IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 18, Issue 5 Ser. 10 (May. 2019), PP 22-27
www.iosrjournals.org

Prescribing Trends in Outpatient Department of Orthopaedics in a Tertiary Care Teaching Hospital, SIMS, Hapur, Uttarpradesh.

Dey Saborni [1] *, Gogia Kuldeep[2] **, Shukla A K ***

**Assistant Professor of Pharmacology Department, Saraswathi Institute of Medical Sciences, Hapur, UP, India.*
***Associate Professor of Orthopaedic Department, Saraswathi Institute of Medical Sciences, Hapur, UP, India.*
****Professor & Head of Pharmacology Department, Saraswathi Institute of Medical Sciences, Hapur, UP, India.*
*Corresponding Author: Dr. Saborni Dey**
Assistant Professor, Deptt. of Pharmacology

Abstract:
Objective:
The drug utilization research is a significant constituent of medical audit which helps in monitoring, evaluating and building required modifications in the prescribing practices to attain a rational and cost effective medical care. The objective of this study was to evaluate drug utilization design of Nonsteroidal anti-inflammatory drugs (NSAIDs) in a tertiary care teaching hospital, SIMS, Hapur.
Material And Methods;
This prospective, observational study was conducted in the outpatients of the Orthopaedic department during six months period to evaluate the prescribing pattern of analgesics in a tertiary care teaching hospital. After getting approval by Institutional Ethical committee, random prescriptions were collected from the OPD and scanned for the record purpose. The demographic data and the prescription was taken from 340 prescriptions. Data was analyzed as per WHO prescribing indicators.
Results:
A total 340 prescriptions were analyzed. The result revealed that NSAIDs as Diclofenac (75.21%) and Paracetamol (14.88%) were the most commonly prescribed analgesics. Average number of drugs in the present study was found to be 2.29. Percentage of drugs prescribed generic name was (21.02%). Percentage of encounters with an antibiotic was 12.95%, The use of injectable preparation was around 7.20%. Out of all the medicines, 85.90% were found written from Essential Drug List.
Conclusion:
The prescribing trend of NSAIDs indicate some deviation from the WHO recommendations. This touchstone data will be useful to plan more targeted research and to improve prescribing practices. These types of studies help to design policy for rational use of drugs and perioding training programs of physicians, establishing drug and therapeutic committee, drug information centres and regular educational interventions that can be beneficial in imoproving prescribing practice with rational drug usage.

Keywords: *Prescribing Trend, Analgesics, Pain, Observational Study.*

Date of Submission: 07-05-2019 Date of acceptance: 23-05-2019

I. Introduction

Pain is an unpleasant sensory and emotional experience associated with actual and potential tissue damage or described in terms of such damage.[1],[2]

Nonsteroidal anti-inflammatory drugs (NSAIDs) are universally used to treat inflammatory, painful conditions by inhibiting Cyclo-oxygenase (COX-1 or non-selective or COX-2 selective) enzyme.

NSAIDs are well accepted Over the counter drugs used for acute, chronic non traumatic musculoskeletal condition such as arthritis, backache, myalgia as well as in traumatic injury, fracture, wound, post operative pain etc. [3]

Periodic evaluation of drug utilization template is advantageous to validate more suitable modifications in the prescription of drugs to increase the therapeutic benefit and decrease the adverse effects.

Prescription pattern of NSAID has transformed in quick succession over a period of time as these are the most widely prescribed class of medications worldwide. [3]

Drug utilization study define the intensity and characterization of recent drug usage trends, optimal quality of drugs and compliance with regional or national guidelines like generic drugs, essential drug formulations.

It was observed in the majority of such studies that physicians do not adhere to the guidelines made by regulatory agencies; leading to irrational use of medicines, treatment failure, drug resistance, adverse effects and economic burden with poor patient compliance.

Prescription monitoring studies ensure a bridge between rational drug usage, evidence based medicine, pharmacoeconomics, pharmacovigilance, pharmacogenetics and ecopharmacovigilance.

The optimum purpose of drug utilization studies are useful to assign the appropriate quality of drug therapy by identifying, documenting and analyzing problems in drug usage and monitoring the consequences of interventions.

Prescriptions are a good source of information for determining some of the indicators of drug use recommended by WHO including the:

- Average number of drugs per prescription;
- Percentage of drugs prescribed by generic name;
- Percentage of encounters resulting in prescription of an antibiotic;
- Percentage of encounters resulting in prescription of an injection;
- Percentage of drugs prescribed from essential drugs list or formulary, and
- Average drug cost per encounter. [4]

There were limited data on drug utilization studies in patients attending Orthopaedic department. These knowledge's are useful to evaluate the present state and future trends of drug usage, to estimate crudely disease prevalence, drug expenditures, appropriateness of prescriptions and adherence to evidence-based recommendations. So, the objective of this study was to analyze drug utilization pattern in a tertiary care teaching hospital.

