



PRESCRIPTION PATTERN MONITORING OF NON-STEROIDAL ANTI-INFLAMMATORY DRUGS IN URBAN HEALTH CENTRE IN TALEGAON: A RETROSPECTIVE STUDY

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ABSTRACT

Non Steroidal Anti Inflammatory Drugs (NSAIDs) are commonly prescribed agents for treating pain and inflammation, over and inappropriate use of which leads to significant clinical problems. The study aimed to know the rationality of their usage. A retrospective audit of 532 prescriptions in year 2012 at the outpatient department of Urban Health Centre attached to a medical college was done. Out of those 263 (49.4%) contained NSAIDs. 44% of these 263 prescriptions reported Upper Respiratory Tract Infection (URTI) as the most commonly diagnosed clinical condition, followed by localised pain, body-ache and backache. Paracetamol and diclofenac were commonly prescribed drugs. The average number of drugs per encounter was 2.56 and the average number of NSAIDs per prescription was 1.29. 7.6% patients received ibuprofen-paracetamol (Ibu-para) which is an irrational combination. More than half of the NSAIDs were prescribed by proprietary names. No adverse drug reaction or side effects were recorded. Most of the prescriptions at the health care centre were in accordance with the WHO guidelines and recommendation for diseases. Prescription behaviors influenced as per availability of drugs.

KEYWORDS: Non Steroidal Anti Inflammatory Drugs (NSAIDs), paracetamol, prescription audit



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INTRODUCTION

Non Steroidal Anti-Inflammatory Drugs (NSAIDs) are widely prescribed medicines that help in relieving pain and inflammation and are commonly used for the treatment of conditions like arthritis, sprains and headaches.¹ NSAIDs help in relieving pain in patients by blocking cyclooxygenase (COX) enzymes that lead to secretion of prostaglandins, which causes pain and inflammation.^{1,2} Though NSAIDs are widely used for long-term care, risks associated with their use include gastrointestinal problems.³ Overuse of NSAIDs is a common clinical practice issue and more than 16,000 deaths are reported annually because of overuse of NSAIDs in arthritis patients in America alone.⁴ The excessive use of NSAIDs can lead to ulceration and gastrointestinal bleeding along with visible damages caused to the small intestine, thus causing deaths.³ Hence, considering these issues related to the benefits and excessive usage of NSAIDs, aim of the study was to identify pattern of NSAIDs prescriptions at an Urban Health Centre in the year 2012. Objectives of the study were: 1) To know the prevalence of ailments for which various NSAIDs were prescribed 2) To determine the extent of variability in drug usage in the management of pain. 3) To study the rationality of NSAID prescriptions and note common errors to suggest improvements.

MATERIALS AND METHODS

This was a retrospective prescription audit. The study was approved by the Institutional Ethics Committee. All prescriptions issued by the outpatient department of the Urban Health Centre of Bhausaheb Sardesai Rural Hospital attached to MIMER Medical College located in Talegaon-Dabhade, (a town in Pune District of Maharashtra, India.) were studied. Prescriptions from 01/01/2012 to 31/12/2012 were included in the study and total was 532. It was not necessary to exclude any prescriptions on account of incompleteness or illegibility. The collected data included demographic

information of the patients, details of their diagnosis and treatment (name of the NSAID prescribed, dose, frequency, formulation and duration), follow up details and adverse drug reactions (if any). The study also determined if drugs prescribed were from WHO Essential Drug List⁵ or not. Critical evaluation and analysis of the prescriptions were completely based on guidelines defined by WHO, namely "How to Investigate Drug Use in Health Facilities".⁶ The common NSAID agents prescribed, different types of NSAIDs prescribed, number of NSAIDs prescribed per patient, and the availability of NSAIDs at Urban Health Centre were recorded. Further, whether physicians prescribed the medications with proprietary or non-proprietary names was also noted.

Indicators used for prescription pattern study

A. Prescribing Indicators:⁷

1. Average number of drugs per encounter was calculated by dividing the total number of drugs prescribed by total number of prescriptions.
2. Average number of NSAIDs per prescription was calculated by dividing total number of NSAIDs prescribed by total number of prescriptions.
3. Percentage of drugs prescribed from WHO Essential Drug List was determined by dividing number of products prescribed from WHO Essential Drug List by total number of drugs prescribed, multiplied by 100.
4. Percentage of drugs prescribed by generic (scientific) name, calculated by dividing number of drugs prescribed by scientific names divided by total number of drugs prescribed, multiplied by 100.

B. Facility Indicators:⁷

- a. Availability of copy of Essential Drug List by stating "Yes" or "No"
- b. Availability of key drugs was calculated by dividing number of specified products in stock by total number of drugs on the checklist of

essential drugs in Essential Drug List, multiplied by 100.

Source

Literature review and primary data collection of prescriptions in medical records of the Urban Health Centre.

Statistical Analysis

It is a descriptive study and purposive sampling was done. Data was analyzed and expressed as a percentage.

