PRESCRIPTION AUDIT FROM THE OUTPATIENT DEPARTMENT OF A RURAL HOSPITAL IN WEST BENGAL, INDIA: A CROSS-SECTIONAL STUDY

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ABSTRACT

Objectives: Standards of the medical treatment at different levels of the health-care delivery system influence the quality of life. A prescription audit is a kind of vigilant activity that can oversee the observance of these standards. We conducted a prescription audit to evaluate the prescribing pattern in the general outpatient department (OPD) in a rural hospital in West Bengal.

Methods: The study was a cross-sectional study spanning for 1 month, from September 1, 2021, to September 30, 2021. It was conducted at the general OPD of a Rural Hospital in West Bengal. Four hundred and ninety first encountered prescriptions were collected from the OPD and analyzed.

Results: All prescriptions contained the name, age, and gender of the patients, but body weights of the patients were documented only in 12.4% of cases. Proper diagnosis was mentioned in 43.7% prescriptions and route of administration was mentioned in 58.4% of cases. Medicines were prescribed in generic name in 78.2% cases and 2.9% contained an injection. Antibiotic was prescribed in 19.4% prescriptions and 32.3% of drugs were prescribed from the essential medicine list. Correct duration of treatment was provided in 32.7% cases. Standard treatment guidelines were followed in 26.4% prescriptions.

Conclusion: Our study showed encouraging trends regarding prescribing in generic name and limitation of antibiotic usage. However, there were deficits in mentioning the diagnosis and vital drug related information such as route of administration and duration of therapy.

Keywords: India, Outpatient department, Prescription audit, Rural hospital.

INTRODUCTION

A prescription is defined as a written order from a registered medical practitioner to a pharmacist, instructing dispensing of medicines to the patient as indicated and explaining their use as per the directions provided [1]. A good prescription must be complete, clear, rational, evidence based, and reasonably legible [2]. A complete prescription should contain the following information: date, patient particulars including identification, age, gender, and address, along with body weight. It should also have the indication for treatment, name of the medications along with their dose and dosage form, route and frequency of administration, duration of treatment, and the signature of the prescriber, along with his address and contact information. All these information should be written clearly in easily understandable terms for the patient and the pharmacist avoiding unnecessary abbreviations as much as possible. The rationality of a prescription is defined by the WHO as "Rational use of medicines requires that patients receive medications appropriate to their clinical needs in doses that meet their own individual requirements, for an adequate period of time, and the lowest cost to them and their community [3]." This can be further broken down to five rights:
1. The right drug
2. At the right dose
3. By the right route
4. At the right time
5. For the right patient.

The prescription should also be evidence-based regarding the fact that it should conform to the standard treatment guidelines for a particular condition. Finally, the prescription should be legible so that no confusion arises regarding the information provided in the prescription.

Unfortunately, these requirements are not always fulfilled. Often the prescriptions are incomplete, missing out on vital information regarding the patient details, diagnosis, prescribed medicines regarding their dose, route of administration, or duration of therapy. There are confusing and unclear instructions and unnecessary use of abbreviations that those are difficult to interpret by the pharmacist or the patient. Another major problem is irrational prescription that not only jeopardizes the treatment of the patient but also adds to the ever increasing burden of health expenditure for general people and the community. Last but not the least is the issue of illegible prescriptions. An illegible prescription may lead to erroneous drug dispensing with catastrophic consequences for the patient even it fulfils most of the above-mentioned criteria.

An audit is a process that seeks to improve performance. A prescription audit is a kind of vigilant activity that can describe prescribing patterns against some explicit criteria in a given set up [4]. It can provide appropriate feedback to both the administrators and the physician regarding the current practice and performance. Comparisons can be made between different set ups and the impact of any intervention may also be measured using these studies. A lot of prescription audit and drug utilization studies have been done in various city-based hospitals or teaching institutions, but adequate information from rural set up is still lacking. In view of that, we conducted this study in the outpatient department (OPD) of a rural hospital in West Bengal, India to evaluate the prescriptions regarding their completeness, legibility, and rationality as per the WHO core drug use indicators.

