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Prescribing trends in the department of orthopedics of a tertiary care teaching hospital

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ABSTRACT

Background

Drug utilization studies are necessary to monitor the prescriptions and promote rational drug prescribing among clinicians. Orthopedics department use a wide range of drugs from varied classes to meet the needs of their patients. This tends to result in drug interactions, adverse drug effects and prescription errors leading to increase in hospital cost and decrease in therapeutic compliance of the patients.

Aim

The present study was conducted to analyze the prescribing trends in the Department of Orthopedics of Dr. B R Ambedkar Medical College, Bengaluru.

Methods

A cross sectional prospective observational study was conducted over a period of three months. The prescriptions of patients attending orthopedics departments from both OPD and IPD were collected and analyzed.

Results

A total of 703 prescriptions having 2288 drugs were analyzed with number of drugs per prescription varying from 1 to 5 with average of 3.25. The commonest diagnosis in patients attending the orthopedics department was fractures (38%) followed by lumbago (30%), osteoarthritis (19%), dislocations (6%), bursitis (3%), and synovitis and neuropathies with 1% each. NSAIDs (49%) were the most commonly prescribed drugs followed by antiulcerants (16%), antimicrobials (13%), opioid analgesics (12%), nutraceuticals like calcium and vitamin D3 supplements (4.8%), skeletal muscle relaxants (3.3%), followed by anti inflammatory enzymes and drugs for neuropathy at 1% each. 8% of drugs were prescribed by generics and 35% of prescriptions had Fixed dose combination (FDC). 69% of drugs were from the National List of Essential Medicines (NLEM) India with approximately 20% of the formulations being injections.

Conclusion

Lacunae like less numbers of prescriptions by generic drugs, polypharmacy and incomplete prescriptions were noted. Thus regular sensitization programmes regarding rational prescribing, and use of generics will help in promotion of rational prescribing among clinicians.

Keywords: Prescription trends, Orthopedics, NSAIDS, Antimicrobials

INTRODUCTION

The development of drug utilization (DU) research was initiated in Northern Europe and the United Kingdom in the mid-1960s [1, 2]. The pioneers of this research by Arthur Engel in Sweden and Pieter Siderius in Holland led WHO to organize its first meeting in Oslo in 1969 and resulted in the constitution of the WHO European Drug Utilization Research Group (DURG) [3]. Drug utilization research was defined by WHO in 1977 as “the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences”. Since then, a number of other terms have come into use. The aim of prescribing pattern studies is to facilitate the rational use of drugs for patients. A prescription by a doctor may be taken as a reflection of physicians’ attitude to the disease and the role of drug in its treatment. It also provides insights into the nature of health care delivery system [4]. DU studies should be able to reason out the requirement of the drugs prescribed by the physicians for the benefit of the patients and whether the medicines so prescribed were taken correctly with minimal risks. With availability of many new drugs for the treatment of various clinical disorders, rationality of drug use for optimal benefits and safety is sometimes compromised knowingly or unknowingly. Therefore to improve rational drug use, especially in developing countries, World Health Organization (WHO) and International Network for Rational Use of Drugs (INRUD) have evolved standard drug use indicators to analyze the prescriptions prescribed by health providers.⁵ Thus the aim of this study was to study the disease pattern and prescribing practices in department of orthopedics of a medical college hospital in Bengaluru.

MATERIALS AND METHODS

The study was a hospital based prospective observational study. After obtaining approval from

the Institutional Ethics Committee, the study was carried out in the Department of Orthopedics at Dr B R Ambedkar Medical College, Bengaluru from February 2017–April 2017. The patients attending the OPD and IPD of orthopedics were included in the study. Information regarding diagnosis, and the various classes of drugs and drugs prescribed with their dose, route and dosage form, frequency and duration were noted in a pre-designed proforma from the prescriptions. The pre-designed forms were checked for completeness of data and descriptive statistics was used for analysis.

RESULTS

Total number of prescriptions analyzed in our study was 703 and the total number of drugs in those prescriptions was 2288. The number of drugs per prescription varied from 1 to 5 with an average number of drugs per prescription being 3.25.