II. Material And Methods

An prospective, observational study design was undertaken in the patients attending the Orthopaedic Outpatient Department in association with Pharmacology Department of a tertiary care teaching hospital, SIMS, Hapur, Uttarpradesh. The study period was of six months duration from September 2018 to February 2019 and the study protocol was reviewed and approved by Institutional Ethical committee. During the study, random prescriptions were collected from the OPD and scanned for the record purpose.

The data were archival in nature and scrutinized thoroughly as per WHO prescribing indicators that include accurate prescribing pattern, patient care and facility specific indicators by using defined methodology of WHO. [5] The prescription of the patients treated with analgesics as NSAIDs with some co-prescribed drugs were assembled for the study. In addition, all types of fixed drug combinations were excluded.

After getting written informed consent informations obtained regarding demographic characteristic of the patients, diagnosis of disease, drug name, dose, dosage form, strength, frequency of drug administration, drug route, duration of treatment, drug dispense quantity and patient drug knowledge. On the basis of inclusion and exclusion criteria, 340 patients were selected from the OPD and among the 340 patients 212 were male and 128 were female patient.

Core drug prescribing indicators include, average number of drugs per prescription, percentage of total generic drugs prescribed, percentage encounter who received at least one antibiotics, percentage encounter who received at least one injection and percentage of drug recommended from Essential Drug List (EDL);

In Core health facility or Complementary indicators, availability of key drugs, availability of copy of National Essential drug list, average consultation & dispensing time, percentage of drugs adequately dispensed & labeled, patient's knowledge of correct dosage could not be evaluated & determined accurately at the pharmacy.

At the end of data collection, all data were tabulated in summary sheets and were transcribed into a Microsoft Excel sheet database and subsequently statistically analyzed by using tools of descriptive statistics. No follow up of prescriptions done.

III. Results

Prescription from newly registered patients were included in the study. Total number of drugs prescribed in 340 prescription was 780. Prescription of all 340 patients were analyzed, of whom 212 (62.35%) were males while 128 (37.65%) were females.

Average number of drugs per prescription was 2.29 & had shown the preference towards poly-pharmacy.

Three types of formulations that were prescribed to the patients - oral, parenteral, topical. The number of oral, parenteral and topical prescriptions in the study population was 714 (91.53%), 56 (07.20%), and 10 (1.30%) respectively.

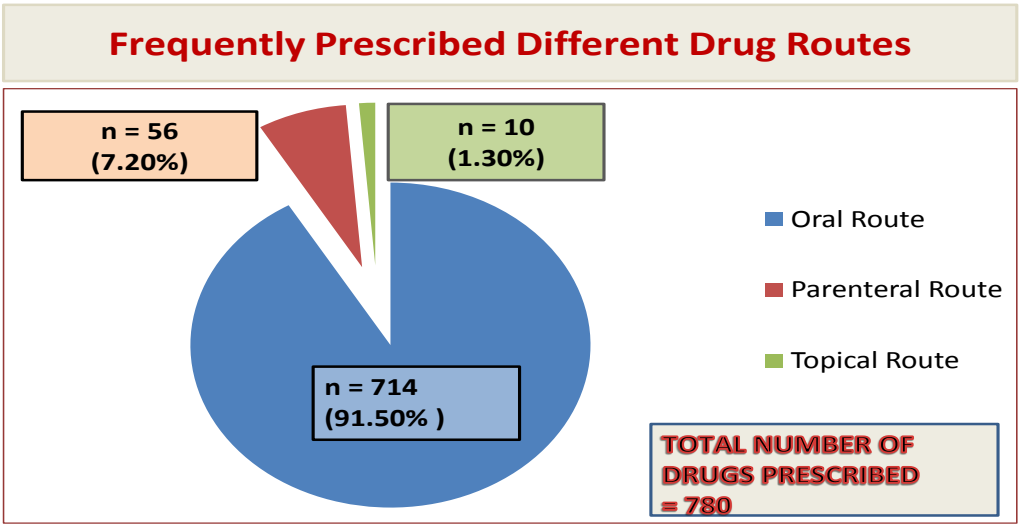


Fig-1 : Various types of formulations prescribed in Orthopaedic Out-patient department in a Tertiary Care hospital, SIMS.

