



INTERNATIONAL JOURNAL
OF PHARMA AND BIO SCIENCES

Internationally Indexed Journal

Indexed in Chemical Abstract Services(USA),Index Copernicus ,Ulrichs Directory of Periodicals,Google scholar ,Cabi ,DOAJ ,PSOAR, EBSCO ,SCOPUS, EMBASE etc.



Rapid Publishing

The International Journal of Pharma and Bio Sciences (IJPBS) is an international journal published quarterly. The Aim of IJPBS is to publish peer reviewed research and review articles in less time without much delay in the developing field of Pharmaceutical and Biological sciences. One week from the date of manuscript submission author gets the decision of acceptance and if accepted the manuscript will be processed within 3 weeks (approx.) for publication.

Pharmaceutical Sciences

Branches

- Pharmaceutics
- Novel drug delivery sys
- Nanotechnology
- Pharmacology
- Pharmacognosy
- Analytical chemistry
- Pharmacy practice
- Pharmacogenomics
- Polymer sciences
- Biomaterial sciences
- Medicinal chemistry
- Natural chemistry
- Biotechnology
- Pharmacoinformatics
- Biopharmaceutics

Biological Sciences

Branches

- Biochemistry
- Biotechnology
- Bioinformatics
- Cell biology
- Microbiology
- Allied Sciences
- Molecular biology
- Neurobiology
- Cytology
- Pathology
- Immunobiology



Impact Factor 0.47*

**Refer Instruction to authors available at
www.ijpbs.net*



Indexed In Elsevier Bibliographic Database
(SCOPUS, EMBASE and Sciverse)

Journal Home page
www.ijpbs.net

FOR INSTRUCTION TO AUTHORS VISIT
www.ijpbs.net

FOR ANY QUERIES EMAIL TO

- editorofijpbs@yahoo.com
- editorijpbs@rediffmail.com
- prasmol@rediffmail.com



DRUG PRESCRIPTION PATTERN OF OUTPATIENTS IN A TERTIARY CARE TEACHING HOSPITAL IN MAHARASHTRA

BHAVESH K. LALAN*, R. S. HIRAY, B. B. GHONGANE

Department of Pharmacology, B. J. Medical College and Sassoon General Hospital, Pune, India.

ABSTRACT

A cross sectional descriptive study was conducted in Out Patient Department of Sassoon Hospital. Twelve hundred prescriptions were randomly collected over 10 days and recorded over a 'prescribing indicator form'. The data was analyzed using WHO 'prescribing indicators'. Average number of drugs per encounter was 3.62. Encounter with an antibiotic prescribed was 46.17%, with a FDC it was 46.67% and with an injection it was 0.17%. The most common group of drug prescribed was Vitamins and Minerals (24.44%), followed by Analgesics (17.76%), Antimicrobials (16.59%) and Antiulcer drugs (16.49%). Most common drug prescribed was Ranitidine (15.89%), followed by Vitamin B complex (11.03%) and Diclofenac (10.69%). Most common antibiotic prescribed was Ciprofloxacin (3.80%), followed by Amoxicillin (3.73%) and Metronidazole (2.30%). The prescribing practices in this study are not satisfactory. The study was undertaken to give feedback to the prescribers, so as to create awareness about the rational use of drugs.

KEYWORDS: Prescription pattern, Outpatients, Tertiary care teaching hospital, Maharashtra, WHO prescribing indicators, rational drug use



BHAVESH K. LALAN
Department of Pharmacology, B. J. Medical College and Sassoon General Hospital,
Pune, India.

*Corresponding author

INTRODUCTION

Medicines play an important role in health care delivery and disease prevention. The availability and affordability of good quality drugs along with their rational use is needed for effective health care. However, irrational drug use is prevalent, especially in the developing countries due to irrational prescribing, dispensing, and administration of medications¹. Also, the World Health Organization (WHO) reports that more than half of all medicines are prescribed, dispensed or sold inappropriately and that half of all patients fail to take them correctly².

