

Usage and Prescribing Patterns of NSAID in Different General and Specialized Hospitals in Bangladesh

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Abstract

Original Research Article

Introduction: Nonsteroidal anti-inflammatory drugs (NSAIDs) are the most commonly prescribed and used for the treatment of pain and inflammation. Though this type of drug contains many side effects, these are widely used. The present study was conducted to observe the prescribing pattern. The study aimed to observe and assess the usage pattern and prescribing pattern of NSAIDs based on collected data from multiple general and specialized hospitals. **Methods:** This cross-sectional descriptive study was conducted at multiple hospitals in Mymensingh district during the 2-year period from January 2015 to December 2016. For the purpose of this study, a total of 1216 patients of all ages and gender were selected based on whether they were prescribed NSAIDs. **Result:** Among the participants, 71.4% of the participants using NSAIDs were between the ages of 15-45 years. The difference in prevalence between different age groups was highly significant. Higher male prevalence was observed, with 60.4% male and 39.6% female population. The difference between male and female prevalence was statistically significant. The chief complaint/clinical diagnosis were mentioned as fever (20.1%); backache (15.6%); headache (12.0%); musculoskeletal pain (11.5%); traumatic injury (7.1%); dysmenorrhea (5.3%); infective condition (4.6%); post-surgical pain (1.5%) and others (5.6%) of total prescription. One drug was prescribed in 2.5%, two drugs were in 32.7%, three drugs were in 41.6%, four drugs were in 17.6%, five drugs were in 5.3% and six drugs were prescribed 0.3% prescriptions respectively. Out of the total of 1216 prescriptions: 15.6% were prescribed by a specialist doctor, 63.8% by an MBBS doctor, and 20.6% were prescribed by unqualified prescribers. Cost of prescribed NSAIDs was <10 BDT for 50.5%, 10-50 BDT for 42.9%, >50 BDT for 5.8% and for the remaining 0.8%, the price of prescribed NSAID was unknown. The commonest prescribed NSAIDs were paracetamol (42.1) diclofenac sodium (21.9%); ibuprofen (10.4%); naproxen (5.9%); aspirin (1.6%) and other NSAIDs (18.1%) were prescribed respectively. The commonest prescribed dosage from NSAIDs was tablet/capsule (83.7%); syrup (9.0%); suppository (3.0%); injection (2.0%); suspension (1.8%); topical application (0.5%) was prescribed respectively. Statistically, there was a relationship between different dosage forms of the drug. Tablet/capsule was the highest significant form of the drug. **Conclusion:** The patients usually consulted with an MBBS doctor. The chief complaint/clinical diagnosis are a fever for patients who consulted the prescribers. The commonest prescribed NSAID is paracetamol. NSAIDs are mentioned in the trade name in most cases. The commonest prescribed dosage of NSAIDs is tablet/capsule.

Keywords: NSAID, Drug, Inflammatory, Pain Management.

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INTRODUCTION

The FDA has approved the use of a group of medications known as nonsteroidal anti-inflammatory

drugs (NSAIDs) as antipyretic, anti-inflammatory, and analgesic agents [1]. These medications are frequently used to treat a variety of long-term pain conditions,

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including arthritis, headaches, painful periods, sprains and strains, colds and the flu, and hot temperatures. Due to these effects, NSAIDs can be used as opioid-sparing medications in some cases of severe trauma as well as treat migraines, pyrexia, gout, arthritis, dysmenorrhea, and muscle pain [2-4]. Also available for treatment in acute tenosynovitis, ankle sprains, and soft tissue injuries are topical NSAIDs (diclofenac gel) [5, 6]. NSAIDs make up between 10 and 20 % of all prescribed medications worldwide, making them one of the most popular forms of medication [7, 8]. It is estimated that 30 million individuals worldwide benefit daily from their analgesic and anti-inflammatory properties [9]. More recently, the use of NSAIDs for both chronic disease prevention and acute pain treatment has been advocated due to growing awareness of their protective benefits against the onset and progression of cancer and cardiovascular diseases (CVDs) [10-12]. The similar aspirin-like effect is achieved by NSAIDs such as indomethacin, ibuprofen, and naproxen by inhibiting cyclooxygenase. Rheumatoid arthritis, osteoarthritis, acute gout or pseudogout episodes, ankylosing spondylitis, and other seronegative spondyloarthropathies are all treated with these medications. Although some side events may occur less often with these medications than with aspirin, it has not been demonstrated that the newer NSAIDs are any more effective than aspirin in the treatment of rheumatoid arthritis [13]. NSAIDs are among the most often responsible for negative medication responses [14]. Because prolonged NSAID usage has been linked to serious/fatal gastrointestinal issues like ulcers and bleeding, co-prescribing gastro-protective medications are crucial to reducing these risks [15, 16]. According to estimates, NSAIDs may be to blame for 29% of fatal peptic ulcer complications in the elderly [17]. Nearly 10% of hospital admissions are due to long-term NSAID side effects, even in the USA [18]. In addition, a large number of additional researchers found that this class of medications was frequently prescribed without a clear diagnosis [19, 20]. Despite this, gastro-protective drugs were ineffectively given in conjunction with NSAIDs, and the numerous severe side effects of NSAIDs that have been described only serve to heighten this worry [21]. Few pieces of research have been conducted in Bangladesh on the usage patterns of NSAIDs in both general and specialty hospitals. As a result, this study was carried out to