Percentage of encounters with an injection prescribed was 56 (7.20 %) that is lesser than WHO ideal 10% injectable usage. So, it indicates rational use of injections but still should be needed proper guidance to minimize parenteral formulations. Dose frequency and duration of treatment was mentioned in 100% prescriptions. No diagnosis or provisional diagnosis was made in 18 prescriptions and investigations were advised for accurate detection of disease.

Out of all the medicines, 670 (85.90%) were found written from Essential Drug List; that help to monitor whether National drug policy is being used or not according to National Essential Drug List.

In the prescribing indicators the percentage of drugs prescribed by generic name was 164 (21.02%).

PRESCRIBING INDICATORS

INDICATORS	RESULT
Average number of drugs per prescription	2.29
Percentage of drugs prescribed from Essential drug list	85.90%
Percentage of drugs prescribed by Generic name	21.02%
Percentage of drugs prescribed as NSAIDs	31.03%
Percentage of encounter with an Injection prescribed	7.20%
Percentage of Anti-Ulcerant drugs prescribed	25%
Percentage of most frequently prescribed NSAID	75.21% (Diclofenac Sodium)
Percentage of encounter with an Antibiotic prescribed	12.95%

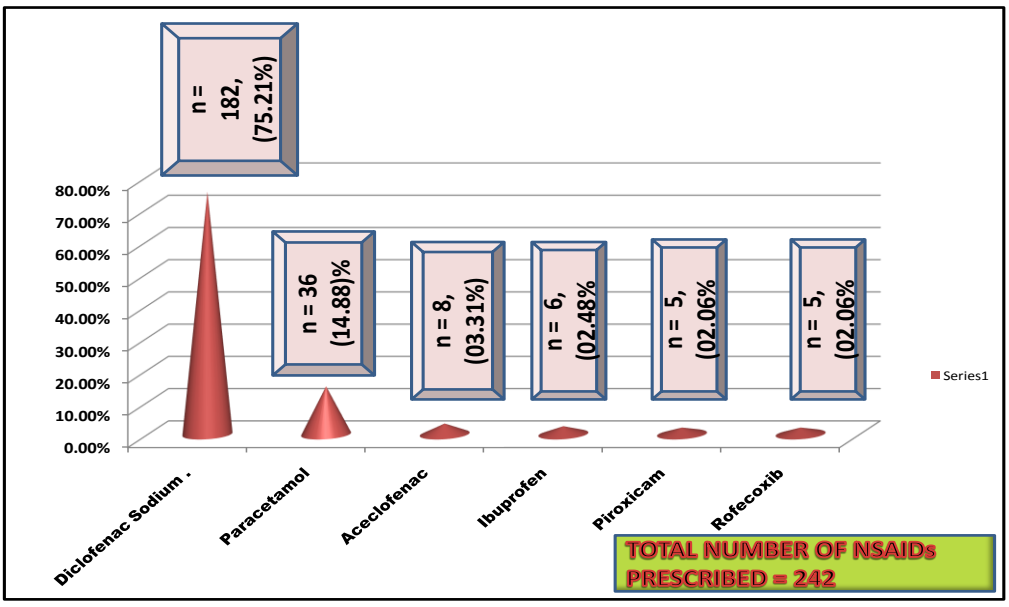
Table No 1 : Standard Prescribing Trends followed in SIMS

The types of medicines prescribed included nonsteroidal anti-inflamatory drugs (NSAIDs) 242 (31.03%), antacid or antiulcerants 195 (25%), antimicrobial agents 101 (12.95%), calcium and vitamin D tablets 117 (15%), corticosteroids 31 (3.97%) and other 94 (12.05%). Among the other drugs polyvitamin, multimineral,ferrous sulfate, folic acid were advised.

TYPES OF MEDICINES	NUMBER OF DRUGS PRESCRIBED
• NSAIDs	31.03%
• Antacid /Anti-Ulcerants	25%
• Anti-Microbial agents	12.95%
• Calcium and Vit-D tablets	15%
• Corticosteroids	3.97%
• Others	12.05%
	Total number of drugs prescribed = 780 (100%)

Table No 2 : Types of Medicines prescribed in Orthopaedic Out-patient department in a Tertiary Care hospital, SIMS.

The most frequently prescribed NSAIDs were Diclofenac sodium 182 (75.21%), Paracetamol 36 (14.88%), Aceclofenac 8 (3.31%), Ibuprofen 6 (2.48%), Piroxicam 5 (2.06%), Rofecoxib 5 (2.06%).



Various types of Analgesics or NSAIDs prescribed in Orthopaedic Out-patient department , SIMS.

