STUDY OF DRUG UTILISATION PATTERN IN ACNE VULGARIS IN DERMATOLOGY OUTPATIENT DEPARTMENT OF A TERTIARY CARE HOSPITAL

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ABSTRACT

Objectives: The aims of this study were as follows: (1) To study the drug utilization pattern of drugs prescribed to patients suffering from acne vulgaris attending the Outpatient Department of Dermatology at Tezpur Medical College and Hospital. 2 To assess the rationality of prescriptions using the World Health Organization (WHO) core indicators.

Acne vulgaris is one of the most common skin disorders, affecting more than 85% of adolescents worldwide. The irrational use of drugs is a significant concern in modern medical practice, as it can lead to ineffective treatment, unnecessary prescriptions, adverse effects, and an economic burden on both patients and society.

Results: A total of 2,360 prescriptions were analyzed. A female predominance was observed among the patients, with the most common age group being 21–30 years. The average number of drugs per encounter was 3.21. The percentage of medicines prescribed by generic names was 62.35%, and the percentage of antibiotics prescribed was 29%. The most commonly prescribed antibiotic was doxycycline, and the majority of drugs prescribed were topical (74.32%).

Conclusion: This study performed relatively well when compared to other similar studies but still fell short when measured against the optimal values recommended by the WHO. An improvement in the prescribing pattern is necessary to reduce the unnecessary prescription of drugs, enhance the effectiveness of treatment, and lower the cost of treatment.

Keywords: Acne vulgaris, Drug utilization pattern, prescription pattern, World Health Organization core prescribing indicators, rational prescription, Prescription writing.

INTRODUCTION

Skin diseases are widespread and contribute significantly to the global disease burden. In fact, skin conditions rank as the 18th leading cause of health burden worldwide, and in 2010, they were the fourth leading cause of non-fatal health burden globally. Acne vulgaris, commonly known as acne, is one of the most prevalent inflammatory skin disorders. It affects the pilosebaceous units of the skin, including the face, neck, chest, and upper back. Clinically, acne manifests as comedones (a pathognomonic lesion), inflammatory papules, pustules, nodules, and cysts. Over 85% of adolescents globally are affected by acne, with more than 40% experiencing persistent acne into their 20s, and some continuing into adulthood. In addition to clinical severity, acne patients may face complications such as post-inflammatory hyperpigmentation and scarring. Due to its visibility, acne can cause significant disfigurement, affecting the patient's quality of life. It can also lead to social impairment, loss of confidence, depression, and even suicidal tendencies.

Acne severity is categorized into four grades based on the predominant lesions present:
- Grade 1: Comedones, occasional papules
- Grade 2: Papules, comedones, few pustules
- Grade 3: Predominant pustules, nodules, abscesses
- Grade 4: Mainly cysts, abscesses, widespread scarring.

A variety of treatments are available for acne, including topical and systemic drugs such as antimicrobials, Vitamin A analogs (retinoids, including isotretinoin), and hormonal preparations. These drugs may be used individually or in fixed-dose drug combinations (FDDCs).

Drug utilization studies are important tools for exploring the role of drugs in society. These studies focus on the marketing, distribution, prescription, and use of drugs, with particular attention to their medical, social, and economic impacts. The irrational use of drugs is a significant concern in modern medical practice, as it can lead to ineffective treatments, unnecessary prescriptions, adverse effects, and economic burdens on both patients and society. Rational drug prescribing is defined as using the fewest drugs possible to achieve the best results in the shortest time at a reasonable cost. Monitoring drug use patterns in hospital settings is essential to assess rationality, provide feedback, and suggest improvements to prescribing practices, thereby enhancing therapeutic benefits and minimizing adverse effects. Due to rising healthcare costs and concerns about inappropriate drug prescriptions, the World Health Organization (WHO) and the international network for rational use of drugs have developed standardized drug use indicators. These indicators help healthcare providers improve prescription quality and identify areas for improvement. With this in mind, this study aims to analyze the prescribing patterns in the dermatology outpatient department (OPD) of a tertiary care hospital.

