatory drugs, whether non-selective (COX-1 and COX-2) or selective for COX-2 (Coxibs), results in numerous adverse effects on tissues and body systems. The consumption of these drugs is more frequent among young adults, aged between 20 and 60 years, especially among women. Factors such as gender, age, socioeconomic status and lifestyle can influence the use of NSAIDs (SILVA et al., 2014).

There is a consensus among the studies by Oliveira et al. (2019) and Santos, Escobar and Rodrigues (2021) that in order to obtain the maximum effectiveness of drugs, proper use is essential, following dosage guidelines, duration of treatment, among other elements, in order to avoid damage to health, some of which may be irreversible. In this sense, the most qualified professional to promote the effectiveness of the treatment is the Pharmacist, who has extensive technical knowledge and direct contact with the patient at the time of medication acquisition.

NSAIDs may be associated with serious diseases such as Reye's syndrome, serum sickness, refractory circulatory failure, thrombotic thrombocytopenic purpura,

aseptic meningitis, among others (MIOTI; CASTRO, 2017). In the diagnosis and treatment of adverse drug reactions, laboratory tests, detailed clinical history, skin tests, among other methods can be performed (SOUZA; LIMA; FIGUEIREDO, 2021).

In addition to the usual therapeutic effects, NSAIDs have specific adverse effects due to the inhibition of cyclooxygenases, which may vary according to isoform selectivity, methods of administration and duration of use, resulting in individual reactions in each user (YANG KO, 2018). Adverse effects of NSAIDs are summarized in Table 4.

Therefore, according to Batlouni (2010), prolonged use and in high doses of NSAIDs usually results in symptoms such as gastrointestinal, hematological, cardiovascular, pulmonary and skin problems. It is essential to promote the culture of rational use of NSAIDs, since this class of drugs is widely used and easily accessible (SOUZA; LIMA; FIGUEIREDO, 2021).

THE MAIN POLICIES FOCUSED ON THE RATIONAL USE OF NSAIDs

In Brazil, the high consumption of NSAIDs is worrying, however, there is a lack of adequate dissemination of information to consumers about the risks of intoxication and drug interactions associated with these drugs. These interactions can affect gastric emptying and cause liver damage, making it necessary to develop strategies to reduce the incidence of intoxications and promote safe drug therapy (LAGEMANN; OKUYAMA; SILVA, 2021).

It is a consensus in the studies by Gonçalves and Bossolani (2020) and Lagemann, Okuyama and Silva (2021) that, among the public policies and strategies to disseminate knowledge and promote health education, the SINAN (Information System for Notifiable Diseases) is an accessible and easy-to-use tool that allows health professionals to efficiently

monitor occurrences of adverse events and democratize information.

Lima et al. (2020) state in their study that NSAIDs have a considerable safety margin in terms of pharmacokinetics and pharmacodynamics. However, due to irrational use, serious side effects related to the mechanism of action of these drugs have been observed. Therefore, it is essential that pharmacists exercise their skills and responsibilities in guiding the use of NSAIDs, in order to guarantee adequate pharmacotherapeutic assistance to the patient, aiming at the rational, safe and effective use of these drugs.

The incorrect use of medicines is encouraged, mainly, by the lack of knowledge and adequate guidance. This, together with the high records of intoxication and drug interaction, led to the proposition of Bill No. 5443/2019 (BRASIL, 2019), known as the Tarja Azul Drug Law Project. This project seeks to establish norms that allow pharmacists to guide and prescribe drugs from this and other therapeutic classes (SANTOS; ESCOBAR; RODRIGUES, 2021).

THE PROCESS OF SELF-MEDICATION IN THE USE OF NSAIDs

According to the study by Balestrin (2019), non-steroidal anti-inflammatory drugs are widely used in the treatment of inflammation and acute pain, acting directly to reduce the inflammatory reaction and the production of prostaglandins. However, due to the sale of these drugs without the need for a prior prescription and the ease of access in pharmacies and drugstores, it is common for self-medication and irrational use to occur, resulting in side and adverse effects such as cardiovascular problems, renal failure and high blood pressure, which affect adversely affect the individual's health.

Conceição, Dall'asta and Menezes (2016) complement this line of thought, stating that the toxicity induced by NSAIDs is generally attributed to blocking the activity of the COX-1 enzyme. The most sold drugs in this class include paracetamol, acetylsalicylic acid, diclofenac, dipyron, nimesulide and ibuprofen.

