Drug Utilization Evaluation in Dermatology Department: A Study in the Ambulatory Care Settings

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ABSTRACT

The main aim of the study is to evaluate the prescribing pattern of drugs prescribed in the ambulatory patients attending the dermatology department. This was a prospective observational study conducted for a period of 6 months. Patients who were receiving treatment in the dermatological outpatient department and willing to participate were included in the study and patients in the inpatient dermatology department and also with other co morbid conditions were excluded from the study. A total of 306 cases were collected and among them, about 112 (36.6%) were males and 194 (63.4%) were females. During the study period, majority of the patients were in the age group of 21-30 years (41.2%). The most commonly prescribed classes were found to be Antibacterial drugs 312 (22.1%) followed by Antifungal drugs 258 (18.3%) and Anti-histamines 206 (14.6%). Among the antibacterial, Antibacterial soaps (35.3%) were more commonly prescribed followed by the antibiotics Mupirocin (12.8%) and Clindamycin (11.9%). In case of Antifungals, Ketoconazole (25.2%) was most commonly prescribed drug followed by Fluconazole (14%) and Clotrimazole (14%). Among the Antihistamine drug class, Levocetrizine (76.2%) was most commonly prescribed followed by Hydroxyzine (12.2%). The drug Prednisolone (26.4%) was most commonly prescribed among Corticosteroids, followed by Mometasone furoate (23.6%) and Hydroquinone (13.1%). Periodic evaluation of the prescribing pattern of the drugs can improve the quality of prescriptions. It is the responsibility of the clinical pharmacist to perform the drug utilization studies in order to know the drug prescribing patterns and also to know the prevalent disease conditions at a particular point of time. Clinical pharmacist should create awareness regarding the personal and community hygiene which would result in the prevention of dermatological diseases.

INTRODUCTION

Dermatology is the branch of medicine which deals with the diseases pertaining to skin, nails and hair (Zhen et al., 2014). Skin diseases are the most common disease that burden globally. These are usually chronic and require a life time treatment. In the clinical literature about 3000 varieties of skin diseases were identified while most of them are rarely found (Gupta et al., 2016). They vary from one country to another country and also in different regions within the country. Altogether the skin
disease stands in the 18th position causing health burden worldwide. In 2010 it was the 4th leading cause of nonfatal health burden (Kumar et al., 2016). Various studies stated that the prevalence of skin diseases as 11.16% to 63% in general population. Patients under the age group of second and third decades show higher prevalence with 3.7% to 51.17% (Gupta et al., 2016). The significance of modern therapeutic agents for diagnostic and curative purpose and their contribution to the healthcare sector requires no prominence. But illegitimate use of drugs represents a potential threat to the patients with unnecessary expenses. This prioritizes the review of drug use patterns to ensure safe and effective use of drugs. The international agencies like World Health Organization (WHO) and International Network of Rational Use of Drugs (INRUD) has evolved to promote the appropriate use of drugs by using standard drug use indicators.

The drug use indicators developed by WHO serves the purpose of defining an objective measures in distinguishing the drug use pattern in a country, region (or) individual health facility. These measures in turn allow the health planners, managers and researchers to perform the comparisons of drug use pattern in different areas at different times. The impact of interventions obtained during drug use can be measured using indicators which act as simple supervisory tools. Moreover these indicators help to perceive problems in performance by individual providers in healthcare sector (Maini et al., 2002). Hence in this study we made an attempt to study the prescribing pattern of drugs in the ambulatory patients attending the dermatology department.

**MATERIALS AND METHODS**

This was a prospective observational study conducted for a period of 6 months at Lalitha Endocare & Skincare Hospital, Rajahmundry. After obtaining the approval from IEC (GSPRJY-IEC/Phar.D./2017/06), all the necessary and relevant information was collected on a previously designed patient data collection proforma. Patients who were receiving treatment in the dermatological outpatient department and willing to participate were included in the study and patients in the inpatient dermatology department and also with other co morbid conditions were excluded from the study.

**RESULTS AND DISCUSSION**

Prescribing pattern studies are useful to evaluate and suggest the modifications to the prescriber. Such analysis not only improves the standards of medical treatment at all levels in the health system, but also supports in the identification of drug use related problems. The main aim of our study is to provide the prescribing pattern in the ambulatory patients attending the dermatology department. A total of 306 cases were collected and among them, about 112 (36.6%) were found to be males and about 194 (63.4%) were found to be females. In this study, females with dermatological diseases were more predominant than males and this result was similar to the studies carried out by Kumar et al. (2016); Sarkar et al. (2003); Sajith and Lokhande (2014).

Figure 1 represents the age wise distribution of patients involved in the study. During the study period, majority of the patients were found in the age group 21-30 years (41.2%) and this result was similar to the studies done by Saleem et al. (2012); Tegegne and Bialfew (2018); Sajith and Lokhande (2014). The mean age of the patients

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**Table 1: Categorization of drug classes involved in the study**

| Drug Class     | Frequency (%) |
|----------------|---------------|
| Antibacterial  | 312 (22.2)    |
| Antifungal     | 258 (18.4)    |
| Anti-histamine | 206 (14.6)    |
| Corticosteroids| 144 (10.2)    |
| Cosmetics      | 92 (6.5)      |
| Emollients     | 40 (2.8)      |
| Keratolytics   | 18 (1.3)      |
| Anti-inflammatory| 6 (0.4)    |
| Antiviral      | 4 (0.3)       |
| Others         | 327 (23.3)    |
| Total          | 1407 (100)    |

