

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/289543125>

Prescription pattern in the Department of Medicine of a Tertiary Care Hospital in South India

Article in *Journal of Clinical and Diagnostic Research* · February 2010

CITATIONS

23

READS

91

6 authors, including:



Basanta Kumar Mohanty
University of Kuala Lumpur

17 PUBLICATIONS **66 CITATIONS**

[SEE PROFILE](#)



Ameya Hasamnis
Taylor's University

21 PUBLICATIONS **100 CITATIONS**

[SEE PROFILE](#)



Sapna Patil
Taylor's University

11 PUBLICATIONS **87 CITATIONS**

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Drug utilization in populations [View project](#)



Drought (2009): A public health challenge in India [View project](#)

JOURNAL OF CLINICAL AND DIAGNOSTIC RESEARCH

How to cite this article:

MOHANTY BK, ASWINI M, HASAMNIS AA, PATIL SS, MURTY KSN, JENA SK. PRESCRIPTION PATTERN IN THE DEPARTMENT OF MEDICINE IN A TERTIARY CARE HOSPITAL IN SOUTH INDIA. Journal of Clinical and Diagnostic Research [serial online] 2010 February [cited: 2010 February 1]; 3:2047-2051.

Available from

http://www.jcdr.net/back_issues.asp?issn=0973-709x&year=2010 &month=February &volume=4&issue=1&page=2047-2051 &id=546

ORIGINAL ARTICLE

Prescription Pattern in the Department Of Medicine of a Tertiary Care Hospital in South India

MOHANTY BK*, ASWINI M**, HASAMNIS AA***, PATIL SS****, MURTY KSN*****, JENA SK*****

ABSTRACT

The study was carried out to find the prescribing behaviour in the medicine out-patient department of a tertiary care hospital in Rajahmundry, India. Prescriptions of 608 patients were collected over a period of 1 month. The analysis indicated that 57.7 % of drugs prescribed had no mention in the National and State Essential Drug List. Moreover the use of antibiotics (57.24%) and fixed dose combinations of various drugs (32.57%) was comparatively more as compared to earlier studies done in India. Irrational prescribing of drugs is a major health concern in developing countries like India. High power salesmanship also plays a key role in the prescribing behaviour of doctors. There is always scope for improving the prescribing habits of clinicians.

Key Words: Prescription pattern, Essential Drug List, Fixed Dose Combinations, Generic names.

* (MD), Associate Professor, Pharmacology Unit, AIMST University, (Malaysia)

** Undergraduate Medical student, GSL Medical College, Rajahmundry, (India)

*** (MD), Lecturer, Pharmacology Unit, AIMST University, (Malaysia)

**** (MD), Lecturer, Community Medicine Unit, AIMST University, (Malaysia)

***** (MD), Professor and HOD, Department of Pharmacology, GSL Medical College, Rajahmundry, (India)

*****(MD), Assistant Professor, Department of Community Medicine, GSL Medical College, Rajahmundry, (India)

Corresponding Author:

Hasamnis AA

Faculty of Medicine, AIMST University, Semeling, Sungai Petani, Kedah, Malaysia, 08100.

E-mail: ameyadoc@rediffmail.com

Phone No.: +60175044972,

Fax No: +6044298000

morbidity and mortality. The impact of irrational prescription of drugs also leads to an increase in the incidence of adverse drug events and the emergence of drug resistance. The rational use of drugs requires the patients to receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time and at the lowest cost. Rational prescribing forms the corner stone of successful implementation of the rational use of drugs [1],[2].

It has been observed in many countries that the main thrust of prescribing drugs has shifted from the list of essential drugs, procurement systems, and quality of drugs to the big problem of irrational prescribing. Prescribing drugs is an essential skill, which is required to be continuously assessed and refined accordingly. It not only reflects the physician's knowledge of pharmacology and pathophysiology but also his/her skill in diagnosis and attitude towards selecting the most appropriate treatment. The rational prescribing skills of clinicians can be assessed by conducting periodic

Introduction

Medically inappropriate, ineffective and non-economical use of pharmaceutical products is commonly observed in the health care system throughout the world and especially so in developing countries. Inappropriate prescription increases the cost of medical treatment and increases

prescription audits. In a teaching hospital as the medical teachers are the role models for the students, the prescribing behaviour of the teachers can affect the students. These audits and studies can also influence the policy makers by informing them about the quality of drug use in the health facility [2-5].