There is a consensus among the studies by Balestrin (2019) and Conceição, Dall'asta and Menezes (2016) that the class of NSAIDs, often available as over-the-counter drugs in pharmacies and drugstores, has use restrictions. In this context, it is up to the pharmaceutical professional to guide and clarify doubts about dosage, benefits and harms of these drugs to the patient/client, promoting responsible self-medication and disseminating knowledge about health education.

THE IMPORTANCE OF THE PHARMACIST'S ROLE IN THE RATIONAL USE OF NSAIDs

Thus, it is essential that the Pharmacist, before dispensing the medication, seek to know the patient's health problems and carry out a previous anamnesis to prepare a complete history. This will provide subsidies to better guide you, ensuring the rational use of this class of medication (GONÇALVES; BOSSOLANI, 2020).

It is important to highlight that the Pharmacist is the professional qualified to provide comprehensive and personalized care. It seeks to assess and guide the patient, developing strategies to disseminate information about the proper use of medication, pharmacovigilance and health education. Therefore, it plays a crucial role in promoting public health (LIMA et al., 2020).

In this sense, Tonon et al. (2020) argue in their work that the difficulty of accessing the health system, the lack of knowledge and

guidance of the population, the deficiency and low quality of medical and pharmaceutical care, in addition to the culture of self-medication, are factors that contribute to stimulating the irrational consumption of NSAIDs. Therefore, it is necessary to encourage health promotion to raise awareness and collaborate with the dissemination of knowledge to the Brazilian population.

MIPs (Over-the-Counter Medicines) represent 30% of the Pharmaceutical market. For a safe and conscious use, it is essential that the individual who is administering the medicine strictly follows the guidelines contained in the inserts and labels, together with the pharmaceutical guidelines. If symptoms persist, it is essential to immediately stop using the drug and seek medical help (MOTA et al., 2020).

Studies by Souza, Lima and Figueiredo (2021) and Tonon et al. (2020) corroborate this view, noting that NSAIDs can cause adverse reactions due to their toxicity in various systems, with gastrointestinal effects being the most relevant, which can lead to mucosal erosion, bleeding, perforation and even death. These reasons reinforce the importance of the Pharmacist's role in creating a bond of trust between patient and professional, providing personalized care and tools to avoid the use of polypharmacy, in addition to promoting health education.

At the time of pharmaceutical guidance and dispensing over-the-counter medications, it is important that the professional perform a brief anamnesis of the patient, identifying the main symptoms and relevant clinical factors. This will guide the appropriate selection of medication, providing personalized care that contributes to reducing the risk of intoxication and improving the patient's quality of life. In this sense, it is essential that the Pharmacist be aware of the pharmacokinetic mechanisms related to the absorption, biotransformation

and excretion of drugs, aiming to promote the therapeutic safety of the patient. It is noteworthy that the adverse effects of drugs are the result of enzyme induction and inhibition phenomena, not considering the drug-nutrient interaction process (TONON et al., 2020).

In summary, the provision of pharmaceutical care represents an advance in the pharmaceutical profession and a natural evolution of clinical pharmacy activities. This promotes greater safety for the patient/client, especially for those who regularly use medication for the treatment of routine pathologies.

FINAL CONSIDERATIONS

NSAID drugs are widely used in the treatment of various pathologies and are easily accessible in drugstores and pharmacies. However, the irrational use of these drugs can lead to adverse effects due to pharmacokinetic and pharmacodynamic changes and the practice of polypharmacy.

The high prevalence of drug use highlights the need to adopt measures to encourage rational use, with emphasis on pharmaceutical practice. This involves adequate orientation, elaboration of an individualized therapeutic plan, responsible dispensing and treatment monitoring, in order to avoid negative results and guarantee the effectiveness of the therapy, in the context of pharmaceutical care.

The irrational use of medication is associated with cases of drug intoxication. It is important to emphasize that the main causes of these cases are related to the indiscriminate use of medication, due to lack of knowledge about dosage and administration, prescription errors and self-medication.

It is the Pharmacist's responsibility to make patients and society in general aware of the dangers of the irrational use of NSAIDs. It is necessary to encourage educational policies

and carry out more scientific research to develop new health education strategies and policies.

It is concluded that it is necessary to promote a cultural change in society in relation to self-medication and the responsible use of NSAIDs, in addition to providing adequate pharmaceutical guidance

to patients/clients, in order to promote health education and encourage the rational use of medicines. Social networks can be used as a tool to optimize the health education process and help pharmaceutical professionals to highlight the importance of the rational use of these medicines.

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