RESEARCH ARTICLE

Drug prescribing pattern in dermatology outpatient department at a tertiary care teaching hospital of North India – A cross-sectional survey-based study

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ABSTRACT

Background: The pattern of drug use in a hospital setting needs to be monitored intermittently to analyze their rationality.

Aim and Objective: The aim of this study was to assess the prescribing pattern as per World Health Organization core drug use indicators.

Materials and Methods: This is a prospective cross-sectional, single-center, and observational study. A total of 620 prescriptions were included and analyzed in dermatology outpatient attendees at a tertiary care teaching hospital. A predesigned pro forma was used to collect and compile data. All the statistical analysis was performed with the Microsoft Excel office 2019 version.

Results: The average number of drugs per encounter was 4.03. The percentage of encounters with antibiotics was 33.38%. There was no prescription having an injection. The drugs prescribed by their generic names were 16.61%. Drugs prescribed from local institutional essential drugs list were 42.11%.

Conclusion: Studies based on drug prescribing patterns are a very important tool not only to guide physicians to improve their prescribing habits but also for hospital administration to recognize the lacunae in drug prescribing and formulate guidelines to facilitate rational drug use.

KEY WORDS: WHO Core Drug Use Indicators; Rational Drug Use; Prescribing Pattern; Essential Drug List; Dermatology

INTRODUCTION

Rational drug use is defined by the World Health Organization (WHO) as “patients receiving medications appropriate to their clinical needs in dosage that meets their own individual requirements, for an adequate period of time and at the lowest cost to them and their community.”¹ Irrational prescription of drugs is a common occurrence in clinical practice.² Therefore, the pattern of drug use in a hospital setting needs to be monitored intermittently to analyze their rationality.³ The WHO has developed three highly standardized core drug use indicators, in coordination with the International Network for Rational Use of Drugs, to measure the appropriate and rational use of drugs in the health-care facility. These are prescribing indicators, patient care indicators, and facility indicators.⁴

Skin is the largest organ and is the first protective barrier that is exposed to various environmental and chemical factors, as well as infections. Moreover, many systemic diseases also manifest as skin disorders. Skin diseases affect almost 900 million people in the world at any time and are among the highest of all human diseases. At the global level, skin conditions were the fourth leading cause of nonfatal disease burden.⁵ The disease burden in the dermatology department is among the highest in our hospital, probably due to hot and...
humid tropical conditions. Most skin diseases are chronic in nature and affect all age groups which compromise the quality of life as well as cause a financial burden.

Considering its high prevalence, it is of interest to study the drug prescribing patterns of skin diseases. There is a scarcity of data related to the prevalence of skin disorders and their prescribing pattern in our region. In the present study, we aim to assess the prescribing pattern as suggested in the WHO Core Drug Use Indicators\[4\] in the dermatology outpatient attendees of a tertiary care teaching hospital in North India.

**MATERIALS AND METHODS**

This is a prospective cross-sectional, single-center, and observational study. It was conducted to describe the WHO core drug use indicators of prescribing practices in the Department of Pharmacology in collaboration with the Department of Dermatology at a tertiary care teaching hospital in North India. The study was approved by the Institutional Ethical Committee before the start of data collection.

The WHO prescribing indicators measured in this study are as follows:\[4\]

1. Average number of drugs per prescription
2. Drugs prescribed by generic name and its percentage
3. Prescription with an antibiotic prescribed and its percentage
4. Prescription with an injection prescribed and its percentage
5. Drugs prescribed from an Essential Drugs List (EDL) and its percentage

To measure the average number of drugs per encounter, combination drugs were counted as one and each prescription was regarded as a single patient encounter. The prescribing indicators just like all the core drug use indicators are standardized and do not require country, regional, or health facility adaptation making for easy comparison.\[4\]

The WHO criteria for sample size suggest including at least 600 encounters in a cross-sectional survey to describe the current prescribing practices, with a greater number, if possible.\[4\] Data were collected from the Dermatology outpatient department (OPD) for the duration of 3 months (from October 21 to December 21) on 3 days a week. A predesigned pro forma was used to collect all data regarding prescribing indicators.

