



A Study of Prescribing Practices in Outpatient Department of an Apex Tertiary Care Institute of India

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ABSTRACT

Introduction: Poor quality prescriptions, besides affecting patient safety, have a deleterious impact on the restricted purse of sick persons, especially those belonging to lower socioeconomic strata.

Objective: To study the prescribing practices in outpatient departments of an apex tertiary care institute of India.

Methodology: Descriptive and observational study of randomly taken sample of 300 prescriptions from pharmacy was carried out. Parameters for analysis were selected based on review of literature.

Observations: Of the total samples analyzed, OPD registration number, date of registration, patients name, gender and department were mentioned in 99.3% of prescriptions. Patient name was mentioned in all the prescriptions and gender was present in 99% prescriptions. Address of the patient was present in only 64.7% (194) prescriptions. 93.7% of the prescriptions were legible. Ninety-seven percent of the prescriptions carried diagnosis or presenting complaints. An average of 2.82 ± 1.77 (median – 3) drugs were prescribed per patient. Only 1.63% (14) prescribed drugs were generic. In our study, antacids (26.33%) followed by the vitamins (24%), analgesics (23.3%), antibiotics (22.8%) and antipyretics (18%) were the most commonly prescribed drugs. Drug strength, drug frequency and drug administration route was mentioned in only 62, 89 and 89% of the total prescriptions. Fifty percent did not carry the duration and mean duration of prescription was 17.75 ± 24.18 days. Signature, name, designation, address, stamp and medical registration number of the physician was mentioned only in 96.7, 7.3, 6.7, 2.7, 0.7 and 0% of the prescriptions respectively.

Conclusion: The study has brought out the need for sensitization and awareness programmes for doctors to improve the quality of prescription-writing and periodic review of prescriptions.

Keywords: Prescription, Prescribing practices, Audit, Outpatient department.

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INTRODUCTION

The burgeoning cost of drugs prescribed across the country is a major concern. Correct diagnosis, accurate treatment, use of prescribed medicines as directed and timely follow-up are four crucial steps for a favorable outcome of a patient's disease management. In order to ensure that the prescribed medicines are used correctly, it is imperative that the patients get the intended medicine in the first place.¹

Medication problem is potentially tragic and costly in both human and economic terms, for patients and professionals alike. In health care setting, there are many problems regarding drugs administration which includes errors in prescribing and transcription.² The irrational use of drugs by both prescribers and consumer is in fact a global problem which can be assessed by a standardized method of prescription analysis.³

The deleterious impact of poor quality prescriptions, under and over-dosing, duplication and multiplicity of drugs on the restricted purse of sick persons, particularly those belonging to lower socioeconomic strata, which also adversely affects their households as a whole in terms of the non-health expenditures, such as food, clothing and education.⁴ Apart from having a negative impact on work flow in practice, prescription errors may pose threat to patient safety.⁵ The problem related to prescribing medication has not been adequately studied, especially in developing countries.⁶ One of the ways of assessing prescribing practices is 'prescription audit (PA)', with which prescribers get regular feedback about their prescriptions.⁷ Hence, the present study was carried out with an aim to analyze the prescribing practices in the outpatient department of the apex tertiary care public institute of Northern India.

This 2000 plus bedded multispecialty tertiary care public hospital includes independent centers for ophthalmology, cardiothoracic, neurosciences, cancer treatment. It also has centers for trauma, drug dependence treatment and dentistry.

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In a first-of-its-kind public-private partnership, a 24 × 7 central pharmacy shop was opened in the institute with the mandate to provide all medicines and surgical consumables, at a discount of more than 50% on maximum retail price, prescribed to patient visiting hospital.

METHODOLOGY

A descriptive and observational study was carried out in outpatient department of the institute for a period of one month, i.e. October 2012. Prescriptions received at central pharmacy shop were analyzed which included prescriptions from all the centers.

Central pharmacy shop was chosen in order to draw sample from the entire institute. A total of 300 prescriptions collected over a period of 6 days during the working hours of OPD from Monday to Saturday (to account for daily variation) were studied. Daily 50 prescriptions were selected through simple random sampling. All the prescriptions were included in the study irrespective of patients visit (1st visit or follow-up). All the prescription received at the central pharmacy shop irrespective of the fact whether drugs have been prescribed or not were included in the study. Prescriptions collected at the pharmacy shop had following advantages:

- It had an element of natural randomization.
- It consisted of prescription from all the departments within the institute.

Parameters (Table 1) to be studied were identified through review of literature which included WHO core prescribing indicators.³

Composition of drugs prescribed by brand name was deciphered from MIMS India website. Data was analyzed using Microsoft Excel 2010.