METHODS

The study was a cross-sectional observational one spanning from November 1, 2021, to November 30, 2021, conducted at the general OPD of a rural hospital in West Bengal following obtaining approval from the ethics committee. First encountered prescriptions were collected from the OPD and were scanned in a mobile phone. Later, the information was transcribed onto a Microsoft Excel sheet as per a

pre-fixed pro forma. The parameters recorded for the purpose of the study are given below.

For completeness of the prescription
1. Date of the prescription
2. Patients' details including (a) name, (b) age, (c) gender, and (d) body weight
3. Diagnosis
4. Drug details including (a) name of the drug/drugs, (b) dose, (c) dosage form, (d) frequency of administration, and (e) duration of treatment
5. Any inappropriate abbreviations
6. Full signature of the prescriber.

For the core drug prescribing indicators
1. Average number of drugs per encounter
2. Percentage of drugs prescribed by generic names
3. Percentage of encounters with an antibiotic
4. Percentage of encounters with an injection
5. Percentage of drugs prescribed from the essential medicine list or formulary.

For legibility of the prescriptions
Four point scale ranging from completely illegible to totally legible.

For rationality of the prescriptions
1. Drugs prescribed for proper indication
2. Correct Dosage
3. Correct frequency of administration
4. Correct duration of treatment
5. Accordance with the standard treatment guidelines.

Following data collection, it was analyzed and expressed in percentage.

RESULTS

Total number of collected prescriptions was 490. Since the OPD tickets were computer generated and printed all the prescriptions contained the name, age, and gender of the patients. However, body weights of the patients were hand written and mentioned only in 12.4% of cases (Table 1).

Only 43.7% of prescriptions contained a proper diagnosis. Although 92.3% of prescriptions mentioned a dose, the route of administration was mentioned in only 58.4% of cases. The total duration of treatment was provided only in 43.1% of prescriptions. About 67.1% of prescriptions contained an inappropriate abbreviation and merely 35.8% of prescriptions contained the full signature of the prescriber. Regarding the core prescribing indicators, we found that the total number of drugs prescribed was 2019 with an average of 4.12 drugs per encounter.

Prescribing by generic name was done in 78.2% of prescriptions showing an encouraging fact of the recent emphasis on generic prescribing in health facilities (Table 2). Since the data were obtained from the general OPD, only 2.9% of prescriptions contained an injection indicating a preference for oral or topical drugs. Antibiotics were prescribed in 19.4% of total prescriptions and 32.3% of drugs were from the essential medicine list.

Regarding legibility of the prescription, it was found that 15.4% of prescriptions were completely illegible (Table 3 and Fig. 1). Only 10.7% of prescriptions fulfilled the criteria of being totally legible indicating a need for improvement in this aspect of prescribing.

As for the rationality of the prescriptions, we chose only those prescriptions which were complete in terms of relevant information such as proper diagnosis, name of the drugs with their route, frequency, and duration of therapy. Among the drugs prescribed for a given diagnosis, 82.1% of drugs had proper indication, but the correct dosages were prescribed only for 65.4% of drugs (Table 4). Correct duration of treatment was mentioned only in 32.7% of drugs. Barely, 26.4% of prescriptions followed the standard treatment guidelines which were a major area of concern.