Drug utilization study, as defined by the WHO, is a structured process which is used to assess the quality of drug therapy by engaging in the evaluation of data on drug prescribing, dispensing and patient use in a given health care environment, against predetermined, agreed upon criteria and standards, with special emphasis on the resulting medical, social, and economic consequences³.

Drug utilization studies seek to monitor, evaluate and suggest modifications in the prescribing practices with the aim of making the medical care rational and cost effective³. A study of prescription patterns is an important tool to determine rational drug therapy and maximize utilization of resources. To improve the overall drug use, especially in developing countries, international agencies like the World Health Organization (WHO) and the International Network for the rational use of drugs (INRUD) have applied themselves to evolve standard drug use indicators⁴. These indicators help us to improve our performance from time to time⁵.

The present study was undertaken with an aim to develop baseline data on drug prescribing pattern and evaluate the rationality of the prevalent prescribing practices using WHO prescribing indicators⁶ for adoption in drug utilization studies.

MATERIALS AND METHODS

Institutional Ethics Committee approval was obtained. A cross sectional descriptive study was conducted in Out Patient Department of a tertiary care teaching hospital. Twelve hundred prescriptions (average daily OPD attendance) were randomly collected over a period of 10 days and were recorded over a WHO Prescribing Indicator Form. The data was then analyzed to find out the prescribing pattern in the hospital using the WHO prescribing indicators⁶.

WHO Prescribing Indicators⁶

1. Average number of drugs per encounter: Average, calculated by dividing the total number of different drug products prescribed, by the number of encounters surveyed. It is not relevant whether the patient actually received the drugs.
2. Percentage of drugs prescribed by generic name: Percentage, calculated by dividing the number of drugs prescribed by generic name, by the total number of drugs prescribed, multiplied by 100.
3. Percentage of encounters with an antibiotic prescribed: Percentage, calculated by dividing the number of patient encounters during which an antibiotic is prescribed, by the total number of encounters surveyed, multiplied by 100.
4. Percentage of encounters with an injection prescribed: Percentage, calculated by dividing the number of patient encounters during which an injection is prescribed, by the total number of encounters surveyed, multiplied by 100.
5. Percentage of drugs prescribed from essential drugs list or formulary: Percentage, calculated by dividing the number of products prescribed which are listed on the essential drugs list or local formulary (or which are equivalent to drugs on the list),

by the total number of products prescribed, multiplied by 100.

prescribed from essential drugs list (India) was 81.6%. Drugs prescribed from essential drugs list (WHO) was 48.26%. Total number of prescriptions with an antibiotic was 46.17%. Total number of prescriptions with an injection was 0.17%. Total number of prescriptions with a FDC was 46.67%. 56.75% prescriptions contained 4 or more drugs.

RESULTS

A total of 1200 prescriptions were randomly collected and analyzed. A total of 4341 drugs were prescribed [Table 1]. Average number of drugs per encounter was 3.62. Drugs

Table 1
Prescribing Indicators

Prescribing Indicators	No. (%)
Total number of prescriptions analyzed	1200
Total number of drugs prescribed	4341
Average number of drugs per encounter*	3.62
Drugs prescribed by generic name*	4341(100)
Drugs prescribed from essential drugs list (India)*	3542(81.6)
Drugs prescribed from essential drugs list (WHO)*	2095(48.26)
Total number of prescriptions with an antibiotic*	554(46.17)
Total number of prescriptions with an injection*	2(0.17)
Total number of prescriptions with a FDC	560(46.67)