The diagnosis of the cases was tabulated, with the most common being fracture (38%) followed by lumbago (30%), osteoarthritis (19%), dislocation (6%), bursitis (3%), and synovitis and neuropathies with 1% each. (Table-1)

Among the different class of drugs, NSAIDS (49%) were the most commonly prescribed drugs followed by antiulcerants (16%), antimicrobials (13%), opioid analgesics (12%), nutraceuticals like calcium and vitamin D3 supplements (4.8%), skeletal muscle relaxants (3.3%), followed by anti inflammatory enzymes and drugs for neuropathy at 1% each. (Figure 1)

Majority of drugs were prescribed by brand names at 92% (2105/2288) and prescriptions having Fixed Dose Combination (FDC) were 35% (801/2288). A total of 1578/2288 (69%) of drugs were from the National List of Essential Medicines (NLEM) India with approximately 20% (117/2288) of the formulations being injections.

Table 1: Diagnosis of cases

Sl.No.	Diagnosis	Numbers	%
1	Fractures	267	38
2	Lumbago	211	30
3	Osteoarthritis	133	19
4	Joint Dislocation	42	6
5	Bursitis	22	3
6	Synovitis	14	2
7	Neuropathies	14	2
	Total	703	100

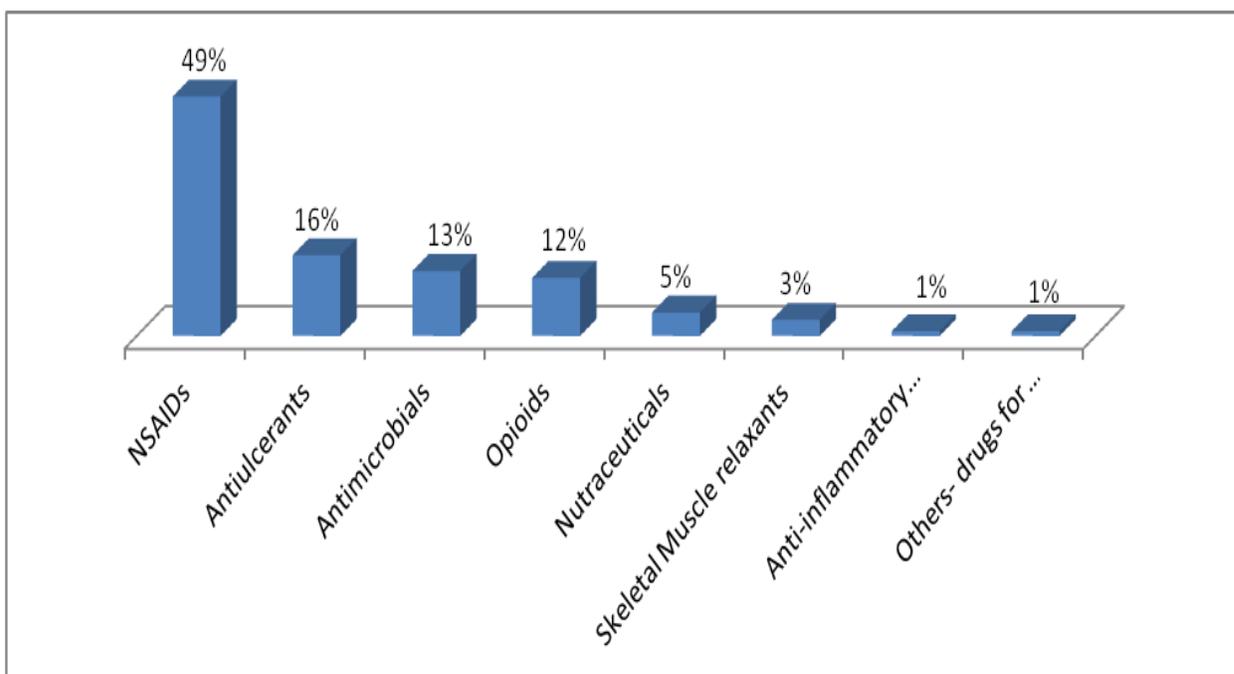


Figure 1: Class of Drugs

DISCUSSION

The average number of drugs per prescription is an important prescribing indicator as per WHO in the analysis of any prescription [5]. In our study the average number of drugs per prescription was 3.25. The mean number of drugs prescribed was higher than that reported in previous studies, by Shankar et al., (1.9), and Banerjee et al., (2.57) [6,7]. It is preferable to keep the number of drugs per prescription as low as possible since higher number of drugs could lead to increased risk of drug interactions, adverse effects, increased cost to the patient and also reduced compliance.

