

PAIN RELIEVER USAGE IN THE TREATMENT OF MUSCULOSKELETAL DISEASES: A CROSS-SECTIONAL STUDY IN A CENTRAL HOSPITAL IN VIETNAM

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ABSTRACT

Introduction: Musculoskeletal diseases tend to develop in the later decades of life. As investigated in 2010, 60% of those over age 65 suffered from musculoskeletal diseases. This is an under-considered issue that causes difficulty in affected patients' daily lives and incurs a high economic burden. Anti-inflammatory agents and pain relievers are commonly used to treat these chronic diseases. However, to date in Vietnam, there has not been any official research or data collected on the usage of these medicine in the treatment of musculoskeletal diseases.

Objectives: This study aimed to investigate pain reliver usage, the most common adverse reactions to these medications, and the satisfaction of patients prescribed these drugs.

Methods: This was the cross-sectional study conducted from January 2017 to May 2017 in Thong Nhat Hospital in Ho Chi Minh City, Vietnam. The sample size was estimated at 350 patients who were treated in outpatient departments for musculoskeletal diseases.

Results: There were twelve brand names containing six active ingredients that were used in the treatment of musculoskeletal diseases. NSAIDs were the most commonly prescribed medications (67.14%); of these, 55.32% were selective COX-2 inhibitors. Of the 22.86% of patients who suffered adverse effects, 77.50% of these were gastrointestinal upsets. The majority of patients presented a good evaluation after using pain relievers.

Conclusion: Future research should be conducted on the adverse effects of NSAIDs that are selective COX-2 inhibitors. Policymakers should establish guidelines for pain reliever management in hospitals.

Keywords: Musculoskeletal disease, Pain reliever, Vietnam.

INTRODUCTION

Osteoarthritis is a disorder associated with moving joints characterised by cell stress and extracellular friction degeneration initiated by micro and macro damage that activates the dislocation response. Case includes the pathway proinflammatory of innate immunity. The manifested diseases included in this study involved a distribution of molecules indicating abnormal connective tissue metabolism. When such anatomical or physiological disorders, characterised by cartilage degradation, arthritis, and loss of normal joint function, reach their peak within a patient, (1) treatment of symptoms necessitate significant utilisation of healthcare resources, often without meaningful improvement (2). This not only affects patients' physical function, but also their mental and emotional wellbeing, which contributes to their overall impairment (3).

Presently, diseases associated with osteoarthritis have the highest incidence worldwide. Not only do they appear in elderly patients, but musculoskeletal diseases also tend to rejuvenate. Although these diseases rarely directly lead to death, non-emergent manifestations, such as cardiovascular illnesses, respiratory illnesses, and cancers, seriously affect the mobility and daily activities of affected patients. Current statistics suggest that approximately 30% of people over 35, 60% of people over 65, and 85% of people over 80 years of age have osteoarthritis. The prevalence of musculoskeletal pain in an urban population in Vietnam was 14.5%, and osteoarthritis was the most commonly found arthritis (4). The World Health Organization (WHO) places Vietnam in the group of countries with the highest proportion of people suffering from osteoarthritis.

Musculoskeletal diseases are classified as one of the most common groups of all diseases in the world, causing chronic pain and disability for hundreds of millions of people. Moreover, the effects of such diseases can lead to reduced labour productivity and limitations in daily activities in affected people. In Vietnam, there are no transparent statistics on the economic burden caused by musculoskeletal diseases; however, if no appropriate solutions for improving quality of life and reducing treatment costs for affected patients are found, the financial and economic burden in the country will continue to increase each year.

Pain relievers have been diversified into numerous brand-name and generic drugs from both national and international manufacturers. Analgesic substances are present in drugs under various umbrellas, which are widely used in and out of hospitals. However, the analgesic effects are often accompanied by some undesired side effects, while the abuse of painkillers also often leads to unhealthy consequences.

