

Prescribing Trends of Non-Steroidal Anti-Inflammatory Drugs used in Dental Outpatient Department of A Tertiary Hospital in Nepal

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Abstract

The aim of the study was to monitor non-steroidal anti-inflammatory drugs prescribing pattern for patients attending the dental OPD of Chitwan Medical College Teaching Hospital, Bharatpur, Nepal. 1173 prescriptions of patients attending the dental OPD were collected randomly during 15th July 2011 to 14th January 2012. The data was analyzed using WHO guidelines. The average number of drugs prescribed was 2.3 per prescription. The most commonly prescribed analgesic was ibuprofen + paracetamol (48.4%) followed by piroxicam (31%). In total, 49.6% analgesics were prescribed in fixed-dose combinations. Only 15.5% of analgesics were prescribed by generic name. In this study, Paracetamol + Ibuprofen were the most commonly prescribed analgesics among dental outpatients.

Key words: non-steroidal anti-inflammatory, patients, prescription, rational use, dentistry

INTRODUCTION

Pain, as defined by the International Association for the Study of Pain, is "an unpleasant sensory and emotional experience arising from actual or potential tissue damage or described in terms of such damage." [1] Pain is an unpleasant sensation, and a very common phenomenon. There is no doubt that pain acts as a warning signal against disturbances either in the body or in the external environment of an individual. [2] Any pain either moderate or higher intensity is accompanied by anxiety and the urge to escape or terminate the feeling. These properties illustrate the duality of pain: it is both sensation and emotion. So, adequate treatment of pain is indicated, as it is associated with various factors like behavioral arousal and a stress response consisting of increased blood pressure, heart rate, pupil diameter, and plasma cortisol levels. [3]

There are many reasons for patients to attend dental OPD. These include regular checkups, scheduled visits for planned treatment, for advice about a problem, and because the patient is experiencing pain or other symptoms that concern them. [4] But most of the time it is pain that brings the patient to the dental office. Conversely, fear of pain is a significant reason for many people to avoid seeking dental care. Fortunately, pain is preventable or controllable in an overwhelming majority of cases. Patients have a right to treatment that includes prevention of pain and adequate relief of pain.

Undertreatment of pain is a significant problem in dentistry.

Analgesics, along with antibiotics, are the commonly prescribed medications by dental practitioners. The first course of action for management of endodontic pain, non-opioid analgesics can be beneficial and if the pain will not be managed by this measure alone, the addition of an opioid analgesic may be considered. [5] The use of non-steroidal anti-inflammatory drugs (NSAIDs) as a first-line therapy for pain and inflammation is well accepted and recommended by World Health Organization (WHO). [6] NSAIDs are one of the most widely used drugs over the world. [7] NSAIDs do not alter the perception of sensory modalities other than pain. Hence they are free from the issues of drug dependence and CNS side-effects unlike opioids. [8]

NSAIDs analgesics generally provide predictable outcome for control of dental pain because of their analgesic and anti-inflammatory properties. Most NSAIDs in current use are inhibitors of both isoenzymes of cyclooxygenase (COX-1 and COX-2) though they vary in the degree of inhibition of each isoform. [8] Clearly, the anti-inflammatory action of NSAIDs is mainly related to their inhibition of COX-2 and their unwanted effects are due largely to their inhibition of COX-1. [9] Currently used drugs, rofecoxib, meloxicam, celecoxib and nimesulide have more COX-2 selectivity than diclofenac, sulindac and piroxicam. [9,10, 11]. Despite this

increased focus, the literature suggests; [12,13,14] a large proportion of adverse drug reactions diagnosed in hospitalized patients could be attributed to NSAIDs, particularly, gastrointestinal ulceration and bleeding [15] and altered renal function. [16]

In view of the above considerations and of a scenario in which the practice and the technical decisions of health professionals are increasingly tied to economic restrictions, the present study was designed to evaluate the prescribing pattern of NSAIDs in dental OPD of Chitwan Medical College Teaching Hospital, Bharatpur-10, Chitwan, Nepal.

MATERIALS AND METHODS

The prospective cross sectional (descriptive) study was carried out in dental OPD of Chitwan Medical College Teaching Hospital, Bharatpur-10, Chitwan, Nepal. A data collection form was prepared which includes patient as well as medication related informations. 1173 prescriptions were collected during 15th July 2011 to 14th January 2012. All relevant and necessary information for the study was collected from the outpatient department card. Patient related parameters includes age, sex, address, diagnosis etc. and drug related data such as name of the drug, dosage form, dosing frequency, duration, route of administration data also noted. The NSAIDs containing prescriptions (n = 774) were separated from the total prescriptions collected. This information was analyzed by using WHO guidelines as described in accordance with "How to investigate drug use in health facilities?" [17]

RESULTS

Figures 1 and 2 provide the age and sex distribution of the patients in dental OPD. The number of males were 564 (48.1%) while the number of females were 609 (51.9%). The maximum numbers of patients were in the age group of 12 to 64 years and minimum number of patients were in the age group of ≥ 65 years. Table 1 illustrates the pattern of the dental disorders. The most frequently reported dental disorders in our study were acute apical periodontitis, chronic generalized periodontitis, chronic gingivitis and dental caries etc.