**Table 2: Drug utilization pattern of Antibacterials involved in the study**

| Drug Name                  | Frequency (%) |
|----------------------------|---------------|
| Anti-bacterial soaps       | 110 (35.3)    |
| Mupirocin                  | 40 (12.8)     |
| Amoxicillin + clavulanic acid| 27 (8.6)   |
| Azithromycin               | 25 (8.1)      |
| Benzoyl peroxide           | 20 (6.4)      |
| Cefalexin                  | 14 (4.5)      |
| Clindamycin                | 37 (11.9)     |
| Doxycycline                | 27 (8.6)      |
| Others                     | 12 (3.8)      |
| Total                      | 312 (100)     |
Table 3: Drug utilization pattern of Antifungals involved in the study

| Drug Name          | Frequency (%) |
|--------------------|---------------|
| Amorolfin          | 10 (3.8)      |
| Bifonazole         | 1 (0.4)       |
| Cetaphic dam lotion| 5 (1.9)       |
| Cicloperox         | 2 (0.8)       |
| Cicloproxamine     | 1 (0.4)       |
| Climbazole         | 4 (1.6)       |
| Clotrimazole       | 36 (14)       |
| Eberconazole       | 1 (0.4)       |
| Fluconazole        | 36 (14)       |
| Griseofulvin       | 1 (0.4)       |
| Itraconazole       | 19 (7.4)      |
| Ketoconazole       | 65 (25.2)     |
| Luliconazole       | 21 (8.1)      |
| Miconazole         | 4 (1.6)       |
| Minoconazole       | 1 (0.4)       |
| Prictone olamine   | 1 (0.4)       |
| Seratoconazole     | 28 (10.7)     |
| Terbinafine        | 21 (8.1)      |
| Total              | 258 (100)     |

who were observed with the dermatological diseases was observed to be 28.42 (+/- 13.72) years. The average number of drugs per prescription was found to be 4.6 drugs. Most commonly observed diagnosis in our study was found to be Tinea followed by Acne.

Table 4: Drug utilization pattern of Antihistamines involved in the study

| Drug Name     | Frequency (%) |
|---------------|---------------|
| Bepotastine   | 4 (1.9)       |
| Desloratadine | 13 (6.3)      |
| Ebastine      | 4 (1.9)       |
| Fexofadin HCl | 3 (1.5)       |
| Hydroxyzine   | 25 (12.2)     |
| Levocetirizine| 157 (76.2)    |
| Total         | 206 (100)     |

Table 1 represents the categorization of drug classes involved in the study. Among the 306 prescriptions, a total of 1407 drugs were found with 38 different classes. Among them, the most commonly prescribed classes were found to be Antibacterial drugs 312 (22.1%) followed by Antifungal drugs 258 (18.3%) and Anti-histamines 206 (14.6%). Among the 1407 drugs prescribed in the prescription, 645 (45.8%) were prescribed orally and 762 (54.2%) were prescribed topically. Thereby in this study, topical agents were more frequently prescribed when compared to oral agents.

Table 2 represents the list of drugs which comes under the class of Antibacterials. Antibacterial soaps (35.3%) were more commonly prescribed followed by the antibiotics Mupirocin (12.8%) and Clindamycin (11.9%). Antibiotics were the most commonly prescribed drugs in the dermatology department in the present study. According to the pharmaceutical industry monitoring data, about 5% of the prescriptions were prescribed with antibiotics by the United States dermatologists which may...
Table 5: Drug utilization pattern of Corticosteroids involved in the study

| Drug Name               | Frequency (%) |
|-------------------------|---------------|
| Avobenzone              | 3 (2.1)       |
| Betamethasone           | 1 (0.7)       |
| Clobetasol              | 7 (4.8)       |
| Deflazocort             | 6 (4.2)       |
| Desonide                | 3 (2.1)       |
| Finasteride             | 2 (1.4)       |
| Fluocinole              | 5 (3.5)       |
| Halobetasol propionate  | 16 (11.1)     |
| Hydrocortisone          | 5 (3.5)       |
| Hydroquinone            | 19 (13.1)     |
| Lapixyl                 | 1 (0.7)       |
| Mequinal                | 1 (0.7)       |
| Mometasone furoate      | 34 (23.6)     |
| Prednisolone            | 38 (26.4)     |
| Niacinamide             | 3 (2.1)       |
| Total                   | 144 (100)     |

Table 5: Drug utilization pattern of Corticosteroids involved in the study

Females were found to be more predominant with dermatological diseases when compared to males. The most commonly prescribed drug classes were found to be Antibacterials followed by Antifungals and Antihistamines. The most commonly prescribed drug in our study was found to be Levocetrizine. The most frequently prescribed route of administration was found to be topical compared to oral. Periodic evaluation of the prescribing pattern of the drugs can improve the quality of prescriptions. It is the responsibility of the clinical pharmacist to perform the drug utilization studies in order to know the drug prescribing patterns and also to know the prevalent disease conditions at a particular point of time. Clinical pharmacist should create awareness regarding the personal and community hygiene which would result in the prevention of dermatological diseases.

**CONCLUSIONS**

In our study, females were found to be more predominant with dermatological diseases when compared to males. The most commonly prescribed drug classes were found to be Antibacterials followed by Antifungals and Antihistamines. The most commonly prescribed drug in our study was found to be Levocetrizine. The most frequently prescribed route of administration was found to be topical compared to oral. Periodic evaluation of the prescribing pattern of the drugs can improve the quality of prescriptions. It is the responsibility of the clinical pharmacist to perform the drug utilization studies in order to know the drug prescribing patterns and also to know the prevalent disease conditions at a particular point of time. Clinical pharmacist should create awareness regarding the personal and community hygiene which would result in the prevention of dermatological diseases.

**Conflict of Interest**

None.

**Funding Support**

None.

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