The production of pharmaceutical preparations in India is grossly diverse. There are several drug companies, with thousands of generic preparations and all the preparations have different brand names. There is fierce competition in the pharmaceutical market and this affects the prescribers to a certain extent.

There is an urgent need to ensure that patients are always given evidence-based, cost-effective and rational treatments. Therefore the present study was planned to understand the prescription pattern in the department of General Medicine at GSL Medical College Hospital located in Rajahmundry, India and thereby to determine whether there is a need for an educational intervention [6],[7],[8],[9].

Materials and Methods

A cross sectional study was conducted in the Out Patient Department of General Medicine, at GSL Medical College Hospital, Rajahmundry, India from 1st February 2007 to 1st March 2007. Institutional Ethical Committee permission was taken before the start of the study. A verbal consent to note down the drugs prescribed to patients was taken from each patient before collecting the data. The names of the patients and prescribing doctors were kept confidential throughout the study. Prescriptions were collected and the data was recorded from new patients of either sex coming to the Medicine OPD on a prescribing encounter form. Referral prescriptions and prescriptions of seriously ill patients were excluded from the study. On an average 20 prescriptions were collected daily in a random fashion. CIMS drug manual was used to decode the brand name of drugs to generic names for the purpose of analysis.

Statistical Analysis

SPSS software version 13 was used to analyse the data obtained from the study.

Results

A total of 608 prescriptions were analysed during the study period. The total number of drugs which were prescribed to the patients was 1826. Each patient on an average was prescribed 3 drugs per prescriptions.

It was observed that out of the 1826 drugs which were prescribed to the patients only 26 (1.42%) were of generic form.

The top three clinical conditions for which drugs were prescribed included cough, cold and pain (237, 39%) followed by antibiotics for infections excluding respiratory tract infections (158, 26%) and then drugs for cardiovascular and related metabolic diseases like hypertension and diabetes mellitus (73, 12%).

A total of 348 (57.24%) people were prescribed one or more antibiotics during the study period. Out of the 348 antibiotic prescriptions 202 (58.04%) were for respiratory tract infections. 73(20.97%) were for gastrointestinal tract related infections and the rest of the prescriptions were for other infections.

A total of 198 (32.57%) fixed dose combination prescriptions were recorded during the study period. The top three fixed dose combinations used were for cough, cold and fever (79, 39.89%) followed by analgesic and muscle relaxant fixed dose combinations (59, 29.79%) followed by antibiotic combinations (40, 20.20%).

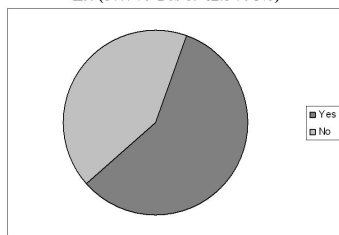
It was also noted that out of the 608 prescriptions studied, 450 (66.61%) had at least one multivitamin, iron or tonic prescribed. In 300 (66.66%) prescriptions the rationale behind adding of such multivitamin or other tonic preparations was not justified.

It was seen that out of the 608 prescriptions studied only 13 (2.13%) had

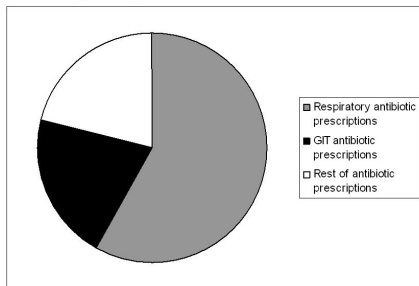
injectable drugs prescribed. Out of the 13 injectable prescriptions, 4(30.76%) had analgesic drugs, 3(23.07%) had antipyretic drugs, 2(15.38%) had tetanus toxoid, 1 prescription (7.69%) had parental iron prescription.

