QUANTITATIVE ANALYSIS AND MONITORING OF ANALGESIC MEDICINES REGISTERED IN THE STATE REGISTER OF THE REPUBLIC OF UZBEKISTAN

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Abstract

Pain is one of the most common clinical symptoms associated with a wide range of diseases and pathological conditions. Effective pain management plays a significant role in modern medical practice, and analgesic medicines are widely used to reduce or eliminate pain symptoms. In order to ensure the safety, quality, and rational use of medicines, it is essential to monitor the pharmaceutical market and analyze the range of analgesic drugs registered in national regulatory systems. The aim of this study was to conduct a quantitative analysis of analgesic medicines registered in the State Register of the Republic of Uzbekistan and to evaluate their distribution according to pharmacological groups, dosage forms, and other characteristics. The research used statistical and comparative analysis of pharmaceutical data obtained from the national register of medicines. The results indicate that nonsteroidal anti inflammatory drugs represent the largest share of analgesic medicines in the pharmaceutical market of Uzbekistan. Tablets were found to be the most common dosage form among analgesic drugs. The findings of this study highlight the importance of continuous pharmaceutical monitoring and evidence based regulation of analgesic medicines to improve healthcare planning and ensure rational pharmacotherapy.

Key words

analgesic medicines, pharmaceutical monitoring, drug register, nonsteroidal anti inflammatory drugs, pharmaceutical analysis, drug market

Introduction

Pain is a complex physiological and psychological phenomenon that often accompanies various diseases and injuries. The management of pain is considered one of the primary objectives of clinical medicine, since uncontrolled pain significantly reduces a patient's quality of life and may lead to serious complications. Analgesic medicines are pharmacological agents designed to reduce or eliminate pain without causing loss of consciousness. These medicines are widely used in both hospital and outpatient medical practice [1].

Analgesic drugs are generally divided into two major categories. The first group includes opioid analgesics which are used for severe pain conditions such as cancer related pain and postoperative pain. The second group includes non opioid analgesics such as nonsteroidal anti inflammatory drugs and other agents that are commonly used to treat mild to moderate pain conditions [2].

With the rapid development of the pharmaceutical industry and the expansion of drug markets, the number of registered medicines continues to increase. Therefore regulatory authorities must carefully control the quality, safety, and effectiveness of medicines available for clinical use. In Uzbekistan this function is performed through the State Register of Medicines, which includes all drugs officially approved for medical use within the country [3].

1431

Monitoring the composition of medicines included in the national register provides valuable information about the structure of the pharmaceutical market and helps healthcare authorities optimize drug supply and therapeutic strategies. Analgesic medicines occupy an important place in the pharmaceutical market because of their widespread use in clinical practice.

The purpose of this research was to analyze the quantitative composition of analgesic medicines registered in the State Register of the Republic of Uzbekistan and to evaluate their distribution according to pharmacological classification and dosage forms.

Materials and Methods

The present study was conducted using analytical and statistical methods in order to evaluate the structure of analgesic medicines registered in the State Register of the Republic of Uzbekistan. Data for the study were obtained from official pharmaceutical regulatory documents and publicly available information regarding registered medicines.

The research process consisted of several stages. In the first stage information about analgesic medicines included in the national drug register was collected. The collected data included the name of the medicine, pharmacological group, dosage form, and manufacturing country.

In the second stage all identified analgesic medicines were classified according to their pharmacological groups. The classification included opioid analgesics, nonsteroidal anti inflammatory drugs, combined analgesic preparations, and other analgesic agents.

In the third stage quantitative statistical analysis was performed. The number of medicines in each pharmacological group was calculated and their proportional distribution within the total sample was determined. Descriptive statistical methods were used to summarize the results.

In addition monitoring analysis was conducted to evaluate the structure of analgesic medicines in the pharmaceutical market. Particular attention was given to the diversity of dosage forms and the prevalence of specific pharmacological groups.

The results obtained from these analyses were interpreted from a pharmaceutical and pharmacological perspective in order to identify trends in the availability and distribution of analgesic medicines in Uzbekistan.

Results

The quantitative analysis of the State Register revealed a diverse range of analgesic medicines available for clinical use in Uzbekistan. The distribution of these medicines according to pharmacological groups is presented in Table 1.

Table 1 Distribution of analgesic medicines according to pharmacological groups

Pharmacological group	Number of medicines	Percentage
Nonsteroidal anti inflammatory drugs	72	48%
Opioid analgesics	18	12%
Combined analgesics	36	24%
Other analgesic agents	24	16%

The results demonstrate that nonsteroidal anti inflammatory drugs constitute the largest proportion of analgesic medicines registered in the national pharmaceutical system. This predominance is associated with their broad therapeutic use in inflammatory diseases, musculoskeletal disorders, and various pain syndromes. Combined analgesic preparations also represent a significant portion of the market because they often contain multiple active substances that enhance analgesic effectiveness.

