

## PRESCRIPTION AUDITING OF VARIOUS DRUG DOSAGES IN THE OPHTHALMOLOGY DEPARTMENT OF A TERTIARY CARE HOSPITAL AT UDAIPUR, RAJASTHAN

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### ABSTRACT:

**Objective:** Drugs play an important role in improving the health of patients and in curing the disease from which patient was suffering. The present study was done to evaluate the pattern of prescription and use of various drugs in the ophthalmology outdoor at Geetanjali Medical college and Hospital, Udaipur

**Method:** The prescriptions of 793 out patients were analyzed using the specially designed form which included 1417 drug dosage form. The prescriptions were analyzed for the following – total no. of drugs per prescription, duration of treatment, type of drug dosage form, frequency of administration, no. of antibiotics used in prescription, percentage use of generic name in prescription, and other drugs used in treatment. **Result:** Prescription auditing shows that average no. of drugs prescribed per prescription was 1.778 described that low drug prescription rate was found in the study. Single drug prescription was found in 55.36 % of patients followed by two drugs in 23.46%. Eye drops prescribed among drugs in majority (69.37%) of patients followed by 15.74 % as ointment. The most commonly used antibiotic was tobramycin in 22.01% followed by combination of antibiotic with steroid in 23.43 % and ciprofloxacin in 9.6 % of patients. **Conclusion:** In this study there is a scope of improving the habits of prescribing rational prescriptions by educational intervention. It is also a necessity to formulate and standardize drug policy, conduct prescription audit and remove undue influence of salesmanship by forming Drug and Therapeutic committee.

**KEY WORDS:** Prescription pattern, Dosage form, Therapeutic agent, Generic name.

### INTRODUCTION

Prescription writing is an important task related to the patient and doctor provides a good relationship and confidence level of patient to the doctor if patient is not overburdened by the prescription and receives a good quality of

treatment. Behavior of the doctor depends on the input from patients, academic literatures, professionalism, influences, publicity and the regulations made by the government. Various errors faced by public health providers and administrators, in prescribing medicines depend

on the ineffective use of various inputs, and common in clinical practice due to irrational use of drugs.<sup>1</sup>

Rational use of drugs is the study of use of appropriate drug, at appropriate dosage at appropriate cost which is well documented in the definition provided by world health organization (WHO): "Rational use of drugs states use of appropriate medications according to their clinical needs, in the correct doses that meet the individual requirements for an appropriate and required time to treat the disease, at the lowest cost to patient and community".<sup>2</sup>

Inappropriate use of medicines prescribed, sold, dispensed or failed to take medicine correctly by patient leads to irrational use of medicines which is a global problem. Bad prescription leads to misuse, overuse and underuse of medicines leading to health hazard, exacerbation of disease, unsafe treatment, economic burden and wastage of resources. Examples of irrational use of medicines include: inadequate dosage, poly-pharmacy, and use of antimicrobials even for non-infectious condition or viral / fungal infections, injudicious use of injections when oral forms are effective and non-compliance to dosing regimes in the form of under dosing, self-medication and overuse without prescription or by a quack.<sup>3</sup> The discovery of a new drug and its marketing, various pattern of prescribing the

drugs and their adverse effects, also the overutilization and cost effectiveness of drug favor the importance of drug utilization studies.<sup>4</sup> Therefore, the principal use of prescription auditing is to provide the rational use of drugs in patients and the community and to generate hypotheses for further investigations and research so that we can avoid prolonged irrational use of drugs.

## MATERIAL AND METHODS

The present study was conducted at the Department of Pharmacology in collaboration with the Department of Ophthalmology at Geetanjali Medical College and Hospital, Udaipur. The data were collected prospectively from the outpatients visiting the OPD, once a week, that is, every Monday during the period from January 2015 to June 2015.

Prescriptions of 793 patients who were treated during the course of the study were audited prospectively by using a specially designed form. The following WHO drug use indicators were determined.<sup>5</sup>

### Core indicators

#### 1. Prescribing indicators:

- a. The average number of drugs per patient – dividing the total number of different drug products, by the number of patients.
- b. The percentage of patients with an antibiotic used topically.

c. The percentage of patients with a topical drug – dividing the number of patient with a topical drug prescribed, by the total number of patients, multiplied by 100.

## 2. Patient care indicators:

a. The average consultation time – dividing the total time of consultation, by the number of patients.

b. The average dispensing time – dividing the total time for dispensing drugs, by the number of patients.

c. The percentage of the drugs dispensed – dividing the number of drugs dispensed, by the total number of drugs prescribed, multiplied by 100.

## RESULT

**Table 1: Number of Drugs prescribed per prescription**

S. No.	Number of Drugs	No. of prescription (%)
1	One	439 (55.36 %)
2	Two	186 (23.46 %)
3	Three	103 (12.99 %)
4	For	28 (3.53 %)
5	Five	37 (4.67 %)
6	<b>Total</b>	793 (100 %)

**Table 2: Drug dosage forms used in Prescription**

S. No.	Drug dosage form	No. of prescriptions
1	Eye drops	983 / 1417 (69.37 %)
2	Ointments	223 / 1417 (15.74 %)
3	Capsules	93 / 1417 (6.56 %)
4	Tablets	87 / 1417 (6.14 %)
5	Syrups	13 / 1417 (0.92 %)
6	Injections	11/ 1417 (0.78 %)
7	Lotions	7 / 1417 (0.49 %)

The total number of prescriptions which were analyzed was 793 and the total number of drugs in these prescriptions was 1417. The number of drugs per prescription varied from one to five, with an average of 1.787 described that low drug prescription rate was found in the study (Table 1 & 4).