RESULTS

Out of total 532 prescriptions, 263 prescriptions (49.4%) contained NSAIDs. Average number of NSAIDs prescribed per prescription was 1.29. The average number of drugs per prescription was 2.56. Of the total 263 NSAIDs prescriptions, number of females and males were 68% and 32% respectively, pediatric patients were 27%. URTI was the most common medical condition reported in patients, as 44% of the respondents were found to suffer from it (Figure 1). Other conditions requiring NSAIDs were localised pain, body-ache, backache, etc. Paracetamol (41.4%) and diclofenac (7.9%) were frequently used drugs

in adults and children (Figure 2). 41.44% of the prescriptions contained paracetamol for treatment of URTI. Other NSAIDs prescribed were diclofenac, ibuprofen, and mefenamic acid. 54% of the prescriptions prescribed the drugs for duration of two days, 16% prescribed for three days and 10% prescribed for a day (Refer Figure 3). 73 Out of 263 patients, 73 came for follow up, 70% among those 73 came once 29%, followed-up twice and only 1% of the patients followed-up thrice (Refer Figure 4). 58.17% of the drugs were prescribed by their scientific (generic) names. Prescriptions of NSAIDs with antibiotics and other NSAIDs were 30.34%, and 8.7% respectively. 0.76% of them were prescribed in an injectable form. Switching of analgesics was done in 9.1%. 14.8% NSAIDs were prescribed from outside the centre. Most common NSAID prescribed from outside the Urban Health Centre was mefenamic acid. WHO Essential Drug List was available at the centre. 30.34% of drugs were prescribed from WHO Essential Drugs List. Availability of key drugs at the pharmacy of centre was 75%. Of 263 patients, 27% came for follow up and among them 22% received NSAIDs. In 8.7% patients, NSAIDs were prescribed in fixed-dose combination, mostly Ibu-para (7.6%), which is irrational.

Figure 1
Common Clinical Conditions

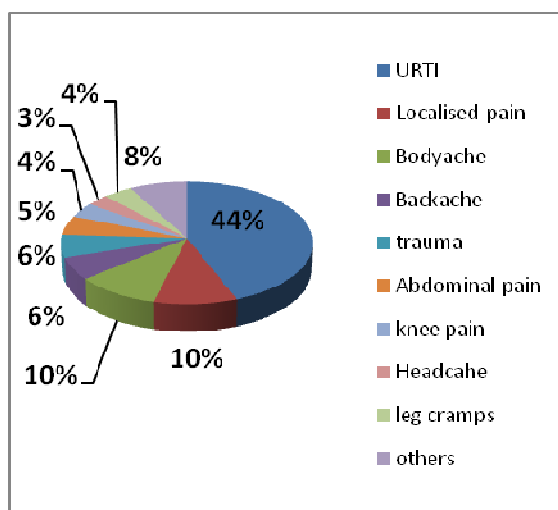


Figure II
Drugs Prescribed

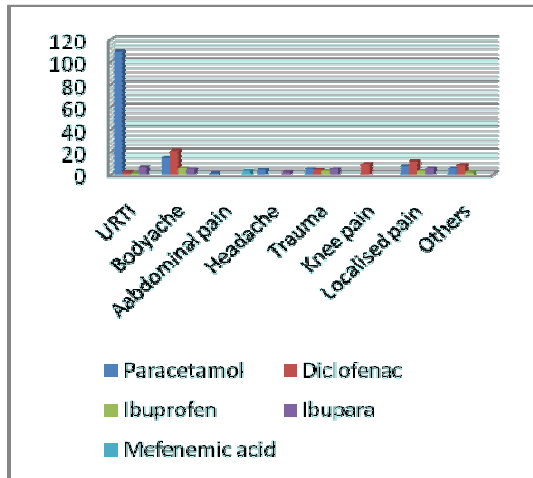


Figure III
Duration of NSAIDs Prescription

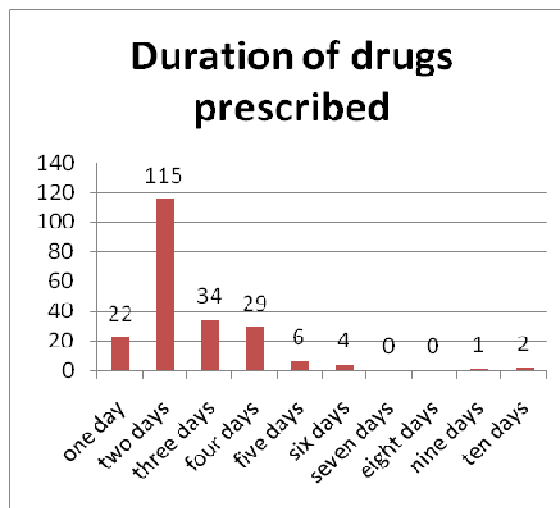
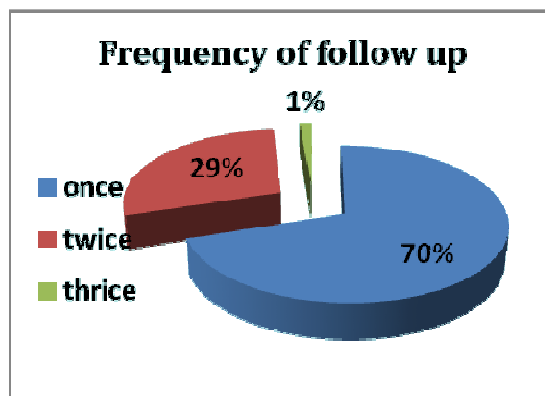