Table 1: Completeness of the prescriptions

Parameters observed	Percentage
Date of prescription	100
Patient details	
Name	100
Age	100
Gender	100
Body weight	32.4
Diagnosis	43.7
Drug details	
Name	100
Dose	92.3
Dosage form	78.2
Route of administration	58.4
Frequency of administration	72.6
Duration of treatment	43.1
Inappropriate abbreviations	67.1
Prescribers' full signature	35.8

**Table 2: The WHO core prescription indicator**

Parameters assessed	Percentage
Average number of drugs per prescription	4.12
Percentage of drugs prescribed by generic name	78.2
Percentage of encounters with an antibiotic prescribed	19.4
Percentage of encounters with an injection prescribed	2.9
Percentage of drugs prescribed from essential drug list	32.3

Table 3: Legibility assessment scale for a prescription

Quality of prescription	Percentage
No words are legible	15.4
Some words are legible	27.1
Most words are legible	46.8
All words are legible	10.7

Table 4: Rationality of a prescription

Parameters assessed	Percentage
Drugs prescribed for proper indication	82.1
Correct dosage prescribed	65.4
Correct frequency of administration	52.6
Correct duration of treatment	32.7
Accordance with the standard treatment guidelines	26.4
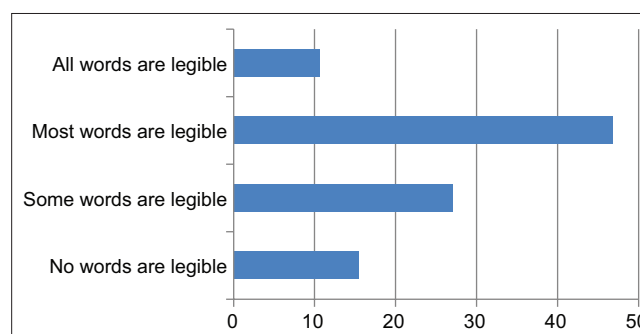
Fig. 1: Legibility pattern of the prescriptions

DISCUSSION

Our study was done in the general OPD of a rural hospital in West Bengal. We collected 490 first encountered prescriptions. Since all of them were computer generated, we found all the prescriptions contained name, gender, and address of the patients. In comparison, a study done by Bhosale *et al*. [4] found, only 94.75%, 77.25%, and 69.50% of prescriptions mentioning name, age, and gender of the patients, respectively, and no prescription mentioning the address of the patient. In their setup, all the OPD tickets were handwritten in contrast to our set-up, where those were computer generated showing the advantage of computer generated tickets over the hand written ones. The body weight of the patient was recorded only in 12.4% of prescriptions in our study which is marginally better than the above cited studies, where only 10% of prescriptions contained body weight of the patients. Another study by Vigneshwaran *et al*. showed almost the same trend having demographic characteristics such as name, gender, age, and date recorded only in 97.9%, 93.3%, 90.9%, and 95%, respectively [5]. This study showed only 8.4% of the prescriptions mentioning the body weight of the patient. It seems that there is a lack of awareness regarding the importance of body weight measurement for correct drug dosing. Otherwise, it may be due lack of awareness or there was huge patient load in the OPDs in Indian hospitals. In our study, the proper diagnosis was mentioned only in 43.7% of cases that are considerably less than the findings of the study done by Bhosale *et al*. [4], where they found almost 2/3rd of the prescriptions mentioning the diagnosis. This is a matter for concern as lack of recording a proper diagnosis may lead to confusion in the follow-up, especially if done by a different physician.

