ejpmr, 2022, 9(10), 502-506

SJIF Impact Factor 6.222

EUROPEAN JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.ejpmr.com

Research Article

ISSN 2394-3211

EJPMR

PRESCRIPTION BASED DRUG UTILIZATION EVALUATION OF ANTIMICROBIAL AGENTS AMONG SKIN DISORDER PATIENTS IN A TERTIARY CARE HOSPITAL

Aditi Sajwan[1], Ayushi Belwal[1], Nitin Sharma[1] and Yogesh Joshi[2*]

[1]Pharm.D Research Scholar, Department of Pharmacy Practice, Division of Pharmaceutical Sciences, Shri Guru Ram Rai Institute of Technology and Science, Patel Nagar, Dehradun-248001, Uttarakhand (India).
[2]Associate Professor, Department of Pharmacy Practice, School of Pharmaceutical Sciences, Shri Guru Ram Rai University, Patel Nagar, Dehradun-248001, Uttarakhand (India).

***Corresponding Author: Yogesh Joshi**
Pharm.D Research Scholar, Department of Pharmacy Practice, Division of Pharmaceutical Sciences, Shri Guru Ram Rai Institute of Technology and Science, Patel Nagar, Dehradun-248001, Uttarakhand (India).

Article Received on 19/08/2022 **Article Revised on 09/09/2022** **Article Accepted on 29/09/2022**

ABSTRACT

Skin disorders are the major health problems which affect millions of people worldwide. There are various factors that somewhere result in the growth of skin diseases like aging, genetic and environmental factors. This study aims to evaluate prescription-based drug utilization of antimicrobial agents among skin disorder patients in a tertiary care hospital. Total 150 prescriptions were analyzed during the study. Female patients were more as compared to male patients. Majority of the patients were in the adolescent age group i.e. 18-28 years. Among social habits, majority of patients (19.33%) were found alcoholic. Occupation wise distribution shows that majority of patients were students (32%) and among the socioeconomic distribution, majority of patients belong to the middle class (62%). Fungal infections (50%) were more as compare to other infections. Tinea crusis (28%) was the most common disease in the study population followed by Tinea Corporis (27.33%) then Acne (10%). Among the drug categories, anti-fungal agents (43.91%) were prescribed more frequently followed by anti-histaminics (19.17%) and antibiotics (11.9%). This drug utilization study provides an information like skin disorders prevails at a high rate among young adults age groups while due to rising concept of polypharmacy there is utmost requirement to incorporate rational drug use concept in prescribing.

KEYWORDS: skin disorders, prescription, antimicrobial, drug utilization, treatment.

INTRODUCTION

Drug utilization research is an essential part of pharmacoepidemiology as it describes the extent, nature and determinants of drug exposure. Together, drug utilization research and pharmacoepidemiology may provide insights into the various aspects of drug use and drug prescribing. Drug utilization evaluation (DUE) is defined as an ongoing, authorized and systematic quality improvement process which is basically formulated to:

- deliver response of results to clinicians and other related groups.
- formulate standards and norms which interpret proper use of drug.
- facilitate ethical use of drug by providing proper education.
- check proper usage of drug and the pattern of prescription.

The DUE study has its main focus on the drugs where single drug or class of drugs is being assessed by:

- reducing hospital admission.
- reducing medicine relevant difficulties and medication errors.
- enhancing the knowledge of prescriber and practice of ethical prescribing.
- decreasing health and drug relevant medication prices health wise.
- increasing quality of life and organized healthcare.[1-3]

The skin protects our body from various microbes, helps regulate body temperature, fluid balance and sensation. Changes in the skin often indicate the problem of other body system disorders including liver disorders, cancer, shock, anaemia, respiratory disorders. There are various skin disorders and these disorders differ based on symptoms and diagnosis. Some of the common skin disorders are.[4-7]

Acne

Acne is an inflammatory skin condition in which hair follicles become clogged. Acne is common among all age groups but most prevalent in teenagers and adults. Various types of lesions and pimples are caused by acne. It is one of the most widespread disease, mainly located in face, chest, shoulder and neck.