In the current study, the most common diagnosis among the patients was fractures followed by lumbago, osteoarthritis, joint dislocation and bursitis. This finding is akin to the findings in the study by Shaikh Ubedulla et al., where fracture, lumbar spondylosis topped the list of diagnosis in department of orthopaedics [8].

In the present study, NSAIDs were the most routinely prescribed drugs 1113 (49%) and this class is commonly prescribed in orthopedics as they are widely used in the management of pain and inflammation. Most of the NSAIDs were in fixed dose combination (FDC) (94%). This class of drugs was mostly co-prescribed with antacids and antiulcerants as gastro protective agents. This was closely followed by prescriptions of antimicrobials

(13%) mostly in the in-patients either preoperatively or post operatively. This finding were similar to the study done by Sushma Muraraiah et al., in Bangalore [9]. According to WHO, antimicrobial prescriptions is high in countries where infectious disease is prevalent.³ The use of opioid analgesics was 12% and the commonest opioid prescribed was the FDC of tramadol with paracetamol. This is rational as this combination is shown to have synergistic action and established safety in orthopedic practice.

A generic drug (generics) is defined as "a drug product that is comparable to brand/reference listed drug product in dosage form, strength, route of administration, quality and performance characteristics, and intended use" [10]. In our study, among 2288 drugs, only 183 (8%) of them were prescribed by generic names. Other studies also confirm low percentage of generic prescription such as Nagla et al., Indore and Shankar et al., Nepal in which it was 2% and 19.3% respectively [11, 6]. This is unlike the study by Srividya et al., in Mandya who reported a high percentage (62%) of generic prescription [12]. The lesser generic drug prescriptions could be attributed to doubts regarding its efficacy among clinicians, availability of fewer generic FDCs and also scarcity of generic drugs in hospital formularies. The culture of prescribing by brand name could be because of ease and convenience as these are frequently stressed upon by medical representatives of branded pharmaceutical companies insisting on use of branded drugs. As per WHO guideline, generic prescriptions is mandatory as generics are a cheaper option to the patients and should be promoted as it would help in curbing the cost of the treatment and on a larger scale prevent drug shortages [13].

It is always preferred to have complete prescription which includes name, age, sex, and diagnosis with rational drug treatment using less number of drugs, proper dosage form, and frequency of administration with duration of therapy. Our hospital based prescriptions were almost complete in 77% cases. Prescription of drugs from the hospital formulary can reduce the economic burden to the

patients. There is a need to conduct many such studies in other departments as well to audit large number of prescriptions and educate the prescribers on rational drug therapy for benefits and safety to the patient.

The limitation of the present study was that it was conducted for a short period of time and the findings of this cannot be generalized to the prescribing trends in other parts of our country.

CONCLUSION

The study analyzed the prescription trends in Dr. B R Ambedkar Medical College, Bengaluru in the Department of Orthopedics. These types of studies will help to set guidelines for policy making decisions in the health care system and more importantly to set up a hospital formulary for the use of the patients. There is a considerable scope for improvement in the prescribing practices by our clinicians. This can be addressed by regular CMEs and sensitization programmes by health care policy makers to practitioners to increase prescriptions by generic names, and from the hospital formulary which could lead to lesser financial burden to patients, and indirectly improve compliance. The number of medicines per prescription should also be kept to the minimum and polypharmacy and irrational combination of drugs has to be discouraged to minimize adverse drug reactions, drug interactions and prescription errors. The prescriptions have to be complete in mentioning the demographics of the patients along with the name of the drugs preferably in generic by using capitals, with their dose, frequency and route of administration.

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