IV. Discussion

A prescription based analysis is regarded as one of the most effective methods to assess and evaluate the prescribing attitude of the physicians. In this study, the average number of drugs per prescription was found to be 2.29, which is slightly more than the WHO recommendations. It has been endorsed that the limit of number of drugs written per prescription should be two as poly-pharmacy increase cost of medicines, drug-drug interactions, adverse drug reactions & poor patient compliance. A hospital based study in India had reported a mean of two [6]

The mean number of drugs was more than two in some other studies [7],[8],[9] Where the number was lesser than two in another study. [10],[11]

The most common clinical indications for using NSAIDs were various joint pains, musculoskeletal pain, backache, arthritis, traumatic injury & infective conditions etc. In this study, NSAIDs were the most frequently prescribed medicine (31.03%). A study in a teaching hospital in Western Nepal was comparable with our recent data. [11]

Mostly the drugs were administered in the tablet or capsule form (91.53%) followed by injectables (7.20%) and with least use of gel/creams/ointments (1.30%).

The use of injectable preparation was more (7.20%) as compared to a study from New Delhi (4.4%). [12]

During the study, the percentage of drugs prescribed from Essential Drug List were (85.90%) and it was not identical with the WHO Standard (100%) which serve as an ideal. In some other studies performed by B.K. Mohanty (57.70%) and NY Mirza (77.61%) the results were lower than our outcomes. [13],[14]

The Percentage of drugs prescribed from Essential Drug List (85.90%), almost matches the mean from 8 different Studies of (71.70%). [15]

Drugs prescribed by Generic name was (21.02%) that is not identical with WHO Standard of (100%). [16]

The results of several other studies were [30.70%] more than our studies while some shows less use of Generic drugs (5.41%) & (5.75%) respectively. [17],[18],[13]

This study Spotlight the repeated use of NSAIDs (31.03%) in Orthopedic out patients as pain is a common symptoms over there. The most commonly encountered NSAID was Diclofenac Sodium (75.21%) and Paracetamol (14.88%), while other NSAIDs as Aceclofenac (03.31%), Ibuprofen (02.48%), Piroxicam (02.06%) & Rofecoxib (02.06%) were least prescribed drugs. This prescription pattern was much similiar with some other studies. [7], [19],[11]

Most of the conditions in Orthopedic patients are degenerative in nature and also having a disease progressive course. So, patients have to prescribe synergistic adjuvant drugs such as Calcium & Vit-D tablets

(15%), Anti-Ulcerants (25%), Corticosteroids (3.97%) and other medications as Folic acid, Ferrous sulphate, Multivitamins and minerals, Rubefacients (12.05%) to refine overall health benefits.

Even though GI toxicity is major limitation of traditional NSAIDs, there were no significant toxicity occurred during the study. Diclofenac, Paracetamol are relatively safe in short term use (<10 days). So, Anti-ulcerant was prescribed only with (25%) patients. Another study from tertiary care hospital in Maharashtra by Madhuri Kulkarni showed resemble with our Data (23.8%). This indicates that these drugs should be used in selective patients with NSAIDs and with other associated risk factors. [20]

Along with NSAIDS different other classes of drugs were also prescribed like antimicrobial agents (12.95%). In several other studies it was seen that percentage of encounters with antibiotic was 78.15% [17] and 60% [21] respectively. This study reveals that we are using antimicrobials with precaution to prevent antibiotic resistance. WHO also has been trying to control the emergence of resistance to antibiotics and also spread the message for rational use of antibiotics.

V. Conclusion

The prescribing course of NSAIDs point out some divergence from the WHO standard. The study showed some irrational practice mainly with non-generic drug use and more inclination towards injectables but the percentage of analgesics prescribed from essential medicine list, use of less antimicrobial agents, antiulcerants and other drugs were found to be satisfactory.

The average number of drugs per prescription was slightly more. So, the study highlights the need to minimize the average number of drugs per encounter and also to select cost effective drugs judiciously.

NSAIDs were mostly co-prescribed with anti-ulcerant, poly-vitamin and mineral preparation to promote overall health benefit.

Since, rational prescribing is largely influenced by knowledge and attitude, importance of it has to be emphasized at the earliest and medical education should focus more on good prescribing practices and rational use of drugs. Again, the touch stone data will be useful to plan further refined paradigm research and also to enhance rational prescribing.

Legislation of polices on rational prescribing practices by the government and institutions may help the doctors to improve their motivation which influence to bring the attitude to the practice of it.

Thus, we conclude revision of clinical policy is essential with better interventions to improve drug use and quality control at all possible levels for long term and better clinical outcome in the medical practice.

Reference

[1]. Monfared H, Sferra JJ, Mekhail N. The medical management of chronic pain. Foot Ankle Clin 2004; 9: 373-403.