Therefore, it is necessary to investigate the use of analgesics in musculoskeletal diseases, detecting therapeutic effects and the rate of side effects. This will not only have practical benefits in terms of patient satisfaction, but will also improve the effectiveness of treatment. Furthermore, companies in the pharmaceutical market could then access the segmentation data on painkillers to build appropriate business strategies. This would also supply principal evidence for the selection of effective and economical drugs in treatment of musculoskeletal diseases. Therefore, this study was carried out to identify the use of analgesics in musculoskeletal conditions, the management of these analgesics, common unwanted side effects, and patient satisfaction in terms of effectiveness treatment at a central hospital in Ho Chi Minh City, Vietnam.

MATERIALS AND METHODS

Study design and study site

This was a cross-sectional research study conducted at Thong Nhat Hospital from January 2017 to May 2017. Thong Nhat Hospital is a central hospital in Vietnam, located in the largest city in southern Vietnam, Ho Chi Minh City. The hospital has developed a list of drugs mainly used across hospitals in the country and currently receives a large number of outpatients. It had an initial scale of 400 beds but has since opened and developed more than 1,000 beds. The hospital has developed most internal and external specialties (5).

Study instrument

The questionnaire was a structured questionnaire designed by objective testing method, which helps interviewees clearly and easily understand and answer questions while removing the likelihood of the influence of incorrect subjective factors. The survey form included the following: personal information about the patient, the condition of musculoskeletal pain, the use of analgesics in musculoskeletal disease, the analgesic effect of currently used drugs, and the level of satisfaction with the pain reliever(s) in use.

Sample size and data collection

The research method applied was face-to-face interviewing regarding the use analgesics in the treatment of musculoskeletal diseases. All patients who visited Thong Nhat Hospital for outpatient examination due to musculoskeletal disease during a span of five months in 2017 (January to May) were interviewed for the study. Patients were eligible to join the study if they were 18 years or older, had musculoskeletal diseases, were able to communicate well in the Vietnamese language, had sufficient mental acuity, and were willing to participate and provide consent. Patients were excluded from the study if they were pregnant, did not accurately complete the full survey as instructed, or if they did not want to fill out the survey. The average time for completing the questionnaire was approximately 10 minutes. Patients were approached by research nurses to assess their eligibility and invite them to participate in the study. After giving consent, patients were asked to complete a self-administered questionnaire as they prepared to receive drugs from the hospital drugstore. The patients could ask for clarification from research assistants if they did not understand any question clearly. The expected number of samples was determined based on WHO guidelines in 2005, with the following formula (6)

$$n = \frac{(Zscore)^2 SD(1 - SD)}{(\text{margin of error})^2}$$

where n is the sample size, Z denotes the statistic corresponding to level of confidence, and SD stands for standard deviation. This formula provided a sample size of approximately 304 people. To eliminate bias during data collection and improve data collection conditions, the sample size was increased to 350 patients.

Data analysis

Statistical analysis was performed using Microsoft Excel 2013 software. The main outcomes were measured in terms of frequency and percentage.

Ethical approval

This study was conducted with the permission of the Thong Nhat Hospital. Participants were informed of their right to withdraw from the survey at any time without any adverse effect on their access to healthcare. Written informed consent was obtained from all participants before the questionnaire survey. The collected data was used only for research purposes.

RESULTS

Patients' characteristics

Table 1 illustrates that patients who are diagnosed with musculoskeletal diseases are mainly of two age groups: 50–59 and 60–69. This is explained by the fact that musculoskeletal conditions, such as osteoarthritis, back pain, and arthritis, are most often aging related and become more common as people age. Knee pain was the most common condition in patients surveyed (42.29%). The incidence of osteoarthritis in patients was 36%, which ranked second. The two least common conditions were cervical spine pain and back pain, with rates of 4.29% and 4.57%, respectively. The incidence of group illnesses (students also fall into this category) was the highest, accounting for more than 40%, while the figure for heavy physical work was lowest, at 18%. The rates of illness in light work groups and homemakers were equal at nearly 21%.

