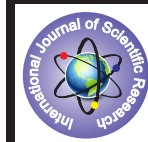


Prescribing Patterns in Outpatient department of Orthopaedics in a Tertiary Care Hospital in Navi Mumbai



Medical Science

KEYWORDS : Prescribing Patterns, Orthopedics OPD

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Introduction

Periodic evaluation of drug utilization patterns need to be done to enable suitable modifications in prescription of drugs to increase the therapeutic benefit and decrease the adverse effects. The study of prescribing patterns seeks to monitor, evaluate and if necessary, suggest modifications in the prescribing behavior of medical practitioners to make medical care rational and cost effective.⁽¹⁾

Rational drug prescribing can be defined as appropriate drugs prescribed in the right dose, at

Correct time intervals and for a sufficient duration. Irrational drug use is a common problem in many countries of the world⁽²⁾. The World Health Organization (WHO) defines "drug utilization" as the marketing, distribution, prescription and use of the drugs in a society considering its medical, social, and economic consequences. Prescriptions and drug utilization patterns needs to be evaluated from time to time so as to Increase the therapeutic efficacy Decrease the adverse effects And to provide feedback to the physicians to create awareness towards rational use of drug⁽³⁾

Previous studies have shown that analgesics, including non-steroidal anti-inflammatory drugs (NSAIDs) are a commonly prescribed group of drugs⁽⁴⁾ Studies have shown that use of NSAIDs Increases the risk of hospitalization and death from gastrointestinal bleeding and perforation.^(5,6)

Studies on the utilization of drugs in the orthopaedics outpatient department (OPD) are lacking in hospitals in navi Mumbai. Such studies are necessary to obtain baseline data on drug use and create a database for comparison with future studies. Hence the present study was carried out. The objectives of the study were to:

- 1) Obtain information on demographic characteristics of the patients selected for analysis
- 2) Collect information on the diagnosis, number of drugs prescribed and their prescribing patterns and calculate the mean number of drugs per prescription
- 3) Calculate the percentage of drugs prescribed from the Essential drug list of India the percentage of drugs prescribed by generic name and percentage of encounters where antibiotics were prescribed
- 4) Analyze the prescriptions for completeness of information like diagnosis, name, dose and duration of prescribed drugs.

Keeping all these facts in consideration, the present study has been undertaken to define the pattern of drug usage in a tertiary care teaching hospital.

Methodology

Permission for the study was obtained from the scientific committee. Prescriptions were collected during the period of 2 months from the patients in Orthopedics department of MGM Medical College and Hospital, Navi-Mumbai, Mumbai, India. one hundred and twelve patients or prescriptions were randomly selected

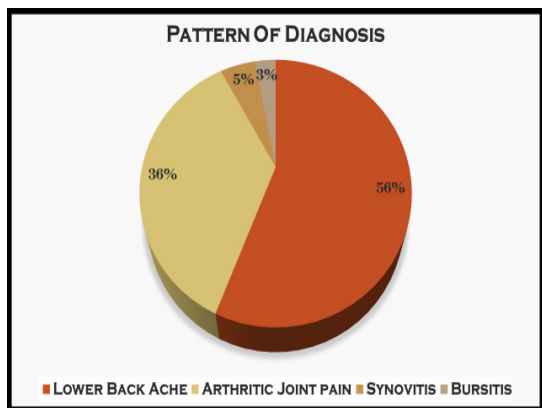
The prescriptions written in the OPD were included into the study. The method of duplicate prescriptions was used. We noted the prescriptions of patients attending the orthopaedics OPD every day. The drugs prescribed to the patients, their strength, frequency and duration were noted. The diagnosis was noted. The mean number of drugs per prescription was calculated. The frequency of prescribing of various drug categories and of individual drugs was recorded. The drugs prescribed during follow up were not taken into consideration. All prescriptions were entered into a specially designed case report form to record the required information from the prescriptions.

The data was then compiled, tabulated and analyzed. Each prescription was subjected to critical evaluation using WHO guidelines as described in accordance with "how to investigate drug use in health facilities"

Patients of all age group and either sex were taken in to study. Patients were willing to volunteer for study were taken in to study while those who are not willing were excluded from study. Patients who are referred were excluded from study.