In the present study, we have included newly diagnosed 1st-time visitors of all the age groups from OPD only. Follow-up, indoor, and seriously ill patients were excluded from the study. All the statistical analysis was performed with the Microsoft Excel office 2019 version.

**RESULTS**

During the study period, a total of 620 prescriptions were included and analyzed, out of which 353 were male (56.94%), as shown in Table 1. The highest number of cases fell in the age group of 21–30 years (31.61%), followed by 11–20 years (28.71%) and 31–40 years (14.68%) [Figure 1]. In the age group of 0–10 years, scabies was the most common diagnosis, while acne was most common in the 11–20 age group. For all the other age groups, tinea was the most common diagnosis.

The total number of different drug products prescribed were 2498. Therefore, the average number of drugs per encounter was 4.03 (range from 1 to 7). Out of 620 prescriptions, 207 had antibiotics. Thus, the percentage of encounters with antibiotics was 33.38%, which included both topical and systemic preparations. There was no prescription having an injection. The number of drugs prescribed by their generic names was 415 (16.61%). Out of 2498 drug products, 1052 (42.11%) were prescribed by local institutional EDL [Table 2].

Dermatophytosis (30.26%) was the most common diagnosis, followed by scabies (12.44%) and acne (11.52%), as shown in Figure 2. We have included both hypo- and hyperpigmentation in pigmentation disorders. Melasma was

### Table 1: Sex distribution

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of patients</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>267</td>
<td>43.06</td>
</tr>
<tr>
<td>Male</td>
<td>353</td>
<td>56.94</td>
</tr>
<tr>
<td>Total</td>
<td>620</td>
<td>100.00</td>
</tr>
</tbody>
</table>

### Figure 1: Age-wise distribution of patients

### Table 2: The WHO prescribing indicators (n=620)

<table>
<thead>
<tr>
<th>Prescribing indicators</th>
<th>Number</th>
<th>Average/percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average no of drugs per encounter</td>
<td>2498</td>
<td>4.03</td>
</tr>
<tr>
<td>Percentage of encounters with antibiotics</td>
<td>207</td>
<td>33.38</td>
</tr>
<tr>
<td>Percentage of encounters with injection</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Percentage of drugs prescribed by generic</td>
<td>415</td>
<td>16.61</td>
</tr>
<tr>
<td>Percentage of drugs prescribed from EDL</td>
<td>1052</td>
<td>42.11</td>
</tr>
</tbody>
</table>

EDL: Essential drugs list
the most common diagnosis of hyperpigmentation, while Vitiligo was in hypopigmentation. Less common disorders were included in the others category (13.52%), among which pityriasis versicolor (2.46%) and polymorphic light eruption (2.30%) were the most common.

In our study, we found tablets as the most common dosage form prescribed (35.23%) followed by cream (31.31%) and capsules (12.89%), as shown in Figure 3. In the soap category, we have also included face-wash and shampoo. The most common drug used in medicated soap was ketoconazole. Less common dosage forms included in the other categories (0.24%), which were drops, nail lacquer, and tincture.

Antifungals were the most prescribed drug class (31.86%), followed by antihistaminics (17.25%), antibiotics (10.69%), and steroids (10.26%) [Figure 4]. Gastroprotective drugs mainly included proton pump inhibitors and prokinetics. In the other categories (12.12%), topical preparations were the most common, which included topical supplements, moisturizers, and sunscreen/skin lighteners.

**DISCUSSION**

We found the average number of drugs per prescription to be 4.03, which is comparable to the study done by Gupta et al. (4.1)[6] but less compared to Pathak et al. study (5.13)[7] while in Prasad et al. study, it was 2.7.[8] While the most commonly used definition of polypharmacy is being on five or more medicines, numerical definitions of polypharmacy did not account for specific comorbidities present and make it difficult to assess the safety and appropriateness of therapy in the clinical setting.[9] Based on this criterion, the average number of drugs per prescription in our study is appropriate.