It was also observed that 82 (41%) patients were prescribed H₂ inhibitor followed by (63, 31.5%) prescriptions for proton pump inhibitors, (42, 21%) prescriptions for chewable antacid tablets and (13, 6.5%) advised liquid antacid preparations [Table/Fig 1], [Table/Fig 2]

(Table/Fig 1) Percentage of drugs prescribed from the Essential drug list (57.7% Yes & 42.3% No)



(Table/Fig 2) Percentage of antibiotic usage in prescriptions (58.04% Respiratory antibiotics, 20.97% GIT antibiotics)



Discussion

In emerging markets like those in India, the impact of high power salesmanship is enormous and a number of "me too" drugs are available. It is observed generally that doctors often are influenced by pharmaceutical companies for prescribing drugs and the patient who is at the receiving end of the spectrum bears the cost of expensive and inappropriate medical treatment most of the time. Irrational prescription of drugs is a major concern in India and in many other developing countries. This in the long term can jeopardize the health status of people and the health economics of the country itself [1],[2], [10].

The distribution of different categories of drugs in the prescriptions analyzed in this study provided an insight into the prescribing behaviour of the physicians in a tertiary care hospital in Southern India. When a patient is critically ill and diagnosis is not confirmed at the time of admission to the tertiary care hospital, empirical polypharmacy may be required. But it is always preferable to keep the mean number of drugs per prescription as low as possible to reduce the cost of treatment and to minimize adverse effects & drug interactions. In this study it was observed that the average number of drugs prescribed per prescription was in accordance with similar studies done in India and in other developing countries and that the final figure was acceptable and was within the limit as per the WHO guidelines as reported by Kanakambal et al.[6],[11],[12],[13].

The Indian pharmaceutical sector is considered as one of the biggest suppliers of generic medicines in the world. In the present study, the prescriptions with generic pharmaceutical formulations were negligible and this finding was in fact contradictory to the findings of earlier studies done, where generic formulations were used to an extent of 37 to 94 %. [1], [7], [12], [13], [16].

The most common reasons for not prescribing generic drugs were

1. Doubt about efficacy and bioavailability of generic formulations.
2. Prescribers' ignorance about the price variations between generic and branded drugs.
3. Lack of information on the availability of generic formulations from pharmaceutical companies.

It was observed that the usage of antibiotics was high in the present study as compared to similar studies done in India. The majority of antibiotic usage was for upper respiratory tract infections and gastrointestinal tract infections. It would be worth while examining further the causes of such high use of antibiotics in the GSL Medical College, Rajahmundry, India[8],[11],[12],[13],[14],[15].Still,

considering the cost effectiveness and serious problems of development of resistance, their indiscriminate use should be restricted.

A more rational approach was observed in the present study with respect to the use of parenteral drug formulations in comparison to other studies done in India and in Nepal [12], [17], [18]. The use was within the acceptable limit of less than 6% as stated in the previous studies [12],[19].

There were only 12% and 6.40% of fixed drug combinations that were prescribed from the essential drug lists of WHO & India respectively.^[20] The use of drugs from the essential drug list should be promoted for optimal use of limited financial resources, to have acceptable safety and to satisfy the health needs of the majority of the population. This trend was not observed in earlier studies where 80% of the drugs used were in accordance with the Essential Drug List [10],[11],[12].

The percentage of fixed dose combinations used was higher than earlier reports from other cities in India. A detailed analysis of the prescriptions may throw light on the rationality of the combination-drugs prescribed [10],[11],[12],[13].

Limitations of the Study

1. No categorization of prescribers was taken into consideration (Junior / Senior residents, lecturers, Associate professors, Professors).
2. It represented a limited population of patients.
3. The time period of the study was limited (1 month)

Conclusion

This study indicates that there is scope for improving the prescribing habits of clinicians in the present study by educational intervention. Rational prescription of drugs should be made a part of medical education at the undergraduate and post graduate levels with emphasis on integrated problem based pharmacotherapeutic teaching. It is

also important to form Drug and Therapeutic Committees to formulate and standardise drug policy, conduct regular audits and to keep a check on the undue influence of high power salesmanship.