Figure 3 and table 2 describe the pattern of NSAIDs prescribing in dental OPD. In total, 774 (66%) prescriptions contained NSAIDs which are the second most commonly prescribed drug after antimicrobials in dental OPD. The most commonly

prescribed NSAIDs was ibuprofen + paracetamol (48.4%) followed by piroxicam (31%).

The average number of drugs prescribed for each out-patient was 2.3 per prescription. In total, 49.6% analgesics were prescribed in fixed-dose combinations (FDCs) of the two drugs and the most common analgesic combination used was ibuprofen + paracetamol. Only 15.5% of analgesics were prescribed by generic name and 15.5% of analgesics belong to essential drug list (EDL) of Nepal third revision 2002. 26.5% NSAIDs were prescribed along with gastroprotective agents.

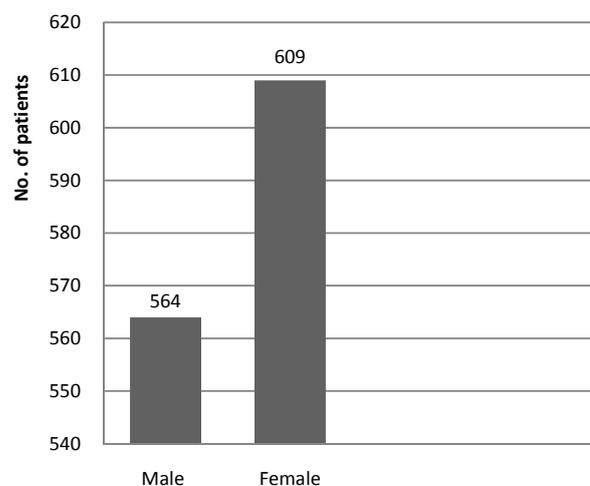


Figure 1: Sex distribution of dental outpatients

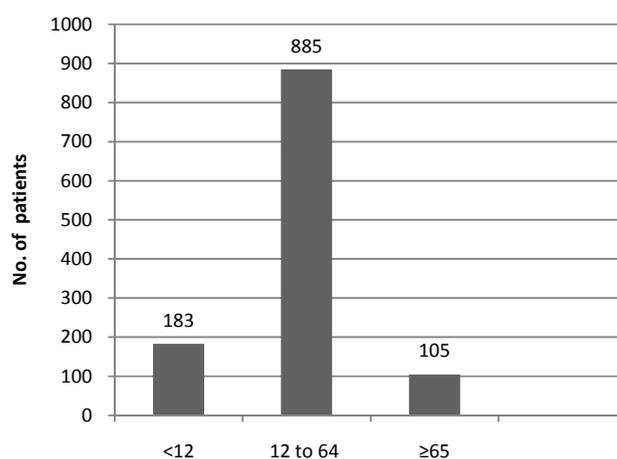


Figure 2: Age (in years) distribution of dental outpatients

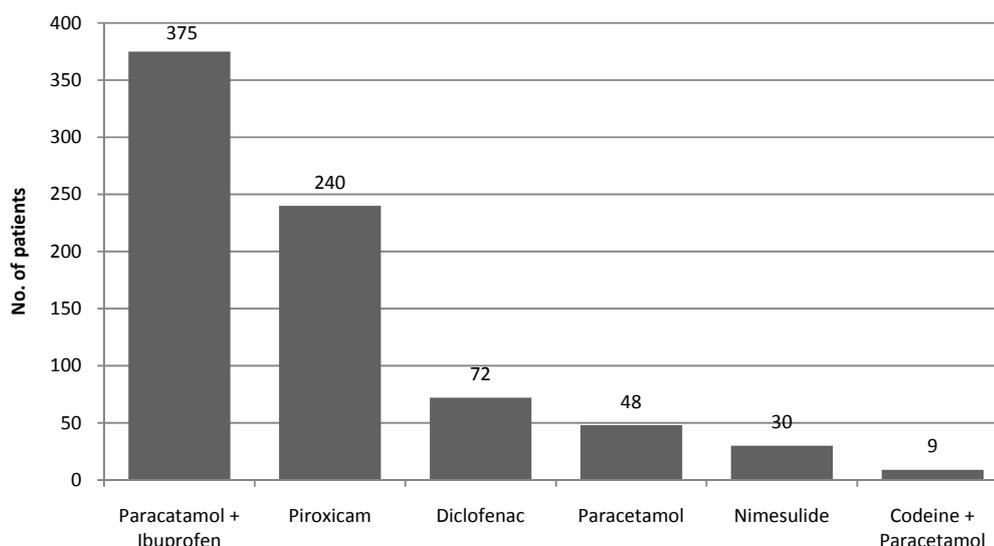


Figure 3: Pattern of NSAIDs prescribed in dental outpatients

Table 1: Diagnosis of dental conditions

Diseases	Numbers of patients (%)
Acute apical periodontitis	249 (21.3%)
Acute gingivitis	87 (7.4%)
Apthous stomatitis	24(2%)
chronic generalized periodontitis	159(13.5%)
Chronic gingivitis	126(10.7%)
Dental caries	144(12.3%)
Dentoalveolar abscess	3(0.3%)
Glossitis	12(1%)
Leukoplakia	9(0.8%)
Lichenplanus	6(0.5%)
OSMF	3(0.3%)
Periapical abscess	162(13.8%)
Periodontal abscess	54(4.6%)
Diagnosis not mentioned	135(11.5%)

Table 2: Analysis of dental OPD prescriptions

Details	Total (%)
Total number of prescriptions Analyzed	1173
Total number of drugs prescribed	2709
Total number of NSAIDs containing prescriptions	774 (66%)
Co-prescription of gastro-protective drugs along with NSAIDs	205 (26.5%)
NSAIDs prescribed in generic names	120 (15.5%)
NSAIDs prescribed as FDCs	384 (49.61%)
NSAIDs prescribed from Essential Drug List of Nepal	120 (15.5%)

DISCUSSION

This study was designed to explore the prescription pattern of NSAIDs. NSAIDs are commonly used in pain medication in dentistry because of their analgesic and anti-inflammatory properties. [18,19,20] This study showed that the entire patients attending dental OPD received 2.3 drugs per prescription which is similar to the studies. [21,22] Most of the dentists in our study prescribed NSAIDs over opioids analgesics, which is similar to the study. [23] Most dentists preferred to prescribe NSAIDs as it provides excellent analgesia for mild to moderate pain. They are particularly useful in the initial management of pain that has an inflammatory component. This includes pain associated with dentistry. The analgesic, anti-inflammatory, and antipyretic effects