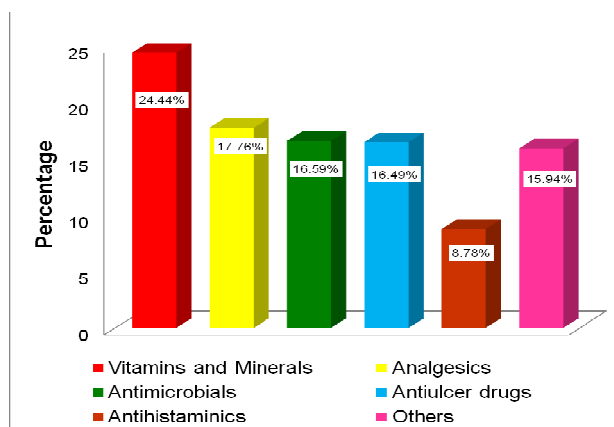
*WHO prescribing indicators

The most common group of drug prescribed was Vitamins and Minerals (24.44%), followed by Analgesics (17.76%), Antimicrobials (16.59%) and Antiulcer drugs (16.49%) [Graph 1].

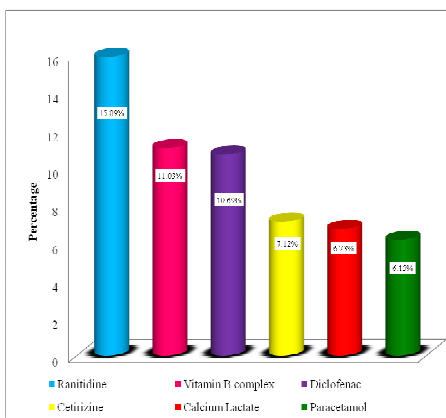
The most common drug prescribed was Ranitidine (15.89%), followed by Vitamin B complex (11.03%) and Diclofenac (10.69%) [Graph 2].

The most common antibiotic prescribed was Ciprofloxacin (3.80%), followed by Amoxicillin (3.73%) and Metronidazole (2.30%) [Graph 3].

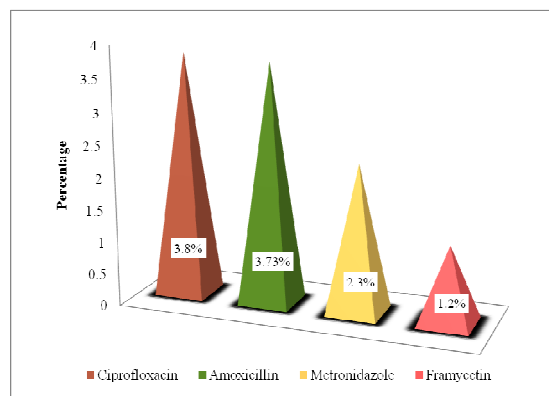
Graph 1
Most common groups of drugs prescribed



Graph 2
Most common drugs prescribed



Graph 3
Most common antibiotics prescribed



DISCUSSION

The average number of drugs prescribed per encounter was 3.62. It was more than that reported in most of the studies in government setups across Indian cities, the closest being Allahabad⁷, Nagpur⁸ and Delhi⁴ (3.52, 3.40, 3.03 respectively). International studies report values ranging from 1.3 in Zimbabwe⁹ to 4.51 in Pakistan¹⁰.

A staggering 56.75% of prescriptions had 4 or more drugs suggesting a trend of polypharmacy. This may be due to treatment based on symptoms rather than the diagnosis. Such irrational polypharmacy leads to reduction in quality of drug therapy, wastage of resources, emergence of resistance, increased cost of therapy and increased adverse reactions.

The most common drug prescribed was Ranitidine (15.89%), followed by Vitamin B complex (11.03%) and Diclofenac (10.69%). This shows that there is a tendency to prescribe the antiulcer, vitamins & analgesics commonly.

The percentage of prescriptions with antibiotics was 46.17%. According to WHO 15- 25% of prescriptions with antibiotics is expected in most of the developing countries where infectious diseases are more prevalent⁶.

This figure is very high in some of the developing countries like Pakistan (78%)¹⁰, eastern Nepal (79.9%)¹¹. Various studies from India also report a high rate ranging from 40-80%¹².

The most common antibiotic prescribed was Ciprofloxacin (3.80%), followed by Amoxicillin (3.73%) and Metronidazole (2.30%). This may be due to overestimation of severity of illness, pressure due to demand of rapid symptomatic relief by patients, and tendency towards empirical therapy rather than personalized therapy.