- Whitehead- hair follicles under the skin produces white bump.
- Blackhead- hair follicles on the surface of the skin open up and looks black.
- Pustules - which are red pimples and pus is filled in them.
- Papules- that are raised red bump due to infected hair follicle.[8]

Psoriasis

It is an autoimmune disorder that happens when T-lymphocytes attacks the skin cells that are healthy. Very common type of psoriasis is plaque psoriasis in which there are red patches and papules. There are 5 different types of psoriasis:

- Plaque psoriasis -causes thick red patches of skin.
- Pustular psoriasis -causes pus and inflammation around the skin.
- Erythrodermic psoriasis- causes patches of skin that look like severe burns covering large portions of the body.
- Inverse psoriasis- causes a red and inflamed lesions in the folds of the skin.
- Guttate psoriasis- causes small red spots on the scalp, face, torso, and limbs.[9]

Eczema

It is also known as atopic dermatitis which causes skin to dry, it begins with intense itching and then later by aggravates scratching. It is commonly found in infants, children and also continues to adults. Symptoms include rashes on face, scalp, neck, wrist or legs. The cause of this disease is unknown. Various types of eczema include:

- Atopic dermatitis- skin disease which is chronic in nature and causes itching and skin inflammation.
- Irritant contact eczema- happens when the skin comes in contact of any irritant like acid, agents that are used for cleaning etc.
- Allergic contact eczema- this happens when the skin comes in contact with any particles that is understood as foreign by the immune system.
- Nummular eczema- occurs most frequently on the buttocks arm back and lower legs.[10]

Candidiasis

Candidiasis may develop by taking antibiotics because the already existing bacteria is killed that reside on the body. People with asthma can also cause candidiasis of the mouth due to often use of inhaled corticosteroids. Diabetic patient, people receiving cancer therapy, obese patients are more prone to candida. In some patients with weaker immune system, candida invades in deeper tissues which causes life threatening systemic candidiasis. The symptoms of this infection include diaper rash, vaginal candidiasis, angular cheilitis, nail infection etc.[4-5]

Skin disorders are the major health problems which affect millions of people worldwide. There are various factors that somewhere result in the growth of skin diseases like aging, genetic and environmental factors. There are few studies that are conducted in India to find out the complications of skin diseases, because of low mortality rate in comparison to other diseases, which results in international health policy makers and local decision makers to make dermatological morbidities a low priority. Another concern is the under-estimated benefit of public health interventions in reducing the morbidity, prevalence and mortality of skin diseases. Presently, this study focuses on the aims to evaluate prescription-based drug utilization of antimicrobial agents among skin disorder patients in a tertiary care hospital.[4,7]

METHODOLOGY

The study was a prospective, observational study carried among skin disorder patients in OPD of Dermatological Department in Shri Mahant Indiresh Hospital, Patel Nagar, Dehradun, Uttarakhand. The study data was collected from the prescription record of patients and direct interview of patients or their relatives/ caregivers in a format containing patients demographics as well as medicines related information. The study was carried out after getting approval from the Ethical Committee. Patients or their relatives/ caregivers were asked priorly for their willingness to participate in the study before collecting data through a duly signed informed consent in written form.

RESULTS AND DISCUSSION

A total of 150 patients diagnosed with skin disorders, who attended the skin outpatient department during study period, were included for demographic analysis as per the inclusion and exclusion criteria (Table 1). Gender wise distribution of patients showed that there were 70 (46.67%) males and 80 (53.33%) females in the study. Majority of skin disorders patients belong to the age group of 18-28 years (39.33%) followed by age group 29-38 years (26%) while age group of <69 years contributed minimum patients (5.33%). The distribution of social habits among patients showed that 19.33% patients were alcoholic, 6.67% patients were oral tobacco users and 6% patients were smokers. Occupation wise distribution of patients showed that majority of patients in the study were students (32%) followed by housemakers (30%), government job (14%) while private job (12%) and business (12%) contributed minimum number of patients. To categorize the patients according to their socio-economic status, we divided them into three major groups; lower class, middle class and higher class according to their family income in monthly basis. To categorize the patients according to their socio-economic status, we divided them into three major groups; lower class, middle class and higher class according to their family income in monthly basis and majority of patients (62%) were from middle class of socio-economic status followed by lower class (32.67%) while higher class was contributed by minimum number of patients (5.33%) only.

Table 1: Demographic analysis of patients.

Demographic Patterns	Number of Patients (%) (n=150)
Gender wise	
Male	70 (46.67)
Female	80 (53.33)
Age wise	
18-28	59 (39.33%)
29-38	39 (26.00%)
39-48	22 (14.67%)
49-58	17 (11.33%)
59-68	16 (10.67%)
>69	08 (5.33%)
Social Habit wise	
Alcoholic	29 (19.33%)
Oral Tobacco	10 (6.67%)
Smoking	09 (6.00%)
Occupation wise	
Government job	21 (14.00%)
Private job	18 (12.00%)
Business	18 (12.00%)
Housemaker	45 (30.00%)
Student	48 (32.00%)
Socio-economic wise	
Lower Class (<20,000)	49 (32.67%)
Middle Class (20,000-50,000)	93 (62.00%)
Higher Class (>50,000)	08 (5.33%)

On the basis of pathogenic microorganism as a cause of disease, patients were categorized into bacterial, viral, fungal, parasitic and other infections. Out of all 150 patients, 6.67% patients were categorized with bacterial infections, 2% with viral infections, 50% with fungal infections, 36.67% with parasitic infections and 4.67% with other infections. Maximum number of patients were categorized with fungal infections while least number of patients were categorized with viral infections (Figure 1).