OBSERVATIONS

In total 300 prescriptions were collected from central pharmacy shop which comprised of prescriptions from Multispecialty Hospital (77%) followed by Cardiothoracic and Neurosciences Centre, Centre for Ophthalmic Sciences, Regional Cancer Hospital, Dental Centre and Trauma Centre. Prescriptions studied were from more than 30 departments with maximum number of prescriptions from department of medicine (19%) followed by orthopedics (8.3%), dermatology (6.3%), pediatrics (5.3%) and so on.

99.3% (298) prescriptions carried registration number and date of the visit, while name of prescribing department was found missing in only 0.7% (2) prescriptions. Patient's name was mentioned in all the prescriptions and gender was present in only 99% (297) prescriptions. Only 64.7% (194) prescriptions carried the patient's address.

Majority, i.e. 93.7% (281), of the prescriptions were legible as analyzed by the principal investigator. Diagnosis/presenting complaints were mentioned in 97% (291) prescriptions. An average of 2.82 ± 1.77 (median-3) drugs was prescribed per patient with no drugs prescribed in 8.0% (24) prescription. Two drugs per patient were most commonly (26.7%) prescribed followed by three drugs (24%). In 64% (191) patients, total number of drugs prescribed were less than or equal to 3, while in 28% (85) prescriptions number were greater than or equal to four drugs were prescribed. Maximum number of drugs prescribed was observed to be 9 (Graph 1).

Of the total 847 prescribed drugs only 1.63% (14) drugs were generic. In our study, antacids (26.33%) followed by the vitamins (24%), analgesics (23.3%), antibiotics (22.8%) and antipyretics (18%) were the most commonly prescribed drug groups (Graph 2). Injectables were prescribed in only 5.7% (17) patients and most of them were either chemotherapy or emergency prescriptions. 22.7% (68) patients were prescribed one or more than one antibiotic.

Table 1: List of parameters

| |
|---|
| <i>Demographic and general profile of patients</i> |
| UHID/outpatient registration number |
| Name |
| Age |
| Gender |
| Outpatient department |
| Center within AIIMS |
| <i>Legibility</i> |
| <i>Prescribers detail</i> |
| Name |
| Qualification |
| Address |
| Telephone number |
| Signature |
| Date of signing the prescription |
| Medical council registration number |
| Prescription bearing the rubber stamp of prescriber |
| <i>Diagnosis/presenting complaints</i> |
| <i>Prescription body</i> |
| Average number of drugs per prescription |
| Percentage of drugs prescribed by generic name |
| Percentage of encounters with an antibiotic prescribed |
| Percentage of encounters with an injection prescribed |
| Percentage of encounters with a vitamin prescribed |
| Percentage of encounters with an analgesic prescribed |
| Percentage of encounters with an antipyretic prescribed |
| Percentage of encounters with an antacid prescribed |
| Route of administration |
| Strength of preparation |
| Frequency of administration |
| Duration of treatment |
| Drug allergies |
| Instructions for intake |
| Follow-up advice |

Drug strength was mentioned in only 62% prescriptions, while missing in 30%. Drug frequency and drug administration route was mentioned in 89% (267) of the prescriptions and was missing in 3% (9). Duration, for which the prescriptions were issued, ranged from 1 to 180 days and mean duration of prescription was 17.75 ± 24.18 days (median 14 days) and in almost half prescriptions duration of the prescriptions was missing. Follow-up advice was present in only 38.7% (116) prescriptions while only 43.3% (130) carried instructions for intake.

In our study, prescriber's signature was present in only 96.7% (290) prescriptions, while only 7.3% (22) carried prescriber's name. Designation and date of prescription was mentioned in only 5.7% (17) and 6.7% (20) respectively (Graph 3). Address of the prescriber was rarely mentioned in prescriptions and none of the prescriptions carried telephone number and medical council registration number (see Graph 3).

DISCUSSION

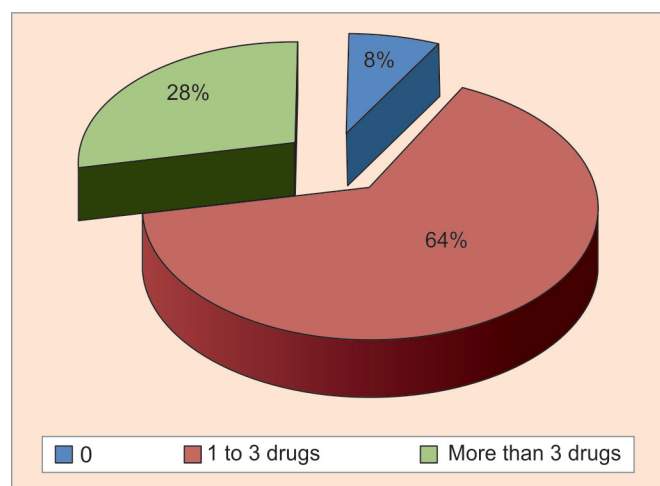
This study was conducted in outpatient departments with an objective to gain an insight into the prescribing practices from patient safety point of view. All the departments were included in the study leading to reflection of prescribing practices across the institute but limited in extrapolation due to smaller sample size.