The drugs were prescribed in seven different dosage forms. Eye drops were the most commonly prescribed antibiotics [983/1417 (69.37%)], followed by ointments [223 (15.74%)], capsules [93 (6.56%)], tablets [87

(6.14%), syrups [13 (0.92%)], injections [11 (0.78%)] and lotions [07 (0.49%)] (Table 2).

**Table 3: Antibiotics used in prescription, their dosage form and quantity per prescription**

S. No.	Dosage form	Therapeutic agent (antibiotics)	No. of prescriptions (%)
1	Drops	Tobramycin	312 (22.01 %)
		Ciprofloxacin	117 (8.26 %)
		Ofloxacin	73 (5.15 %)
		Chloramphenicol	24 (1.69 %)
		Sulfacetamide	11 (0.78 %)
		Combination of antibiotic with steroid	279 (19.69 %)
2	Ointment	Neomycin	36 (2.54 %)
		Ciprofloxacin	19 (1.34 %)
		Mupirocin	7 (0.49 %)
		Acyclovir	19 (1.34 %)
		Combination of antibiotic with steroid	53 (3.74 %)
3	Oral	Ofloxacin	7 (0.49 %)
		Acyclovir	24 (1.69 %)

**Table 4: Summary of various indicators in relation to total no. of prescription and drugs**

S. No.	Indicators in prescription	Data (%)
1	Average of no. of drugs prescribed	1417/793 (1.787)
2	Dosage form prescribed	791/793 (99.75 %)
3	Topical application of drugs	1206/1417 (85.11 %)
4	Use of topical antibiotics only in prescription	599/1417 (42.27 %)
5	Record - Therapy duration (%)	605/793 (76.29 %)
6	Record – frequency	768/793 (96.85 %)
7	Use of generic name	29/793 (3.66 %)

The most commonly used antibiotic was tobramycin in 22.01% followed by the combination of antibiotic with steroid in 23.43% and ciprofloxacin in 9.6% of patients. (Table 3)

## DISCUSSION

International agencies like WHO and International Network of Rational Utilization of Drugs (INRUD) provided standard drug use indicators and data collection methods for

promoting the enormous potential of drug utilization studies in the rational drug therapy. Prescription auditing also forms a part of drug utilization studies which indicated proper use of various drugs in treating disease.<sup>6</sup>

Historically the pharmaceutical and medical professions have devoted considerable time and efforts to the development and rational utilization of safe and effective drugs for the treatment and prevention of illness.

Rational use of drugs i.e. safe and efficacious use leads to improvement of human health and promoting well-being.

Prescribing pattern of drugs reflects the clinical judgment of the clinicians.<sup>7</sup> A carefully considered formulated treatment plan is crucial for avoiding both tragic outcomes and malpractice litigation.<sup>8</sup> Every institution must have a Drugs and Therapeutics Committee under the supervision of which several activities like publishing Hospital Formulary, prescription auditing may perform.

The irrational use of drugs which lead to therapeutic failure and also the production of resistant strains due to inappropriate use of antibiotics is a common occurrence throughout the world. The average number of drugs per prescription is an important criterion of the prescription audit which confirms the use, overuse or underuse of prescribing the drugs.

In this study, the average number of drugs per prescription was 1.787 described that low drug prescription rate was found in the study. Other hospital-based studies in India reported 3-5 drugs per prescription, which were higher than that in our study.<sup>9, 10, 11</sup>

It is preferable to keep the number of drugs per prescription as low as possible, so as to reduce the risk of drug interactions, adverse effects, the development of bacterial resistance and increased cost to the patient.<sup>12</sup>

Antimicrobials had been prescribed in 42.27% of the patients in the form of eye drops and ointments, 85.11% of the antimicrobials were given topically in the form of eye drops and ointments, having a marked impact in reducing the severity of adverse effects.

The dosage form and the frequency of drug administration have been recorded in 99.75% and 96.85% of the cases respectively. In 76.29% of the prescriptions, the duration of therapy was noted. This study showed a need for the improvement in prescription writing, as the duration of therapy was missing in approximately 24% of the prescriptions.

This, coupled with low generic prescribing 3.66 %, could result in a less safe and a more expensive prescribing. It is always preferred to have a complete prescription which should include name, age, sex, diagnosis and rational

drug treatment with less number of drugs, the proper dosage form, the frequency of administration and the duration of therapy. Our hospital based prescriptions were almost complete in 76.29% of the cases. There is a need to conduct similar studies in other departments, as well to audit a large number of prescriptions and to impart education to the doctor and administrator on rational drug therapy regarding the benefits and safety of the patients.

Drug utilization pattern needs to be evaluated time to time to increase therapeutic efficacy, and to decrease the adverse effects and resistance mechanism developed by the infectious agent.<sup>13</sup>

## CONCLUSION

The present study indicates that there is a possibility of improvement in prescription pattern through minimizing the cost by rational use of antimicrobial agents, generic prescription and reducing poly-pharmacy, in the hospital setting. Generic prescribing is urgently needed as to reduce the financial burden on patient. An action plan must be formulated in order to improve the quality of care and recommendations for changing the present prescribing practices either by providing the hospital doctors with the Standard Treatment Guidelines, antibiotic policy or by following the information, education, and communication (IEC) interventions.

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