Results

One hundred and twelve patients or prescriptions were randomly selected (as detailed in the Methods section) of the patients attending the orthopedics OPD. Total number of drugs prescribed was 225. The average number of drugs per prescription was 2.008. Dose frequency and duration of treatment was mentioned in 100 % prescriptions. Diagnosis was missing in 12 prescriptions. In prescribing indicators the percentage of drugs prescribed by generic name was 0 %. Percentage of encounters with an antibiotic prescribed was 12.50 %. Percentage of encounters with an injection prescribed was 2.03 %. Additionally percentage of encounters with an anti-ulcer drug prescribed was 67.85 % Percentage of encounters with a NSAID prescribed was 67.85 % .Percentage of encounters with a calcium preparation prescribed was 44.64 % Low back ache was the most common reason for attending the orthopedics OPD [62 patients (56%)]. The other common diagnoses were arthritic joint pain [40 patients (36%)], synovitis [6 patients (5%)] and bursitis [4 patients (3%)].



Common categories of drugs prescribed to orthopedic outpatients

The most commonly prescribed categories of drugs are shown in Table 1. NSAIDs (33.77 %) were the most commonly prescribed category with anti-ulcer drugs (33.77 %) followed by multivitamin and mineral preparations (oral 22.22 % and injection 4 %) and antibiotics (6.22 %). The anti-ulcer drugs in all instances were prescribed to reduce or prevent the gastrointestinal irritation caused by NSAIDs. This was arrived at by analysis of the prescriptions and discussion with the consultants of the department of orthopedics.

Most commonly prescribed individual drugs in the orthopedics outpatient department

The most commonly prescribed individual drugs are shown in Table 2. Diclofenac sodium and paracetamol and serratio-peptidase combination and ranitidine were the most commonly prescribed drug (33.77%), Calcium and vitamin D was prescribed in (22.77%).

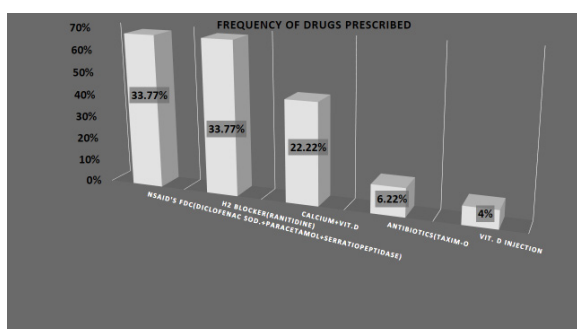
Antibiotic Taxim-O was prescribed in encounters (6.22 %) while vitamin-D injection was prescribed in encounters (4 %).

Table 1: Common categories of drugs prescribed to orthopedic outpatients

Category of drugs	Number (percentage)
NSAIDs	76 (33.77 %)
Anti-ulcer drugs	76 (33.77 %)
Multivitamins & minerals	55 + 10 (22.22% + 4%)
Antibiotics	14 (6.22%)

Table 2: Most commonly prescribed individual drugs in the orthopedics outpatient department

Drug	Number (percentage)
Diclofenac sodium+ Paracetamol +Serratiopeptidase	76 (33.77%)
Ranitidine	76 (33.77 %)
Calcium + vitamin D	55 (22.22 %)
Taxim-O	14 (6.22%)
Vitamin -D injection	10 (4 %)



Discussion:

A prescription by a doctor may be taken as an indication of the doctor's attitude towards the disease and the role of drugs in its treatment. The mean number of drugs in our study was 2.08. The average (mean) number of drugs per prescription is an important parameter while doing a prescription audit. A hospital based study in India had reported a mean of two [9]. The mean number of drugs was more than two in other studies reported in the literature [1,8,10] whereas the number was also seen to be lower in some [5,7].

The commonest indications for attending the orthopedics OPD was low back ache and arthritic joint pain. In our study the commonest indications for which an NSAID was prescribed were the above two conditions. In a study in Nepal, the commonest indication for prescribing an NSAID was low back ache and spondylitis [7]. NSAIDs and anti-ulcer drugs were the most commonly prescribed category of drugs with diclofenac, Paracetamol Serratio-peptidase combination and ranitidine being the most commonly prescribed individual drugs. In western Nepal most commonly prescribed category of drugs was diclofenac and meloxicam [7] whereas Aceclofenac, Paracetamol Serratio-peptidase combination was most commonly prescribed in a study in Andhra Pradesh, India [8]. However, our study which was specifically confined to the orthopaedics OPD the study from Andhra Pradesh was conducted for both IPD and OPD. It will be difficult to compare our data with that obtained from those studies.

The use of injectable preparation was less (2.02%) as compared to a study from New Delhi India (4.4%) [11]. However, while our study was confined to the orthopedics OPD the other studies were carried out in different OPDs. It will be difficult to compare our data with that obtained from the study as well.

