

Prescription audit in the inpatients of a tertiary care hospital attached with medical college

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ABSTRACT

Background: Prescription audit is one of the methods to assess drug utilization and rationality of prescribing. Irrational prescribing is a worldwide problem. It is due to the faulty prescribing habits, lack of training amongst health care personnel, pressure from the pharmaceutical companies, and a lot of other reasons. **Methods:** The study was conducted by noting the details of patients admitted during 3 months from April to June 2015 in the Guru Gobind Singh Government Hospital, Jamnagar. Prescriptions were collected from the inpatients of medicine, surgery, obstetrics & gynecology, pediatrics, orthopedic randomly and analyzed according to the WHO core prescribing indicators. **Results:** Three hundred six prescriptions were analysed in which 1986 drugs were prescribed. Mean number of drugs per prescription was 6.49%. In our study, 63.34% drugs were prescribed by generic names and drugs on NLEM were 73.01%. Dosage forms used were mostly oral (69.54%). Infectious and parasitic diseases were the most common illnesses (16.01%) followed by diseases of respiratory system. The most common drug groups prescribed were GIT, antimicrobials, antihistaminics, multivitamins and minerals. The incidence of poly-pharmacy was also common with maximum number of prescriptions (26.8%) having 5 drugs per prescription. **Conclusion:** Prescription audit is an important measure to improve the quality of care afforded by the hospitals. Data generated on morbidity pattern coupled with current practices of treatment of these diseases provides an objective basis for preparing an NLEM. By this data we conclude that poly-pharmacy is quite common. Most of drugs were prescribed according to the NLEM 2011.

Key words: Drug utilization pattern, morbidity pattern, prescription audit, rational pharmacotherapy

INTRODUCTION

WHO defines drug utilization as *“The marketing, distribution, prescription and use of drug in a society with special emphasis on resulting medical, social and economic consequences”*. The principal aim of drug utilization research is to facilitate rational use of drug in the populations.^[1] WHO defines rational use of medicines as *“Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community”*.

Irrational prescribing is a worldwide problem. It is due to the faulty prescribing habits, lack of training amongst health care personnel, pressure from the pharmaceutical companies, and a lot of other reasons. But the end consequence of this is unsafe treatment, exacerbation of disease, health hazards, and financial burden on the patients as well as to

the society and ultimately the wastage of the limited resources.^[2] Examples of irrational prescribing include poly-pharmacy, large number of injections in the prescription, overzealous use of antimicrobials, and others.

Prescription errors can be controlled by making policies on drug usage. Also establishing Standard Treatment Guidelines (STG) for common diseases and medical conditions do help in changing trends towards better and rational prescribing.^[3] Undergraduate and postgraduate training should include rational therapeutics and put an emphasis on the need for rational prescribing. Another method of controlling and creating rational prescribing is by the means of carrying out a prescription audit. Prescription audit points out the existing problems and can also provide us with the areas where improvement is needed. Once carried out it serves as a benchmark for comparison with the future audit. It is helpful to study the effectiveness of an intervention.

For this purpose WHO has laid out a number of "core prescribing indicators", which includes prescribing indicators, patient care indicators and the facility indicators.¹⁴ A number of studies have been carried out based on these indicators. Prescription audit has been carried out in the number of settings at various levels with the aim of studying the existing standards of medical care and scope for improvement.¹⁵⁻⁷¹ No such study was carried out in our hospital so we decided to conduct the present study in the inpatients of our tertiary care hospital attached with a medical college, with the following objectives:

- 1) To study morbidity pattern of the study
- 2) To study drug utilization pattern
- 3) To suggest measure to change prescribing habits for better therapeutics

MATERIALS AND METHODS

Present study was conducted by noting the details of patients admitted during 3 months in the Guru Gobind Singh Government Hospital which is attached with M P Shah Government Medical College by the Department of Pharmacology. Prescription data of the inpatients admitted in the hospital from April to June 2015, from the medicine, surgery, gynecology & obstetrics, orthopedics and pediatrics wards was collected on a well-designed case record sheet. Prior permission of the Institutional Ethics Committee to carry out the study was obtained.