References:

- [1] Ansari KU, Singh S, Pandey RC. Evaluation of prescribing pattern of doctors for rational drug therapy. *Indian J Pharmacol.* 1998;30:43-46.
- [2] Desai S. Essential drugs and rational drug therapy. *Bull Soc Rational Ther.* 2001; 12: 2-7.
- [3] S Kanakambal et al. Drug Prescribing pattern in a Tertiary care teaching Hospital in Madurai. *Ind. J. Pharmacol* 2001;33:223.
- [4] Tekur U et al. Modules for teaching rational use of drugs - Session Guide and Session Notes. Delhi Society for Promotion of Rational Use of Drug and India and WHO Essential Drugs Programme. Delhi, 2003.
- [5] Bimo H, Hogerzeil V et al. How to Investigate Drug Use in Health Facilities- Selective Drug Use Indicator. WHO Department of Essential Drug and Medicine policy 1999:p-3.
- [6] Sharma S et al. Prescribing behaviour of physicians. *Journal of Health Management,* 2002; 4:55-71.
- [7] Gajjar BM, Desai S, Srivastava S. Evaluation and comparison of prescribing pattern of physicians from "The Institute" and "The Private" sectors for rational drug therapy. (Dissertation). Vallabh Vidyanagar, S. P University, 1999.
- [8] Anand K et al. Management of sick children by health workers in Ballabgarh: lessons for implementation of IMCI. India. *Journal of Tropical Pediatrics,* 2004; 50:41-47.
- [9] Gupta, U et al. Research on Rational Drug Use in India: A Glimpse. Delhi Society for Promotion of Rational Use of Drug and India-WHO Essential Drugs Programme. Delhi 2001;p-4.
- [10] Dahanukar SA et al. Research on Rational Drug Use in India: A Glimpse. Delhi Society for Promotion of Rational Use of Drug and India-WHO Essential Drugs Programme, Delhi 2001. p-13-14.
- [11] Bapna S, Tekur U, Gitanjali B, Shashindran C, Pradhan S, Thulasimani M, et al. Drug utilization at primary health care level in southern India. *Eur J Clin Pharmacol* 1992;43:413-415.
- [12] Singh Jagjit et al. From Placebo to Panacea: A study of Prescribing Trends in a Govt. Teaching Hospital. *Ind. J. Pharmacol* 2001; 33:246.
- [13] Kulkarni SK et al. Research on Rational Drug Use in India: A Glimpse; Delhi Society for Promotion of Rational Use of

- Drug and India-WHO Essential Drugs Programme. Delhi 2001;p-21.
- [14] Srivastava SK, Desai SV. Cost variation of some commonly used antimicrobial agents. J Indian Med Assoc. 1997; 95: 439.
- [15] Biswas NR, Biswas RS, Pal PS. Patterns of prescriptions and drug use in two tertiary hospitals in Delhi. Indian J Physiol Pharmacol. 2000; 44: 109-12.
- [16] Sutharson L, Hariharan RS, Vamsadhara C. Drug utilization study in diabetology outpatient setting of a tertiary hospital. Indian J Pharmacol. 2003; 35: 237-240
- [17] Ghosh R, Neogi JN, Srivastava BS, Sen P. Prescribing trends in a teaching hospital in Nepal. Journal of Nepal Medical Association 2003; 42: 346-349
- [18] Sarkar C, Das B. Prescribing trends in a Teaching Hospital in Western Nepal. JNGMC .2002;2: 4-7.
- [19] Tomson G, Angunawela I. Patients, doctors and their drugs .A study at four levels of health care in an area of Srilanka. Eur J Clin Pharmacol. 1990;39(5): 463-67.
- [20] World Health Organization. Essential Medicine List. 15th Edition (March 2007). Available at <http://www.whoindia.org/EN/section2%5Csection5%5Csection68.html>. Accessed on October 26th 2009.