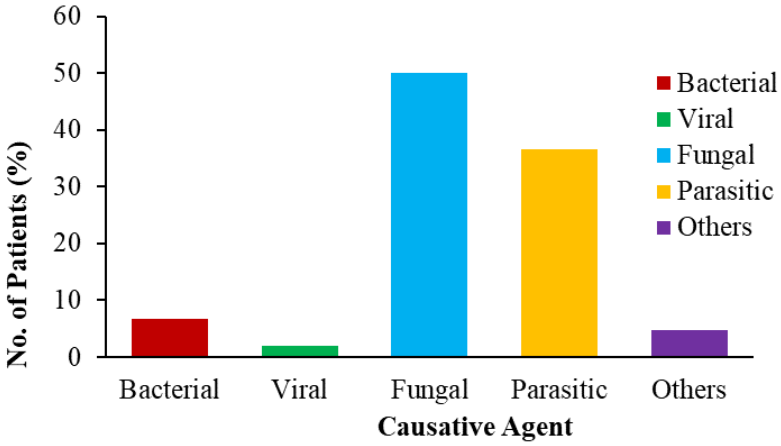

Figure 1: Causative agent wise distribution of patient.

According to the diagnosis of the disease among 150 patients, Figure 2 showed that most common disease was found to be Tinea Cruris (28%) followed by Tinea Corporis (27.33%), Acne Vulgaris (10%), Scabies (6.67%), Psoriasis (6%), Vitiligo (6%), Tinea Faciei (4.67%), Herpes Zoster (4.67%), Wart (4%), and Urticaria (2.67%).

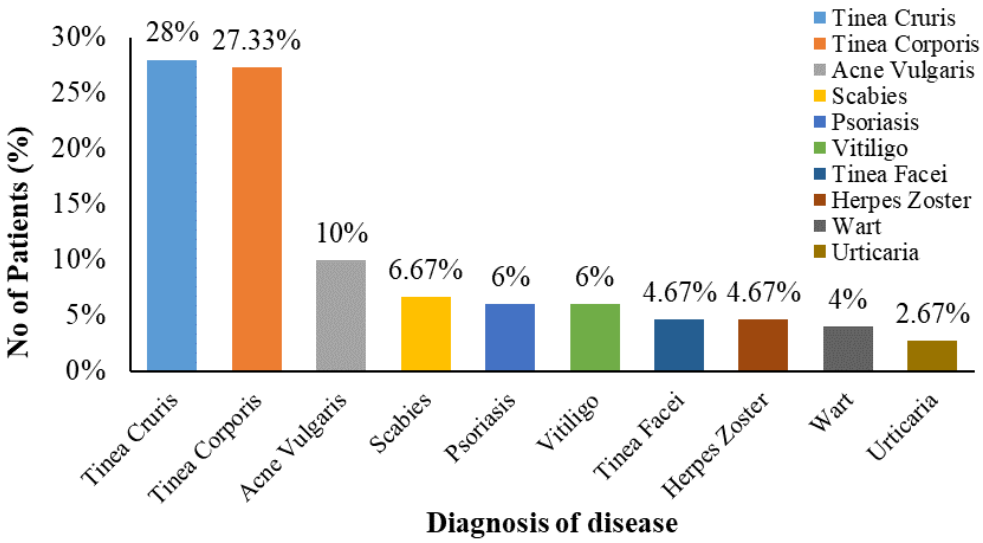

Figure 2: Diagnosis wise distribution of patients.

Table 2 showed that a sum total of 772 drugs were prescribed to 150 patients among which anti-fungal agents were prescribed to majority of the patients (43.91%) while anti-viral agents were prescribed to minimum patients (0.90%).

Table 2: Categorization of drug therapy.

S.No.	Drug Category	No. of Drugs (%) (n=772)
1.	Antihistamines	148 (19.17)
2.	Antibiotics	92 (11.9)
3.	Multivitamins	55 (7.12)
4.	Steroids	51 (6.60)
5.	Anti-fungal agents	339 (43.91)
6.	Retinoids	24 (3.10)
7.	Antiparasitic drugs	21 (2.72)
8.	Analgesics	20 (2.59)
9.	Antacids	15 (1.94)
10.	Anti-viral agents	07 (0.90)

Among the class of anti-microbial agents, most commonly prescribed drug category was anti-fungal agents. Anti-fungal drugs were prescribed to total 339 patients out of 772 patients. Among anti-fungal agents, Itraconazole was prescribed to majority of the patients (30.97%) while Griseofulvin (7.37%) was prescribed to minimum patients (Table 3).