Prescriptions were analyzed on the basis of the objectives of our study. The age and sex of the patients were recorded. Clinical diagnosis, number of drugs prescribed, number of drugs from the National Essential List of medicines¹⁸, number of injections, number of antimicrobials, number of drugs prescribed by generic name, and the number of FDCs in a prescription were analyzed.

RESULTS

A total of 306 prescriptions were analyzed for the study. The age distribution of the prescriptions included pediatric (<18 years) 23.86%, adults 63.40% and geriatric (>60 years) 12.75% patients. The proportion of males (53.27%) was slightly more than the females (46.73%) [Table 1].

Table 2 shows the prevalence pattern of diseases amongst the prescriptions studied and analyzed. Infections 49 (16.01%), respiratory problems 44 (14.38%), cardiovascular system disease 40 (13.07%), trauma 35 (11.44%) and gastrointestinal tract problems 30 (9.80%) being the most common amongst them.

Table 1: Demographic profile of patients

Age distribution	Number (%)
Children (≤18 years)	73 (23.86)
Adults (19 – 65 years)	194 (63.40)
Above 65 years	39 (12.75)
Sex Distribution	
Males	163 (53.27)
Females	143 (46.73)

Table 2: Pattern of diseases out of studied prescriptions

Disease Pattern	Number (%)
Infectious diseases	49 (16.01)
Respiratory system diseases	44 (14.38)
Cardiovascular system diseases	40 (13.07)
Trauma	35 (11.44)
Gastrointestinal system diseases	30 (9.80)
Central nervous system diseases	10 (3.27)
Musculoskeletal system diseases	2 (0.65)
Others	96 (31.37)

A total of 1986 drugs were prescribed in 302 prescriptions, amounting to a total of 86 different drugs with repetitions. Therefore on an average 6.49 drugs were prescribed in each prescription. Out of these 1986 drugs, 1450 (73.01%) were prescribed from the National list of essential medicines 2011. 1258 (n= 1986, 63.34%) drugs were prescribed according to their generic name. Total number of Fixed dose combinations prescribed were 95 and a total of 420 antimicrobials (n = 1986, 21.15%) were present in the studied prescriptions. Most common drug formulation used was oral 1381 (69.54%) followed by injections and then topical [Table 3].

Table 3: Drug profile

Parameters	Number (%)
Drugs from NLEM	1450 (73.01)
Drugs prescribed by generic name	1258 (63.34)
Fixed dose combinations used	95 (4.78)
Number of antimicrobials in prescription	420 (21.15)
Dosage forms	
Oral	1381 (69.54)
Injection	576 (29.00)
Topical	29 (1.46)

Regarding the number of drugs present in a prescription, it ranged from one drug to a total of 11 drugs. 5 drugs and 4 drugs were most common in a prescription with 1 and 11 drugs in a prescription being the least common [Figure 1]. Most common drugs prescribed belong to the anti-ulcer (GIT class) of drugs, followed by antimicrobials and NSAIDs [Table 4].

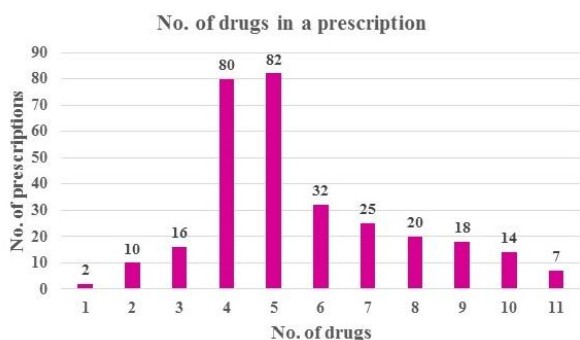


Figure 1: No. of drugs in a prescription

Table 4: Most common prescribed drugs from various categories

Category of drugs	Number (%)
Anti-ulcer (GIT class)	465 (23.41)
Antimicrobials	420 (21.15)
Non-Steroidal Anti-inflammatory Drugs	323 (16.26)
Cardiovascular System	241 (12.13)
Multi –vitamin and minerals	183 (9.21)
Multi –vitamin and minerals	183 (9.21)
Opioids	73 (3.68)
Central Nervous System	61 (3.07)
Expectorant, bronchodilators	50 (2.52)

DISCUSSION

Rationality of drug therapy is an important aspect of prescribing. It not only helps the patient to get cured but it also has many other social, economic and medical implications. Rational prescribing leads to the better use of limited resources, this is particularly helpful in developing country like ours. The mainstay of assessing the quality of prescribing is through the means of prescription audit. The data so obtained can serve as a guide for the prescribers, decision makers, administrators and others for policy making.