Our study showed that the institute has got good patient registration system in place as OPD registration number, date of registration, patients name, gender and department was mentioned in 99.3% of prescriptions although address was missing in 35.3%. While a study conducted in Maharashtra revealed that date of registration, case file number, department and address was mentioned only in 94.6, 26.4, 80.4 and 0% of prescriptions.⁸ Similarly, a study conducted in Lucknow revealed that patient details were lacking in

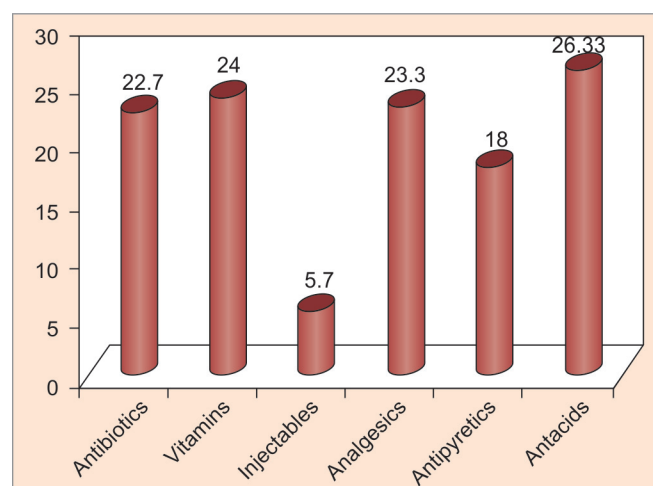
considerable prescriptions.⁹ In a study of Ethiopian teaching hospital, it was observed that age, gender and OPD numbers were not recorded in 36.6%, 16.8% and 12.4% of the prescriptions respectively,¹⁰ while in Dubai hospital study patient's name, age and gender was present in 97.1%, 90.3%, and 88% of prescriptions respectively. In addition, none of the prescriptions carried the address, diagnosis or allergy of the patient.¹¹ This variation may be ascribed to the type of registration system, institute in study has centralised computerized registration system, resulting in good results.

Majority (93.7%) of the prescriptions were legible. In an international study evaluating the quality of prescriptions, it was found that 32.39% of the prescriptions were not legible.¹² According to a study done in Sri Lanka, 208 (25.6%) of total prescriptions were illegible.¹³ In a study of rural tertiary care hospital, a significant number of the prescriptions (17.6%) were written in illegible handwriting and not easily readable.⁸ In this study, diagnosis/presenting complaints were recorded in almost all (97%) of the prescriptions. In an Indian study, the diagnosis was mentioned only in 22.25% of the prescriptions.¹⁴ In a study done in Nepal, most commonly observed problem on the prescriptions was the absence of diagnosis (11.3%). Other problems noted were the absence of the duration of the prescribed (5.4%), age (3.8%) and sex of the patient, drugs (4.3%) and the date (3.2%) on the prescription.¹⁵

Prescription of drugs by the brand name is one of the key problem that hospital administrator faces across the globe. Various Indian studies have shown that generic drugs being prescribed varies from 1 to 60%,^{9,16-19} while studies done in Bangladesh,²⁰ Sri Lanka¹³ and Karachi²¹ revealed the prescription of generic drugs to be 78, 36.7 and 12.26% only. In this study, it was observed to be significantly low, i.e. 1.63% when compared against the international study findings describe above. Therefore, policy formulation and

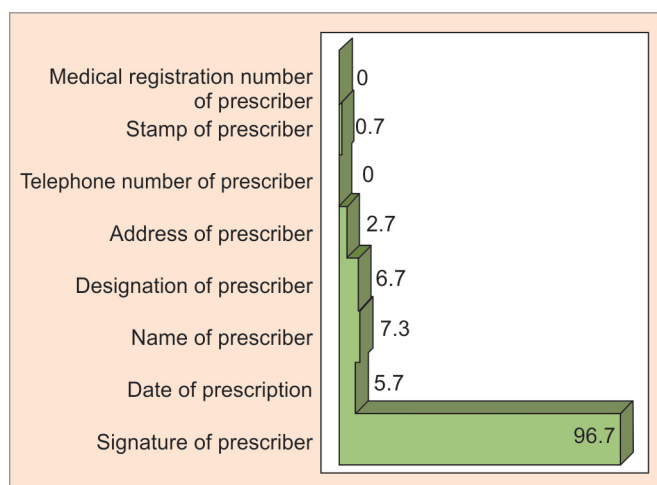


Graph 1: Number of drugs prescribed per patient



Graph 2: Most commonly prescribed group of drugs*

*Antacids include proton pump inhibitors



Graph 3: Prescriber's detail in studied prescriptions

prescription of drugs by generic name needs to be promoted as it increases the healthcare availability by reducing the treatment cost.