In our study, 26.22% of the prescribed drugs were multivitamins and minerals. In the study from western Nepal it was lower at 8.5% [7] and 0% of drugs were prescribed by generic name. The percentage was nil in the study reported from Nepal and India [7,11]. Generic drug prescribing is to be encouraged as it works out to be cheaper for the patient and the possibility of drug errors is reduced.

Educational sessions for the doctors at different levels to encourage prescribing by generic names and on correct writing of prescriptions may be considered. Studies covering a larger number of patients and a longer time period are required. A greater number of patients can be studied so that seasonal variations can be overcome and drug utilization can be measured quantitatively.

Dose frequency and duration of treatment was mentioned in all prescriptions. Diagnosis was missing in 12 prescriptions. There is scope for improvement in the writing of prescriptions and educational programs on proper prescribing habits can be organized for doctors at all levels. The choice of drugs, the duration and the route chosen were appropriate in the majority of cases. The appropriateness was determined by the authors after consulting different sources in the drug information center and the college library.

This study had a number of limitations. The study was carried out over a two-month period and seasonal variations in disease and prescribing patterns may not have been taken into account. One hundred and twelve patients/prescriptions were randomly selected for analysis and these may not have been representative of the patient population attending the orthopedics OPD during the study period. The number of prescriptions is low. The patients' knowledge of dose, time to take the medicine, whether the medicine is to be taken before or after food were not ascertained. The physicians were aware of the study and this may have influenced prescribing habits.

Further studies over a longer period of time are required to provide a baseline data of drug utilization in orthopedics which will be helpful for future longitudinal studies. A longer study will have a greater number of patients and the quantitative measurements may be more representative of the population. On doing a study of one year's duration seasonal variations can be overcome.

CONCLUSION

Most commonly used drug was NSAID's (33.77%) combination therapy and H2 blockers (33.77%). The commonest ailment noted was lower back ache and the 2nd most common was arthritic joint pain. There is a considerable scope of improvement in the prescribing practices, especially prescribing by generic name which has less financial burden. Number of medication should be kept at minimum. Combination therapy has to be discouraged. Moreover, Educational sessions for the doctors at different levels to encourage prescribing by generic names and on correct writing of prescriptions may be considered.

REFERENCE

1. Srishyla MV, Krishnamurthy M, Naga Rani MA, Clare M, Andrade C, Venkataraman BV. Prescription audit in an Indian hospital setting using the DDD (defined daily dose) concept. *Indian J Pharmacology* 1994; 26: 23-28.
2. Hogerzeil HV. Promoting rational prescribing: an international perspective. *Br J Clin Pharmacol* 1995; 39: 1-6.
3. World Health Organization (WHO). Introduction to drug utilization research. Oslo: 2003.
4. World Health Organization (WHO). International Network for Rational Use of Drugs and World Health Organization. How to investigate drug use in health facilities: Selected drug use indicators 1993. EDM Research Series No. 7 [WHO/DAP/93.1]
5. Shankar PR, Partha P, Nagesh S. Prescribing patterns in medical outpatients. *Int J Clin Pract* 2002; 56: 549-551.
6. Greene JM, Winckoff RN. Cost-conscious prescribing of non-steroidal anti-inflammatory 7. Shankar PR, Pai R, Dubey AK, Upadhyay DK. Prescribing patterns in the orthopaedics outpatient department in a teaching hospital in Pokhara, western Nepal. *Kathmandu University Medical Journal* (2007), Vol. 5, No. 1, Issue 17, 16-21.
8. Shaikh Ubedulla, N. Chandra Sekhar, T. Jayasree, Shankar J, and Kotipalli Rohit. *Journal of Chemical and Pharmaceutical Research*, 2013, 5(11):512-517.
9. Hede SS, Diniz RS, Agshikar NV, Dhume VG. Pattern of prescribed and OTC drugs in North Goa. *Indian J Pharmacol* 1987; 19: 145-148.
10. Rishi RK, Sangeeta S, Surendra K, Tailang M. Prescription audit: experience in Garhwal (Uttaranchal), India. *Trop Doct* 2003; 33: 76-79.
11. Biswas NR, Biswas RS, Pal PS, Jain SK, Malhotra SP, Gupta A et al. Patterns of prescriptions and drug use in two tertiary hospitals in Delhi. *Indian J Physiology Pharmacology* 2000; 44: 109-112.