Males 163(n = 306, 53.27%) were more than females 143(n = 306, 46.73%) in the number of prescriptions analyzed. The study conducted by Potharaju HR and Kabra SG, 2011 showed that females were 51.4%.^[9] In our study a total of 306 prescriptions were analyzed that contained 1986 drugs. The average number of drugs per prescription was 6.49, which was much higher than the study done by Abidi et al 2012, where the number was 4.22.^[10] But that study was done in the outpatients of a tertiary hospital. Our findings were comparable to the study done by Devi et al 2008, they reported 7.4 drugs per prescription.^[11] Poly pharmacy has the inherent problems of drug-drug interactions, increased cost of therapy and also indicates that sometimes the prescriber is not clear about the underlying problem and is treating the patient symptomatically for the purpose of giving relief to the patient.

In our study the most common prescription were for infectious and parasitic diseases (16.01%), respiratory system illnesses (14.38%) followed by cardiovascular system illnesses (13.07%). Least common were musculoskeletal system disorders (0.65%), central nervous system disorders (3.27%). This is consistent with the study done by Abidi et al, 2012, who reported respiratory system illnesses (44.72%) followed by infectious diseases and parasitic infections (16.03%).^[10]

Regarding drug profile 73.01% of prescribed drugs were from the National list of essential medicines, 2011.^[8] This is much higher than that reported by Abidi et al 2012 (53.25%)^[10] and Hazra A, Tripathi SK, Alam MS, 2000 (45.7%).^[12] 1258 drugs out of 1986 (63.34%) were prescribed by their generic names. This is quite comparable to that of 73.4% found by a study in Indian setting.^[13] This figure is an indicator that prescribing in the tertiary hospital attached with medical college is not influenced much by the pharmaceutical drug promotion. Also it reduces the economic burden on the community. Out of 1986 drugs 95 (4.78%) FDCs were prescribed. This figure is quite low as compared to three Indian studies which reported 40.92%, 75% and 60% respectively.^[10,14-15] Fixed dose combinations have inherent disadvantages of their own. Even the WHO guidelines for selecting essential drugs state that FDCs are to be used only when necessary and the combination has been proved safe and effective. Oral formulations were the most commonly prescribed 1381 (n=1986, 69.54%) followed by injections 576 (29%) followed by topical 29 (1.46%). Use of injections was high as compared to two studies which reported 6.19% and 7% respectively.^[7, 10] More use of injections could be due to the inclusion of post-operative patients in our study. Also ours being a tertiary care hospital and having taken inpatients as our study subjects the number of injections in our study was bound to be higher.

Most common drug class prescribed in our study was anti-ulcer (gastrointestinal system) related drugs 465 (n=1986, 23.41%) followed by antimicrobials 420 (21.15%) followed by NSAIDs 323 (16.26%). This finding suggests that with poly-pharmacy doctors to reduce the chances of gastric irritation and other gastric complaints were prescribing anti-ulcer drugs as a prophylactic measure. Also more use of NSAIDs suggests that therapy was mostly symptomatic rather than treating the underlying cause. Or it may be because of inclusion of post-operative patients in our study. Also multi vitamins and minerals were prescribed in 183 (n=1986, 9.21%). Unnecessary use of drugs like multi vitamins, minerals, anti-ulcers, NSAIDs leads to irrational prescribing and increases the chances of adverse drug reactions, drug-drug interactions, poly-pharmacy and increased cost of therapy.

CONCLUSION

Prescription audit is an important measure to improve the quality of care afforded by the hospitals. Data generated on morbidity pattern coupled with current practices of treatment of these diseases provides an objective basis for preparing an NLEM. By this data we conclude that poly-pharmacy is quite common. Most of drugs were prescribed according to the NLEM 2011.

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