[2]. Tabish A, Jha RK, Rathod AM, Rathod RM, Gupta KK. Prescribing trends of analgesics in a tertiary health care setup of rural Vidarbha. Res J Pharm Biol Chem Sci 2012;3: 566-71.

[3]. Kumar A, Dalai CK, Ghosh AK, Ray M. Drug utilization study of co-administration of nonsteroidal anti inflammatory drugs and gastro-protective agents in an orthopedic outpatient department of a tertiary care hospital in West Bengal. Int J Basic Clin Pharmacol 2013;2: 199-202.

[4]. World Health Organization. Rational use of Medicines. Available from http://www.who.int/medicines/ areas/rational_use/en/index.html.

[5]. WHO.WHO/DAP/93.Geneva: WHO;93. How to Investigate Drug use in Health Facilities. Selected drug use indicators.[Google Scholar]

[6]. Hede SS, Diniz RS, Agshiker NV, Dhume VG. Pattern of prescribed and OTC drugs in North Goa. Indian J Pharmacol 1987; 19: 145-148.

[7]. 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.

[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]. Rishi RK, Sangeeta S, Surendra K, Tailang M. Prescription audit: experience in Garhwal (Uttaranchal), India. Trop Doct 2003; 33: 76-79.

[10]. Shankar PR, Partha P, Nagesh S. Prescribing patterns in medical out-patients. Int J Clin Pract 2002; 56: 549-551.

[11]. Shankar PR, Pai R, Dubey A.K., Upadhyay DK. Prescribing Patterns in the orthopaedics out patient department in a teaching hospital in Pokhara, western Nepal. Kathmandu University Medical Journal (2007), Vol 5, No. 1, Issue 17,16-21.

[12]. Biswas NR, Biswas RS, Pal PS, Jain Sk, Malhotra SP, Gupta A et al. Patterns of prescriptions and drug use in two tertiary hospital in Delhi. Indian J Physiology Pharmacology 2000; 44: 109-112.

[13]. Mohanty BK, Ashwini M, Hasamni's AA, Patil SS, Murti KSN, Jena SK. Prescription pattern of the department of a tertiary care hospital in Rajamundry, India. Journal of Clinical and Diagnostic Research 2010 Feb; (4) : 2047-51.

[14]. Mirza NY, Desai S, Ganguly B. Prescribing pattern in a Pediatric out-patient department in Gujarat. Bangladesh J Phar. 2009; 4: 39-42.

[15]. WHO medicines situation. Apps. Who. int/ medicinedocs/ pdf/ s6160e / s6160e.pdf.

[16]. Isah AO, Ross-Degnan D, Quick J, Laing R, Mabadeje AF. The Development of Standard Values for the WHO Drug use Prescribing Indicators. ICUM/EDM/WHO. Available from : http://www.archives.who.int/prduc2004/rducd/ICIUM Posters/1a2 txt.htm.

[17]. Ajapuje P, Dhengre P, Giri VC, Khakse GM. Drug Prescription Practices among Pediatric Patients in Yavatmal, Central India. International Journal of Recent Trends in Science and Technology, ISSN 2277-2812 E–ISSN 2249-8109. 2012;5(2): 104-6.

[18]. Simpson GB, Choudary GN. Comparative Analysis of Prescription Writing by Teaching and Non-Teaching Clinicians in and around Guntur. International Journal of Recent Trends in Sciences and Technology, ISSN 2277-2812. E-ISSN 2249- 8109. 2012;5(2):100-3.
[19]. Sharif SI, Al- Shaqra M, Hajjan H, Shamout A, Wess L. Pattern of drug Prescribing in a hospital in Dubai, United Arab Emirates. Lybian Jmed , AOP 2005; 070928:10-12.
[20]. Madhuri K, Patil A. Drug utilization study in the orthopedics outpatient department of a Tertiary care hospital in Maharashtra. Asian J of Pharmaceutical & Clinical Research; 2018 (Vol 11 (Issue-9) : 224-226.
[21]. Chandra S, Khan IN, Mateenudin M, Chandrakapure A, Maaz S, Mubin F. Drug utilization study of a tertiary care hospital in a rural area of Jalna, Maharashtra, India by using WHO prescribing indicators. Int J of Clin & Basic Pharmacol. 2018; 7(1): 55-58.

Source of Support: Nil, Conflict of Intrest: None Declared

Dr. Saborni Dey." Prescribing Trends in Outpatient Department of Orthopaedics in a Tertiary Care Teaching Hospital, SIMS, Hapur, Uttarpradesh." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 18, no. 5, 2019, pp 22-27.