In our study, the percentage of encounters with antibiotics was 33.38%, which include both topical and systemic preparations. It is higher than the study of Vineeta et al. (23.15%).[10] The reason for a moderately higher percentage of encounters with antibiotics, in this study, might be due to higher incidences of patients with secondary infections. The number of prescriptions with injection was nil in our study which correlates with the study done by Tegegne and Bialfew, in which only one patient (0.1%) received injectable preparation.[11] The reason for the absence of injectable preparation might be the non-inclusion of in-patients in our study.

Drugs prescribed by their generic names were 16.61%, which are similar to a study done by Narwane et al. (16.6%)[12] but less compared to the WHO standard of 100%. The reason for these low numbers might be due to the prescriber’s lack of confidence in generic medicines, as branded drugs ensure the quality, and/or patients’ preference for branded/innovator products. In the present study, we also found that 42.11% of drugs were prescribed from local institutional EDL which is comparable to the study of Patil et al. (44.2%).[13] Ideally, this number should approach 100% as per the WHO. The reason for this lower percentage might be that certain combination preparations, which are not included in EDL, are preferred to improve compliance in a patient with multiple diseases. In addition, many topical supplements, such as moisturizers and sunscreens, which are not included in EDL, are often required for skin disorders.

We also found dermatophytosis (30.26%) as the most common diagnosis, followed by scabies (12.44%) and acne (11.52%). In a similar study, Boddepalli[14] and Gupta et al.[6] showed tinea and acne as the most prevalent diagnosis. Tablets were the most common dosage form prescribed (35.23%) followed by cream (31.31%) and capsules (12.89%) which are comparable to the study by Pathak et al.[7] and Gambre et al.[15]
In this study, antifungals were the most prescribed drug class (31.86%), followed by antihistaminics (17.25%), antibiotics (10.69%), and steroids (10.26%). These results are comparable to the study of Boddepalli, according to which antifungals, antibiotics and antihistaminics were the most common. In another study by Vakade et al., antihistaminics were the most common drug class followed by antifungals and steroids. Among antifungals, ketoconazole was the most common drug, which was prescribed as topical preparations of soap, shampoo, and cream. Itraconazole was the most common oral antifungal used. Cetirizine was the most common antihistaminic. The most common antibiotics prescribed were topical preparations of clindamycin and neomycin. Oral antibiotics, mostly azithromycin and amoxicillin, were prescribed only to 4.31% of patients.

There were certain limitations associated with the design of our study. First, the observer bias cannot be excluded as it is difficult to blind the clinician regarding the objective of the study which may have affected their prescribing behavior. Second, seasonal variations cannot be assessed due to the short duration of the present study. Third, for indicators, such as the average number of medicines per prescription, and the percentage use of antibiotics and injections, there are no internationally established valid standards. The optimal values of these indicators largely depend on disease patterns, policies, and treatment guidelines and therefore may vary from country to country and over time. Hence, there is a need for a larger multicentric study to establish a standard reference value for these indicators in India.

CONCLUSION

Studies based on drug prescribing patterns are a very important tool not only to guide physicians to improve their prescribing habits but also for hospital administration to recognize the lacunae in drug prescribing and formulate guidelines to facilitate rational drug use. Rational prescribing decreases the incidence of adverse effects, drug interactions, and the emergence of drug resistance. In this study, drugs prescribed with brand names were relatively higher, and, lesser drugs were prescribed from the EDL. To improve rational prescribing from generic and EDL, periodic continuing medical education should be conducted in hospitals to sensitize the physicians and post-graduate students. Drugs prescribed by the generic name can be increased by increasing the confidence of physicians regarding the quality of generic brands.

REFERENCES


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