In our study, we found that drug name was mentioned in all the prescription, though only 92.3% had the dosing mentioned. The dosage form and route of administration recorded were in 78.2% and 58.4% of prescriptions, respectively, whereas 72.6% of prescriptions recorded that the frequency of administration and duration of treatment was given in 43.1% of cases. This is almost in conformation with the study done by Bhosale *et al*. [4], but the study done by Weldemariam *et al*. [6] shows considerably better parameters in this regard. They have found 83.7% of prescriptions mentioning the dose, 87.7% the frequency, 95.1% the duration, and 57.5% mentioning the route of administration. List of abbreviations was found 67.1% of the prescriptions in our study which was better than another study done by Dooley *et al*. [7]. This difference especially regarding the route of administration may be due to the fact that, in our country most of the cases, the route is considered as implied by the dosage form and there is general neglect in mentioning it especially for tablets, capsules, drops, and ointments which cover the most of the prescribed drugs in the OPD. It is required that every prescription should bear the full signature of the prescriber and if initials are given instead of the full signature at least a stamp that must be given having the full name of the prescriber. This is very important for future reference and to clear any confusion regarding the treatment. Sadly, we found only 35.8% of prescribers cared to give their full signature which is inferior to the findings by Bhosale *et al*. [4] and Vigneshwaran *et al*. [5] who found prescribers signature in 46.9% and 98.9% of prescriptions, respectively. In our study, we found 4.12 drugs being prescribed per prescription which is higher than the findings in the study by Prakasam *et al*. who found average drugs prescribed per consultation to be 3.37 [8]. In another study, Pathak *et al*. found that 5.11 drugs prescribed per encounter on average [9]. Among the total number of drugs prescribed, we found 78.2% prescribed in generic name which is similar to findings by Pathak *et al*. who found 89.88% of drugs prescribed by generic names in his study [9] which shows an encouraging trend. However, this is in contrast to the findings by Prakasam *et al*. [8] who found only 5.9% of drugs prescribed in generic name proving that despite the recent emphasis on generic prescription considerable, lacunae is still there. We found 19.4% of encounters containing an antibiotic and this finding was somewhat similar to the findings by Pathak *et al*. [9] who found 24.27% of encounters with antibiotic in their study. A study done by Rishi *et al*. showed antibiotic usage in 77.25% of prescriptions which are much higher than our

findings [10]. Hence, it seems, though our study shows encouraging trend regarding antibiotic usage that there is scope for betterment. Since our study was OPD based and that too in a rural hospital only 2.9% of prescriptions contained an injection. Other studies done in city based hospitals or tertiary care centers showed more tendency toward prescribing injectable drugs. For example, Pathak *et al*. [9] found 24.05% of encounters with injections in their study that can be explained by the fact that it was done on hospitalized patients in a tertiary care center. As mentioned earlier the rational prescribing means the drugs should be given for proper indication, in the proper dose and frequency, for the proper duration and through the proper route. For the analysis of the rationality of the prescriptions, we selected that only prescriptions those were complete with all the relevant information mentioned including the diagnosis, name of the drug, dosage, route, frequency, and duration of therapy. Overall only 10% of prescriptions met those criteria. Among the drugs prescribed in those cases, 82.1% were given correctly for the proper indication, but the correct dosage and frequency were correctly prescribed in 65.4% and 52.6% of cases, respectively. Correct duration of treatment was given only in 32.7% of cases. Out of these prescriptions, merely 26.4% was in accordance with the standard treatment guidelines. These findings are in contrast with a study done by West *et al*. who found 92.5 of drugs given for proper indication which is slightly higher than us but with correct dose and duration in 81.5% and 85.1% which is much higher than what we found [11]. This shows that, in our case, the physicians were aware of the correct dose most of the times but are lacking in knowledge regarding the frequency and duration of therapy. They also deviate from the standard treatment guidelines more often than not which is another issue needs more attention.

CONCLUSION

Our short-term cross-sectional study showed encouraging trends regarding generic drug prescribing and limitation of antibiotic usage. However, there are lacunae in mentioning the diagnosis and vital drug related information such as route of administration, correct dosing schedule, and duration of therapy. The legibility of the prescriptions is another area of concern that needs to be addressed. Orientation programs, continuing medical education, and trainings should be conducted on a regular basis to fulfill these lacunae.

AUTHORS' CONTRIBUTIONS

Preparation of the protocol was done by Sujash Halder. Collection of data was done by Tanmoy Gangopadhyay, Sujash Halder and Alak Kumar Das and Shirsendu Mondal. Statistical analysis was done by Alak Kumar Das and Sujash Halder. Preparation of the manuscript was done by Sujash Halder, Shirsendu Mondal, Tanmoy Gangopadhyay, and Alak Kumar Das.

CONFLICTS OF INTEREST

There is no conflicts of interest.

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