Figure IV
Frequency of Follow-Up



DISCUSSION

There are several studies that have examined the use and prescription of NSAIDs around the world. Since NSAIDs are among the largest groups of pharmaceutical agents that are used across the globe and also lead to multiple adverse drug reactions (ADRs) like gastrointestinal disorder and bleeding, studies have focused on their prescriptions and over-usage if applicable.⁸ There are multiple studies that have focused on different parts of India itself to evaluate the usage of these drugs in the country. The study that was conducted at a tertiary care hospital in South India in Tamil Nadu reviewed a total of 330 patients. Study identified viral fever, acute gastroenteritis and respiratory tract infections as the common clinical indications that led to the prescription of these drugs. 18.78% of the prescriptions included analgesics for treating viral fever and the most common drug that was used was diclofenac.⁹ The study was conducted in North Indian tertiary care hospital screened total of 800 prescriptions showed that was most commonly prescribed NSAID in the hospital rofecoxib.⁸ The study was conducted in Uttaranchal found orthopedic disorders as the most commonly observed clinical condition for which NSAIDs were prescribed and around 38.98% of prescriptions for diclofenac.¹⁰ Findings of the present study were completely different as compared to the findings of these previous studies. While URTI was identified as the most prevalent clinical condition in Urban Health Centre in the present study, previous studies have identified fever and musculo-skeletal disorder as the most prevalent conditions. Also, the choice of NSAIDs that were prescribed differed in all these studies. The main difference was seen with NSAIDs that were used in majority of the cases in these studies. There are several studies that confirm with the findings of the present study and have identified Paracetamol as the most commonly prescribed NSAID. The study conducted in Vanivilas Hospital in Bangalore collected data from 150 patients and demonstrated that paracetamol was the most commonly prescribed NSAID in that group.¹¹ Similar

findings were also presented by another study that screened prescriptions of a tertiary care hospital in India and proved that paracetamol is the first choice in NSAIDs prescriptions.¹² Though paracetamol has been identified as the most commonly prescribed medicine, diclofenac is considered to be the first choice among NSAIDs for anti-inflammatory effects.^{13, 14} The present study however identified paracetamol as the leading choice and also demonstrated the use of ibuprofen + paracetamol as fixed-dose combinations in a few cases. However, prolonged usage of NSAIDs has been observed in only a few cases because majority of the cases demonstrated the prescription of NSAIDs for a period of three days. In many studies it is reported that the doctors do not prescribe by generic names and in fact generic prescribing needs to be encouraged.¹⁵ It is remarkable that in the present study, 58.17% drugs were prescribed by their generic (scientific) names. This practice needs to be continued and expanded. Another important finding that can be deduced from the study is that most of the prescriptions followed the guidelines prescribed by WHO. Thus, doctors have followed the guidelines of WHO and have chosen paracetamol to treat most of the clinical conditions including URTI, body pain, back pain and trauma. However, no side effects or adverse health conditions or reactions were observed or recorded among the patients, which can be either because of the limitation of the data that was analyzed or because of the lesser number of follow-ups that were taken by the patients.

CONCLUSION

The prescription audit at the Urban Health Centre of a rural hospital over a period of one year showed that paracetamol was the most commonly prescribed analgesic. The study also highlighted that though paracetamol was prescribed most often, diclofenac was the most common NSAID for anti-inflammatory effect. While most of the patients received correct

single dose or fixed-dose combinations, around 7.6% of patients received combination of Ibuprofen and Paracetamol, an irrational combination and hence it is important to educate the doctors regarding the correct usage of fixed-dose combinations. Most of the prescriptions complied with the guidelines given by WHO. Results indicated no adverse reactions or side effects. Some of the recommendations based on the study can help in improving the prescription patterns and usage of NSAIDs are: 1) Health care centres must put special emphasis on educating the prescribers about using the medications for appropriate duration 2) Doctors should be educated to use of rational fixed-dose combinations, 3) Further studies can help in improving the drug prescription policies of the country and 4) Health care centres must

reinforce the use of scientific names in their prescriptions. Variations in duration and dosage are seen in prescriptions, which need to be curtailed.

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DECLARATION OF INTERESTS

Conflict of interests declared none

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