Average number of drugs prescribed per prescription is an important indicator of prescribing practices. A study done among medical practitioners at Pune, the average number of drugs per prescription was 2.81 ± 1.22 (range, 1-13),²² while in a teaching hospital of Southern India, it was 3.75 drugs.²³ Whereas a study conducted in Indonesia, it was found to be 3.2 drugs²⁴ and 4.51 in a study of Karachi.²¹ Similarly, an average of 3.04 ± 1.39 were prescribed as per a study conducted in a tertiary care hospital of Nigeria.²⁵ In this study, average number of drugs per prescription was calculated to be of 2.82 ± 1.77 (range 0-9) drugs. Average number of drugs prescribed in the institute is comparable to the national and international studies mentioned above.

In our study, antacids (26.33%) followed by vitamins (24%), analgesics (23.3%), antibiotics (22.8%) and antipyretics (18%) were most commonly prescribed drug groups. While a study in northern part of the country revealed NSAIDs to be the most widely prescribed (89.75%), followed by antibiotics (77.25%) and vitamins (59.74%).¹⁴ Similarly, a study conducted in Dubai revealed that most commonly prescribed therapeutic drug class was NSAIDs (23.4%), followed by antibiotics (21.4%), etc.¹¹ Whereas in a study vitamins and other supplements (25.6%) followed by antibiotics and anti-infective (20.6%), and nonsteroidal anti-inflammatory drugs (NSAIDs)/antipyretics (17.7%) were commonly prescribed drug groups.⁹ In a study done in a teaching hospital, the most commonly prescribed drug group was antimicrobials which accounted for 27% of the drugs.²³ In a study done in Nigeria, analgesics, anti-malarial, vitamins and anxiolytics were prescribed in 36.2, 19.1, 9.7 and 1% of encounters.²⁵ Commonly prescribed drug groups in the institute are similar that have been found in above-mentioned studies.

Analysis of our study finding revealed that drug strength, frequency and administration route were mentioned in only 68, 89 and 89% prescriptions respectively. In half of the prescriptions, duration for which the medicines needs to be taken was not advised and follow-up advice as well as instructions for intake were mentioned in 38.7 and 43.3% prescriptions respectively. In a study in Jammu, the frequency of drug use and dosage form has been noted for 98 and 94% of the prescribed drugs respectively. The duration of therapy has been recorded in 75% of the drugs prescribed.¹⁶ In a study of rural tertiary care hospital, the strength, quantity and route of administration of the drug were found on 73.1, 65.3 and 75.2% prescriptions.⁸ In a study of Nigerian teaching hospital, 12, 7, 6.4, 5.8 and 1.6% of the prescriptions did not indicate routes of drug administration, directions for drug use, frequency of drug administration, drug dose and duration of treatment respectively. No prescription order had special advice or warnings to the patient and, in 10.8% of the cases, date was omitted.¹⁰

In this study, signature, name, designation, address and stamp of the physician were present only in 96.7, 7.3, 6.7, 2.7 and 0.7% of the prescriptions respectively, while none of the prescriptions carried medical council registration number of the physician. Similar findings were observed in a study where name of the physician, signature, speciality, license or registration number and address were omitted in 12.2, 10.3, 20.3, 54.9 and 100% of prescriptions respectively.¹¹

The parameters included in this study are quite comprehensive and touches almost every aspect of prescribing practices right from the registration till the closing of prescription. Many studies contained several other parameters but could not be included in this study due to resource constraint. It is advised that due caution must be taken before extrapolating the findings of this study over a wider population, since this study was carried out in a single institute with limited sample size. In future multicenter studies with a larger sample size may give us better insight; however, this study has identified key areas which require intervention and may be of relevance in similar institutions.

CONCLUSION

It has been generally observed that system of OPD registration is good but problem areas are the body and closing of the prescription. Prescribing medicines by brand name is a cause of worry, especially in developing country like India as it increases the cost of healthcare. Prescription audit forms a very important component of medication management as well as an essential component of patient safety. It provides us with data which can be utilized for performance improvement programs and help to reduce medication error. The study has brought out the need for sensitization and awareness programs for doctors to improve

the quality of prescription-writing and periodic review of prescriptions. Sharing of findings of prescription audit will not only help in improving the prescribing practices but would also promote the patient safety culture in the organization.

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