evaluate the NSAID usage patterns in several general and specialty hospitals in Bangladesh.

OBJECTIVE

General Objective

- To observe the prescribing and usage pattern of different types of NSAIDs.

Specific Objectives

- To observe the prescribing prevalence of different types of NSAIDs.

METHODS

This cross-sectional descriptive study was conducted at multiple specialized and general hospitals in Dhaka from the 2-year period of January 2015 to December 2016. The patients were selected based on their prescribed medicine, either from the same visit or from the selected hospitals. A total of 1216 patients were selected as the sample size of the study, and informed consent was obtained from each of them before data collection. The data was collected from the hospitals and nearby pharmacies where patients had been prescribed NSAIDs. It was designed by using baseline data of NSAID consumption patterns by the community with prescriptions of prescribers practicing in their chambers in Dhaka City. This study also embraced the consumption pattern of NSAIDs without prescription i.e. consumption of NSAIDs by patient's own choice. Ethical approval regarding this study was collected from the ethical review committee of the participating hospitals

Inclusion Criteria

- Patients prescribed NSAIDs, both by doctors and by self-prescriptions.
- Patients who had given consent to participate in the study.

Exclusion Criteria

- Mentally ill.
- Unable to answer the criteria question.
- Exclude those affected with other chronic diseases etc.

RESULTS

Table 1: Demographic characteristics of the study people (n=1216)

Characteristics	Number	Percent	P-value
Age of the patients	Below 15 years	218	17.9
	15-45 years	868	71.4
	More than 45 years	86	7.1
	Age not mentioned	44	3.6
Sex of the patients	Male	734	60.4
	Female	482	39.6

Among the participants, 71.4% of the participants using NSAIDs were between the age of 15-

45 years. The difference in prevalence between different age groups was highly significant. Higher

male prevalence was observed, with 60.4% male and 39.6% female population. The difference between male

and female prevalence was statistically significant.

Table 2: Chief complaint/clinical diagnosis mentioned in prescription (n=1216)

Chief complaint/clinical diagnosis	Number	Percent
Not mentioned	204	16.8
Fever	244	20.1
Backache	190	15.6
Headache	146	12
Musculoskeletal pain	140	11.5
Traumatic injury	86	7.1
Dysmenorrhea	64	5.3
Infective condition	56	4.6
Post-surgical pain	18	1.5
Others	68	5.6

The chief complaint/clinical diagnosis were mentioned as fever (20.1%); backache (15.6%); headache (12.0%); musculo-skeletal pain (11.5%);

traumatic injury (7.1%); dysmenorrhoea (5.3%); infective condition (4.6%); post-surgical pain (1.5%) and others (5.6%) of total prescription.

Table 3: Total number of prescribed per prescription (n=1216)

Total number of drugs prescribed	Number	Percent
One (1)	30	2.5
Two (2)	398	32.7
Three (3)	506	41.6
Four (4)	214	17.6
Five (5)	64	5.3
Six (6)	4	0.3

One drug was prescribed in 2.5%, two drugs were in 32.7%, three drugs were in 41.6%, four drugs

were in 17.6%, five drugs were in 5.3% and six drugs were prescribed 0.3% prescriptions respectively

Table 4: Original source of prescription (n=1216)

Prescribed By	Number	Percentage
Prescriptions of Specialist doctor	190	15.6
Prescriptions of MBBS doctor	776	63.8
Prescriptions of unqualified prescribers	250	20.6

Out of the total of 1216 prescriptions: 15.6% were prescribed by a specialist doctor, 63.8% by an

MBBS doctor, and 20.6% were prescribed by unqualified prescribers.

Table 5: Type of prescribed NSAIDs (n=1216)

Type of drugs	Number	Percent
Paracetamol	512	42.1
Diclofenac sodium	266	21.9
Ibuprofen	126	10.4
Naproxen	72	5.9
Aspirin	20	1.6

The commonest prescribed NSAIDs were paracetamol (42.1) diclofenac sodium (21.9%); ibuprofen (10.4%); naproxen (5.9%); aspirin (1.6%)

and other NSAIDs (18.1%) were prescribed respectively.