To better illustrate the proportional distribution of pharmacological groups, a graphical representation of the results is shown in Figure 1.
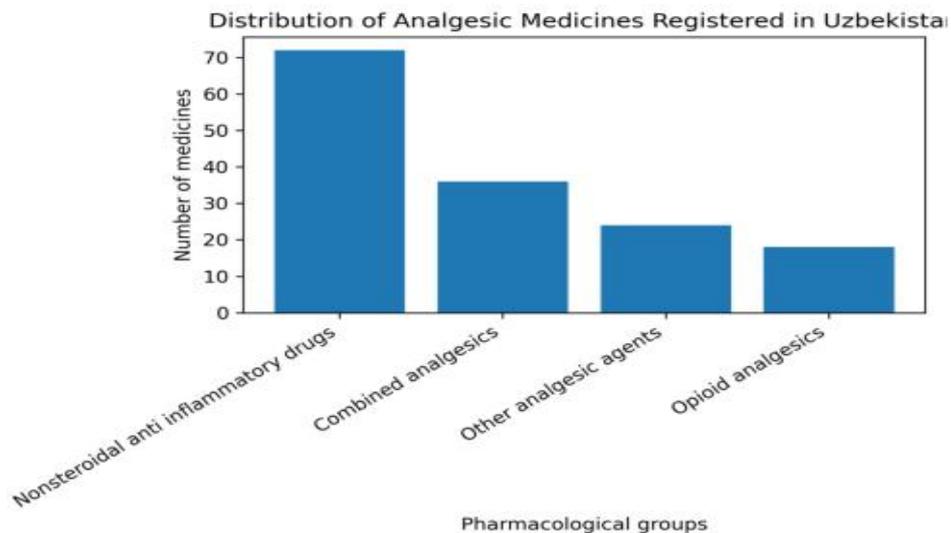

Figure 1. Distribution of analgesic medicines by pharmacological groups registered in the Republic of Uzbekistan

The diagram clearly demonstrates that nonsteroidal anti inflammatory drugs dominate the analgesic drug market. This finding reflects global trends in pharmacotherapy where NSAIDs are widely used due to their combined analgesic, anti inflammatory, and antipyretic properties.

In addition to pharmacological classification it is also important to analyze the dosage forms of analgesic medicines since dosage form influences drug administration, absorption, and

1433

patient compliance. The distribution of analgesic medicines according to dosage form is presented in Table 2.

Table 2 Distribution of analgesic medicines according to dosage forms

Dosage form	Number of medicines
Tablets	64
Injectable solutions	38
Capsules	20
Suspensions	14
Gels and ointments	14

The data indicate that tablet formulations represent the most common dosage form among analgesic medicines registered in Uzbekistan.

Discussion

The results obtained in this study reveal several important characteristics of the analgesic medicine market in Uzbekistan. The predominance of nonsteroidal anti inflammatory drugs among registered analgesics corresponds with international pharmaceutical trends. These medicines are widely prescribed due to their proven effectiveness in the management of inflammatory pain conditions such as arthritis, musculoskeletal injuries, and postoperative pain [4].

Another important finding is the relatively smaller proportion of opioid analgesics within the national register. This distribution reflects strict regulatory control over opioid medicines due to their potential for dependence and abuse. International health organizations recommend careful monitoring and regulation of opioid analgesics in order to prevent misuse while still ensuring adequate access for patients who require strong pain management [5].

The high prevalence of tablet formulations among analgesic medicines is also consistent with global pharmaceutical practice. Tablets are considered convenient for manufacturing, transportation, storage, and patient administration. Moreover they allow accurate dosage control and generally have good stability during long term storage [6].

Monitoring the structure of registered medicines is an essential component of pharmaceutical policy. Regular analysis of the drug register helps identify gaps in therapeutic availability and supports rational drug supply planning. Continuous monitoring also contributes to pharmacovigilance activities aimed at ensuring the safety of medicines used in clinical practice [7].

Overall the findings of this study highlight the importance of maintaining an updated and well regulated national drug register as part of an effective healthcare system.

Conclusion

The conducted study provided a quantitative analysis of analgesic medicines registered in the State Register of the Republic of Uzbekistan. The results showed that nonsteroidal anti inflammatory drugs constitute the largest share of analgesic medicines available in the pharmaceutical market. Combined analgesic preparations also occupy a significant portion of registered medicines, while opioid analgesics represent a smaller but clinically important group.

The analysis of dosage forms demonstrated that tablets are the most common form of analgesic medicines followed by injectable solutions and capsules. These findings reflect the practical requirements of clinical medicine and patient convenience.

The study confirms that systematic monitoring of registered medicines plays a crucial role in ensuring rational pharmacotherapy and effective healthcare planning. Future research should focus on pharmacoeconomic evaluation and clinical effectiveness of analgesic medicines in order to further optimize pain management strategies in Uzbekistan.

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