Table 1: Baseline characteristics of patients with musculoskeletal disease (N=350)

Characteristics		n	%
Gender			
	Male	165	47.14
	Female	185	52.86
Age groups			
	20-29	40	11.43
	30-39	52	14.86
	40-49	53	15.14
	50-59	123	35.14
	60-69	72	20.57

	≥70	10	2.86
Diagnosis			
	Rheumatoid arthritis	21	6
	Multi-joint degeneration	126	36
	Knee pain	148	42.29
	Hand joint pain	24	6.86
	Cervical spine pain	15	4.29
	Backache	16	4.57
Occupation			
	Light work	72	20.57
	Heavy work	64	18.28
	housewife	72	20.57
	Employees	142	40.58

Drug usage

Table 2 shows the proportion of groups of analgesic and anti-inflammatory drugs used in pain relief due to musculoskeletal conditions. Prescribed for 235 patients, NSAIDs became the group with the highest rate of use, with 67.14% of cases. In second place, with 17.71% of patients, a combination of NSAIDs and pain relievers were prescribed. Common analgesics had a prescribing rate of 9.14%, and corticosteroids had a prescription rate of 6.00%.

Table 2: Contributions of specific categories to total musculoskeletal medications in Thong Nhat Hospital (N=350)

Types of drugs	n	%
NSAIDs	235	67.14
COX-1 inhibitors	105	30.00
COX-2 inhibitors	130	27.14
Normal pain relievers	32	9.14
Corticosteroids	21	6.00
NSAIDs + combined pain relievers	62	17.71

Side effects

Of the 235 patients who were prescribed NSAIDs, 130 were prescribed COX-2 selective inhibitors at a rate of over 55%. The proportion of patients without side effects accounted for 77.14%, which was more than the proportion of patients experiencing side effects (22.86%). Among patients experiencing side effects, the proportion of patients with stomach pain was the highest. This can be explained by the nature of the anti-inflammatory analgesic group, which has many known side effects on the gastrointestinal tract. Other side effects, such as oedema, nausea, vomiting, and dizziness, also occurred. The data showed that gastrointestinal side effects were common, but only accounted for 17.71% of total patients.

Table 3: Side effects of patients with musculoskeletal disease

Side effects	n	%
No	270	77.14
Yes	80	22.86

Stomach pain	62	17.71
Other side effects	18	5.14

The effectiveness and satisfaction assessment of patients

Patient assessments of the effectiveness of the analgesics were as follows: 'very good' at 1.86%, 'good' at 39.57%, and 'acceptable' at 49.71%. Thus, the proportion of patients who were satisfied with the analgesic effect of drugs was up to 91.14%. This reflects the effectiveness of the use of analgesics for the treatment of disease symptoms, which is the first basic counselling resolution for patients with pain from musculoskeletal disease. Medicine of doctors for patients and the sense of medical examination and treatment of people. The proportion of patients who were dissatisfied with the effectiveness of pain relief was only about 8.86%. The rate of evaluation of patients' satisfaction with analgesics was almost equivalent to the assessment of the effectiveness of pain relief. Data is presented in Figure 1 and Figure 2.

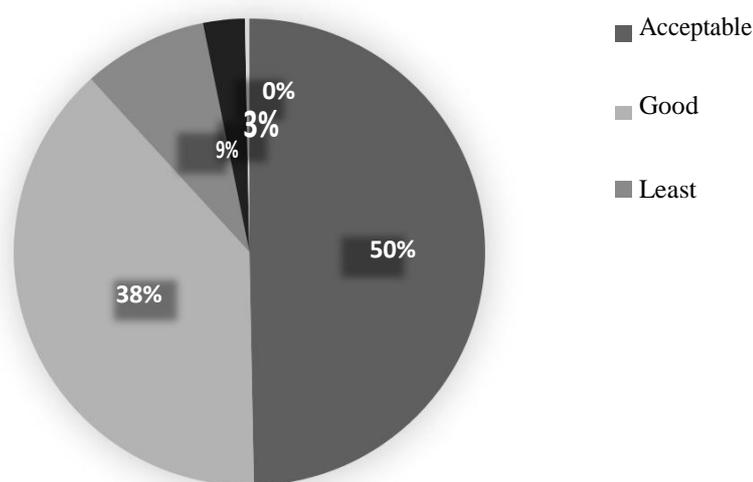


Fig 1: Effectiveness levels of pain relievers in patients with musculoskeletal disease