of NSAIDs, as well as their most notable side effects, are attributed to inhibiting cyclooxygenases that catalyze the synthesis of prostaglandins, thromboxanes, and prostacyclin. [24] In this study FDCs of paracetamol and ibuprofen was most commonly (48.4%) prescribed analgesic followed by piroxicam (31%) and diclofenac (9.3%). Avoiding unnecessary FDCs may help in reducing prescribing costs because FDCs usually cost more than single ingredient preparations.[25] It is best to avoid combination therapy with more than one non-opioid analgesic; there is little evidence of extra benefit to the patient and the incidence of side effects generally is additive.[26] Most of the analgesics prescribed were older agents like paracetamol and ibuprofen in combination which

comprise more than 50% of all analgesics prescribed. NSAIDs have been shown to be more effective than opioids in dentistry. [27] In the use of NSAIDs in dentistry, it has been suggested that ibuprofen is an ideal prototype for consideration for pain with dental origin unless a patient identifies a particular agent that has been effective previously. [24] Ibuprofen has been showed to be as safe as paracetamol on gastrointestinal tract, in both adult and pediatric patients. Even in prescribed doses ibuprofen rarely cause bleeding in upper gastrointestinal tract and it is one of the safest drugs on gastrointestinal tract. [28] Results of our study showed that ibuprofen + paracetamol prescribing in dental OPD was higher.

Our study indicates that all the analgesics were prescribed in oral dosage forms but analgesics prescribed in generic name (15.5%) and from EDL (15.5%) were very less. During the year 2004, NSAIDs was prescribed for a total of 330.33 million euros. Ibuprofen was the NSAIDs generating the greatest expenditure, representing approximately 100.3 million euros. [29] Cost to the patient can be decreased by prescribing oral dosage forms, [30] older non-opioid analgesics [31] in generic name [32] and from essential drug lists. [33] In the present study, 26.5% NSAIDs were prescribed along with gastroprotective agents which is much higher than the previous study. [34]

CONCLUSION

The study provides an overview about utilization of NSAIDs among dental outpatients in CMCTH. This initial audit report is aimed at providing feedback to the dentists and such periodic audit of drug prescribing is desirable in rationalizing prescribing practices. The results of the study also showed that Paracetamol + Ibuprofen were the most commonly prescribed NSAIDs among dental outpatients. It is also estimated that dentists did not prescribe selective COX-2 inhibitor agents or opioid analgesics for dental pain.

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