Table 3: Categorization of anti-fungal agents.

S.No.	Anti-fungal agents	No. of Drugs (%) (n=339)
1.	Itraconazole	105 (30.97)
2.	Luliconazole	70 (20.64)
3.	Ketoconazole	27 (7.96)
4.	Sertaconazole	40 (11.79)
5.	Fluconazole	39 (11.50)
6.	Clotrimazole	33 (9.73)
7.	Griseofulvin	25 (7.37)

From total 772 drugs that were prescribed to the patients, 43.92% drugs were prescribed as monotherapy and 56.08% drugs were prescribed as combination therapy as shown in Figure 3.

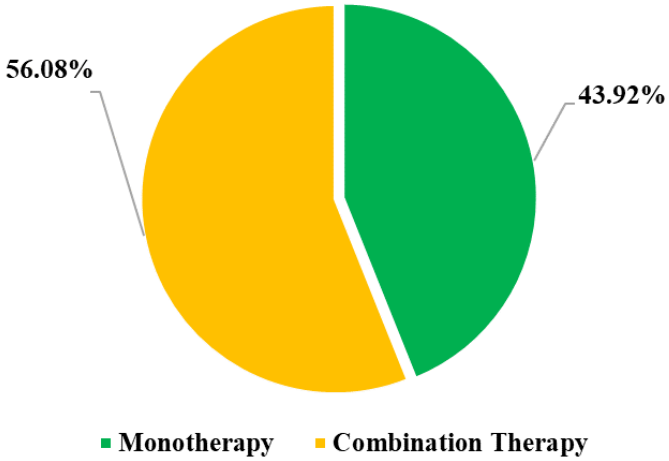

Figure 3: Assessment of monotherapy v/s combination drug therapy.

Table 4 showed average number of drugs per patient among which minimum number of drugs per patient was 2 whereas maximum number of drugs per patient was 11. The patients to whom 11 drugs were prescribed were 2% whereas to whom 2 drugs were prescribed were also 2%. By applying statistical analysis, the average number of drugs per patient was found to be 5.12 ± 1.93 (Mean ± Standard Deviation) and variance is 3.76.

Table 4: Average number of drugs per patient.

No. of drugs per patient	No. of Patients (%) (n=150)
2	03 (2.00)
3	25 (16.67)
4	47 (31.33)
5	21 (14.00)
6	21 (14.00)
7	13 (8.66)
8	10 (6.67)
9	06 (4.00)
10	01 (0.66)
11	03 (2.00)

CONCLUSION

As skin disorders prevails at a high rate among young adults age groups, so the responsibility lies on them to follow the treatment. Social habits like alcohol and tobacco consumption need to be considered among patients for better quality of life. Study highlighted the widespread nature of fungal infections and antifungal drug use among study subjects, therefore awareness regarding prevention and therapeutic management needs to be provided among general public. With the rising concept of polypharmacy seen in our study with a usage of high number of drugs per prescription, there is utmost requirement to incorporate rational drug use concept in prescribing.

REFERENCES

1. Introduction to Drug Utilization Research. WHO, 2003.
2. WHO expert committee. The selection of essential drug, technical report series no. 615.2- Geneva: World Health Organization, 1977.
3. Maniyar Y, Bhixavatimath P, Akkone V. A drug utilization study in the Ophthalmology department of a Medical College, Karnataka, India. Journal of clinical and diagnostic research 2011; 5(1): 82-84.
4. Chiang NYZ, Verbov J. Dermatology- A handbook for medical students and junior doctors, 2nd Edition, British Association of Dermatologists, 2014: 39-42.
5. Dipirio JT, Talbert RL, Yee GC, Wells BG, Posey LM. Pharmacotherapy: A Pathophysiologic Approach, 7th Edition, The McGraw-Hill Companies, Inc, 2008; 1608- 1614.
6. Alcalay J. Dermatology: a medical, surgical and aesthetic profession. Isr Med Assoc J, 2008; 10: 404-405.
7. Sajwan A, Belwal A, Sharma N, Joshi Y. A Concise Review on Skin Disorders. Saudi J Med Pharm Sci, 2022; 8(5): 252-256.
8. Keri, J. E. Acne. MSD Manual: Professional Version. Available at https://www.msdmanuals.com/en-in/home/skin-disorders/acne-and-related disorders/acne.
9. Das, S. Psoriasis. MSD Manual: Professional Version. Available at https://www.msdmanuals.com/en-in/home/skin-disorders/psoriasis-and-scaling-disorders/ psoriasis.
10. Ruenger, T. M. Overview of Dermatitis. MSD Manual: Consumer Version. Available at https://www.msdmanuals.com/en-in/home/skin-disorders/itching-and-dermatitis/overview-of-dermatitis.