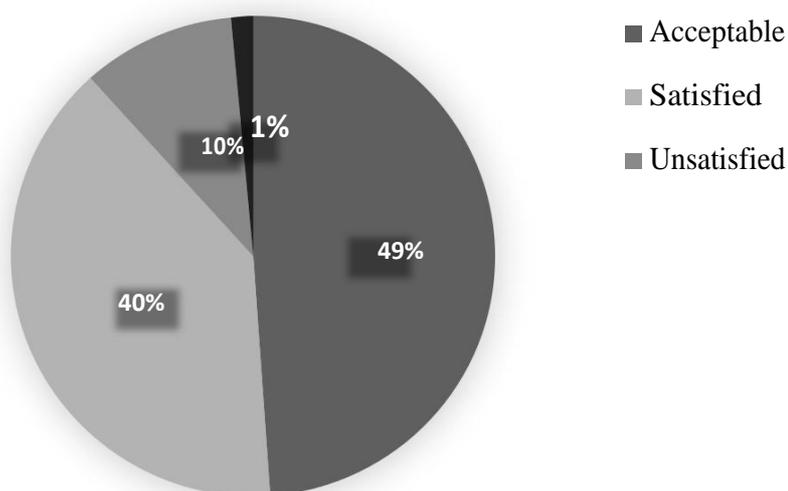


Fig 2: Satisfaction levels with analgesics in patients with musculoskeletal disease

DISCUSSION

On the management and implementation of regulations for prescribing and selling prescription drugs for analgesics, hospitals have issued a list of medicines for hospitals based on the Ministry of Health's regulations and their actual situations. The results of the use of analgesics in the treatment of osteoarthritis at Thong Nhat Hospital showed that the demand for this group of drugs is quite high. Drug management in the hospital has made significant progress, thus leading to higher rates of proper assessment of the demand for these drugs, as well as their use and supply. With the increase in life expectancy in Vietnam, it is clear that arthropathy is thus a major issue in terms of public health.

Aging is one of the common major factors in musculoskeletal diseases, but there are also other causes that affect the rapid degeneration of cartilage and lead to earlier onset of such diseases. Osteoarthritis in the elderly is the most common musculoskeletal disease, accounting for 30 to 35% of cases. Studies have shown that the disease typically develops after age 40, gradually increasing as the patient ages. In people who are overweight, the effect of their body weight on their joints, especially the main joints that support the body, like the backbone and knee bones, causes joint degeneration. There is also a potential genetic factor—numerous researchers believe that genetics play an important role in the development of osteoarthritis in the elderly. People with parents who have osteoarthritis are often at a higher risk for developing these diseases earlier and with more severity. Injuries caused by labour or overwork also affect the process of developing joint pain. In addition, complications of metabolic diseases or hormonal disorders are also factors in the development of musculoskeletal diseases. The results showed that the groups of patients who did heavy work, light work, and housework had different rates of disease. This was explained by musculoskeletal diseases being impacted by age and working life. Thus, it can be said that osteoarthritis is the 'mark' of the years and working life on the musculoskeletal system, the support and movement apparatus of every human being. Therefore, occupation is also a risk factor for musculoskeletal disease. The highlight of the main statistics was that the number of currently employed patients with musculoskeletal diseases accounted for the largest proportion of patients. Employees or office workers in particular, due to the characteristics and occupational requirements of their work, often have to sit for extended periods of time so much so that many of them suffer from back pain. Today, with the popularity of computers and the internet, more and more people spend much of their time sitting at a computer; this posture increases the burden on the spine, especially the lumbar region. The majority of back pain cases do not have pathological causes, but originate from improper postures. Over time, approximately 10% of such cases will turn into chronic back pain. Around the world, back pain is the second leading cause of loss productivity after flu.