The prescribers need to be extra cautious before prescribing any antibiotic to avoid unnecessary burden on patient and development of resistance.

The percentage of drugs prescribed from the essential drugs list of India was 81.6%. Although good this was low as compared to that reported by Sutharson L *et al*, where it was 94.48%¹³. Also the percentage of drugs prescribed from the essential drugs list of WHO was only 48.26%. This may be due to lack of awareness of Essential Drug List.

CONCLUSION

The prescribing practices in this study are not satisfactory, as suggested by polypharmacy,

over prescription of antibiotics and lack of awareness of essential drugs list. The efforts of the prescriber can be successful and patient satisfaction can be achieved only if the patient receives rational treatment for his disease or illness. This study will act as a feedback to the prescribers, so as to create awareness about the rational use of drugs.

The hospital formularies should be formed based on local requirement, mainly of essential drugs and prescribers should be encouraged to prescribe from the same. This will help to curtail unnecessary expenditure on costly drugs. Medical community should prescribe with social perspective in mind and should stay away from practices which will be detrimental to the society at large.

REFERENCES

- 1) Ehijie F.O. Enato and Ifeanyi E. Chima, Evaluation of drug utilization patterns and patient care practices. West African Journal of Pharmacy, 22 (1): 36 – 41, (2011).
- 2) World Health Organization medicine strategy, 2008-2013. WHO, Geneva, 2008.
- 3) Abdulgafar O.Jimoh, Emmanuel U. Etuk, Zuwaira Sani, Hudu A. Shuaibu, The Pattern of Antibiotic Use in a Family Medicine Department of a Tertiary Hospital in Sokoto, North Western Nigeria. Journal of Clinical and Diagnostic Research, 5 (3): 566-569, (2011).
- 4) Biswas NR, Jindal S, Siddiquei MM *et al*, Patterns of prescription and drug use in ophthalmology in a tertiary hospital in Delhi. Br J Clin Pharmacol, 51: 267-269, (2001).
- 5) Yasmeen Maniyar, Prabhu Bhixavatimath, Vidyashree Akkone, A Drug Utilization Study In The Ophthalmology Department Of a Medical College, Karnataka, India. Journal of Clinical and Diagnostic Research, 5 (1): 82-84, (2011).
- 6) World Health Organization. How to investigate drug use in health facilities. Selected drug use indicators. WHO/DAP/93.1. WHO, Geneva, 1993.
- 7) K.U. Ansari, S. Singh, R.C. Pandey, Evaluation of prescribing pattern of doctors for rational drug therapy. Indian Journal of Pharmacology, 30: 43-46, (1998).
- 8) Thawani VR, Motghare VM, Purwar MB, Pagare A, Drug utilization in indoor ANC patients of Govt. College Hospital, Nagpur. Journal of Academy of Hospital Administration, 9: 49-51, (1997).
- 9) Hogerzeil HV, Bimo, Ross-Degnan D, Laing RO *et al*, Field tests for rational drug use in twelve developing countries. Lancet, 342: 1408-1410, (1993).
- 10) Das N, Khan AN, Badini ZA, Baloch H, Prescribing practices of consultants at Karachi, Pakistan. J Pak Med Assoc, 51: 74-77, (2001).
- 11) Rauniar GP, Shahanas MS, Dos BP, Naga Rani MA, A prospective study of dental pattern and drug utilization at the dental department of a tertiary care teaching hospital in eastern Nepal. Journal of Nepal Medical Association, 40: 6-11, (2001).
- 12) Kumari Indira KS, SJ Chandy, L Jeyaseelan, Rashmi Kumar, Saradha Suresh, Antimicrobial prescription patterns for common acute infections in some rural & urban health facilities of India. Indian J Med Resm, 128: 165-171, (2008).
- 13) Sutharson L, Hariharan HC, Vamsadhara C, Drug utilization in diabetology outpatient setting of a tertiary hospital. Indian Journal of Pharmacology, 35: 237-240, (2003).