Table 6: Total cost of prescribed NSAIDs (n=1216)

The total cost of NSAIDs.	Number	Percent
Less than 10BDT	614	50.5

10-50BDT	522	42.9
More than 50 BDT	70	5.8
Price unknown	10	0.8

Cost of prescribed NSAIDs was <10 BDT for 50.5%, 10-50 BDT for 42.9%, >50 BDT for 5.8% and

for the remaining 0.8%, the price of prescribed NSAID was unknown.

Table 7: Dosage form of NSAIDs (n=1216)

Dosage form of NSAIDs	Number	Percent	P-value
tablet/capsule	1018	83.7	<0.001
suspension	22	1.8	
syrup	110	9	
injection	24	2	
suppository	36	3	
topical application	6	0.5	

The commonest prescribed dosage from NSAIDs was tablet/capsule (83.7%); syrup (9.0%); suppository (3.0%); injection (2.0%); suspension (1.8%); topical application (0.5%) was prescribed respectively. Statistically, there was a relationship between different dosage forms of the drug. Tablet/capsule was the highest significant form of the drug.

DISCUSSION

In this study, MBBS doctors wrote 63.8 % of the 1206 prescriptions. Therefore, it was considered that the majority of patients typically sought the advice of MBBS physicians. In this study, individuals between the ages of 15 and 45 made the majority of medical visits (71.4%). The working class of the populace is in motion. Their greatest occurrence may be a result of their propensity for illness in the stressful, hectic metropolitan environment and the demanding workplace. This was in contrast to a Korean study's findings, which showed a significantly greater prevalence of females [22]. This disparity can be a result of the way that women are frequently not treated equally in our society, despite having equal possibilities. 16.8% of the prescriptions did not include a statement of the primary complaint or clinical diagnosis. In terms of prescription justification, it is a bad trend. The most prevalent primary complaint among patients who saw a doctor was fever (20.1%). The two most common symptoms were listed as backache (15.6%) and headache (12.0%). It should be noted that the major reason NSAIDs were used was to treat symptoms. Musculoskeletal pain was defined as non-specific pain in many body regions (including pain in the knees, elbows, wrists, and other non-specific pains) caused by non-specific causes (1.5 %). Traumatic injury (7.1%) was primarily caused by small auto accidents, falls from great heights, blunt trauma, sports injuries, and assaults. NSAIDs were recommended for dysmenorrhea (5.3 %). The major dysmenorrhea symptom of severe cramps and other symptoms may be caused by the endometrium's production of prostaglandins during menstruation; this

condition has been successfully treated with NSAIDs in the past [23]. The total number of prescription medications ranged from 1 to 6. Prescribers often recommend two (32.7 percent) or three medications (41.6 %). This result was consistent with what previous investigations had shown [24-26]. The most often recommended NSAID was paracetamol (42.1 %). The second most often prescribed NSAID was diclofenac sodium (21, 9 percent). Ibuprofen was prescribed in 10.4% of the prescriptions in this research. Another study conducted in Yemen found that many patients with persistent bone and joint pain were given numerous analgesic or anti-inflammatory medications, with indomethacin and ibuprofen receiving the most prescriptions (47 % and 45 percent, respectively) [27]. In 50.5 % of all prescriptions, the total cost of the NSAIDs prescribed was less than 10 Tk. The major reason for prescription in many cases may have been the drug's low cost, availability, and immediate effect. In 53.6 % of all prescriptions, no medication was recommended to avoid gastrointestinal side effects. Tablet/capsule was given for NSAID dose in 83.71 % of all prescriptions. It was, or it could have been because the patient found it convenient. One research carried out in Dhaka found that the pharmaceutical company's sales strategy should be strengthened by reducing pellet items by 64% [28]. Another study conducted in the USA revealed that it would be inappropriate to administer NSAIDs intramuscularly on a regular basis for presumed increased analgesia [29].

Limitations of the Study

The study was carried out in the Dhaka City area. Data from other districts or rural areas were not included. Thus, the study only reflects the mode of consumption of NSAIDs with or without prescription in Dhaka City. Information like time taken for the history of illness, and whether physical examinations were done or not- was excluded from this study. The drug purchasers were not always the end users of the drug.

CONCLUSION

The patients usually consulted with an MBBS doctor. The chief complaint/clinical diagnosis is a fever for patients who consulted the prescribers. The commonest prescribed NSAID is paracetamol. NSAIDs are mentioned in the trade name in most cases. The commonest prescribed dosage of NSAIDs is tablet/capsule.

FUNDING

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CONFLICT OF INTEREST

None declared.

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

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