Regarding the analgesics used, the rate of NSAID use is the highest, accounting for 67.14% of the patients assigned to take medicine at the hospital's osteoarthritis clinic. This showed that there were significant differences in the number of medicinal analgesics in the drug lists of hospitals and in the habits and experiences of drugs selected by physicians at these hospitals. Overall, in the treatment of pain for patients with musculoskeletal disease, common painkillers and combinations of pain relievers and NSAIDs are chosen by most doctors. The low rate of use of corticosteroids showed caution in the designation of steroid anti-inflammatory analgesics. Corticosteroids are successful anti-inflammatory drugs, but the abuse of them is highly considered. Physicians generally only prescribe them when absolutely necessary. Side effects of corticosteroids are numerous but specific in terms of the treatment of musculoskeletal disease. If corticosteroids are injected directly into the joints, they can cause arthritis. In cases of abuse of long-term corticosteroids, they cause complications such as pneumonia, infection, and gastrointestinal haemorrhage. Furthermore, their use reduces the patient's resistance, making them susceptible to bacterial haemorrhage. If patients are untreated for this effect, the mortality rate due to basal sepsis is 50%. Therefore, it is necessary to put in place a strict management mechanism in prescribing and selling these prescription drugs, as well as for patient use of these drugs, from management agencies. In addition, clear patient guidance from doctors and pharmacists is essential. NSAIDs inhibit COX, which are prostaglandin synthesis enzymes, and thus inhibit the effects of prostaglandins. The discovery of COX with two isomers, COX-1 and COX-2, helps to understand the reason classic NSAIDs have good anti-inflammatory effects but also have numerous side effects, such as peptic ulcers and anticoagulation. The survey investigated the use of NSAIDs for the treatment of musculoskeletal disease in Thong Nhat Hospital and showed that the use of COX-1 and COX-2 inhibitor analgesics had different distributions. The rate of using COX-2 inhibitors (55.32%) was higher than that of COX-1 inhibitors. This indicated the recent trend of doctors tending to prescribe COX-2 selective inhibitors.

In terms of pharmaceutical economics, medicine is a special product that directly affects the health of people. As commodities, drugs are also governed by market rules, which include the law of supply and

demand. However, the peculiarity in the health sector is monopoly, as the drug buyer is a patient who is not permitted to take medicine on his/her own but must have a doctor's instructions; thus, determining the patient's need for prescription medicine is actually a doctor's decision. The designation of drugs is often based on factors such as the therapeutic effect of the drug, the nature of the drug, the state of the patient, the physician's experience, and the effects on the physician, such as books and newspapers, professional documents, and marketing activities of pharmaceutical companies through pharmacists. Thus, it is necessary to have a clinical pharmacist monitor the side effects of drugs, coordinate with the pharmacovigilance department of the Drug Council and treatments in hospitals, and coordinate an effective treatment team of doctors and pharmacists to minimise the incidence of complications from drug use and ensure therapeutic efficacy.

In Vietnam, the majority of people are poor; thus, in the treatment work it is necessary to promote 'step therapy,' which entails a first step of using classic NSAIDs for patients without a history of gastric ulcer. From a pharmacological perspective, COX-2 inhibitors are more expensive than COX-1 inhibitors, even within the same COX-2 inhibitor group between brand names and generic names. Therefore, physicians also need to consider the economic burden of patients when determining appropriate drugs. Currently, classic NSAIDs are still valid for the majority of people and are relatively inexpensive. Professionals require information and guidance on how to effectively prescribe the use of these medications while limiting the experience of side effects in patients.

CONCLUSION

In order to contribute to promoting clinical pharmacy work and management of hospital drugs in the examination and treatment of musculoskeletal diseases, we surveyed the use of analgesics in outpatients at Thong Nhat Hospital. We investigated the management regime, sale, and implementation of prescription analgesics; we also recorded measures to correct the prescribing and use of these drugs, including limitation issues and implementation measures. Moreover, we conducted a survey of the use of analgesics for musculoskeletal conditions in hospitals, the need for painkillers, common unwanted effects, and comedy survey. The patient's heart after taking pain medicine.

CONFLICTS OF INTERESTS

The authors have no conflicts of interests to declare.

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None.

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