Details of WHO core prescribing indicators are as follows [1]:
1. Average number of medicines per encounter: Average calculated by different number of drug products prescribed by the number of encounters surveyed

2. Percentage of medicines prescribed by generic names: Percentage calculated by dividing the number of medicines prescribed by generic names by the total number of drugs prescribed, multiplied by 100

3. Percentage of encounters with an antibiotic prescribed: Percentage, calculated by dividing the number of patient encounters during which an antibiotic is prescribed, by the total number of encounters surveyed, multiplied by 100

4. Percentage of encounters with an injection prescribed: Percentage, calculated by dividing the number of patient encounters during which an injection is prescribed, by the total number of encounters surveyed, multiplied by 100. Immunization not counted as injections

5. Percentage of medicines prescribed which are from the essential medicines list or formulary list: Percentage, calculated by dividing the number of products prescribed which are listed on the essential drugs list, the national list of essential medicines (NLEM) by the total number of products prescribed, multiplied by 100.

Aims and objectives

The aims of this study were as follows:

1. To study the drug utilization pattern of drugs prescribed to patients suffering from acne vulgaris attending the OPD of Dermatology at Tezpur Medical College and Hospital

2. To assess the rationality of prescriptions using the WHO core indicators.

METHODS

Study design

The study design was an observational, cross-sectional study.

Study duration

The study duration was 7 months, from December 2022 to June 2023.

Study setting

This study was conducted by the Department of Pharmacology at Tezpur Medical College and Hospital, in collaboration with the Department of Dermatology at Tezpur Medical College and Hospital, Assam.

Inclusion criteria

1. Patients suffering from acne attending the Dermatology OPD
2. Patients aged 10 years and above of any gender
3. Patients willing to provide written, informed consent for the study.

Exclusion criteria

1. Patients admitted to the inpatient department
2. Patients suffering from other skin conditions, and pregnant or lactating women.

Sample size

The sample size was 260.

Data collection

After obtaining clearance from the Institutional Ethics Committee, prescriptions of patients suffering from acne vulgaris who met the inclusion criteria were collected from the OPD of the Dermatology Department at Tezpur Medical College and Hospital. The data were recorded in the case record form. The values were then compared to the WHO's recommended guidelines and other relevant research studies. Various demographic factors, such as age, gender, and the stage of the disease, were also obtained from the medical records.

Statistical analysis

All the data for the study were compiled in Microsoft Excel 365 and analyzed.

RESULTS

A total of 260 prescriptions for patients on anti-acne drugs were analyzed. Among the 260 patients, 152 were females (58.46%) and 108 were males (41.54%). The most common age group was 21–30 years

(51.29%), followed by 10–20 years (41.67%) (Fig. 1). The acne cases were graded, with Grade 2 constituting the majority of cases (58%), followed by Grade 1 (24%) (Fig. 2). In total, 834 drugs were prescribed across 260 prescriptions, with the average number of drugs per prescription being 3.21. Of these, 62.35% of the drugs were prescribed by their generic names. Antibiotics accounted for 29% of the total drugs prescribed. No injectables were prescribed to any of the patients. In addition, 23.47% of the drugs prescribed were from the NLEM. The most commonly prescribed class of drugs was antibiotics (29%), followed by multivitamins (26%) (Fig. 3). The most frequently prescribed antibiotic was oral doxycycline, followed by topical clindamycin. Of the total drugs prescribed, 25.68% were in oral form, while 74.32% were topical. Out of the 260 prescriptions, 112 contained two drugs, while 96 contained three drugs (Fig. 4). Fixed-dose combinations (FDCs) accounted for 7.24% of the drugs prescribed, with clindamycin and adapalene topical preparation being the most common.

DISCUSSION

Among the 260 study participants, there was a female predominance of 58.46%, which is consistent with the study conducted by Nandini *et al.* (58.57%) [2]. The most common age group of patients suffering from acne vulgaris was 21–30 years (51.29%), which is consistent with the study conducted by Patel *et al.* (57.89%) [3]. The most common grade of acne was Grade 2, which is consistent with the study conducted by
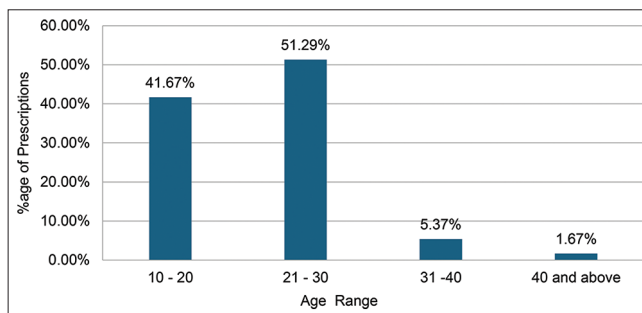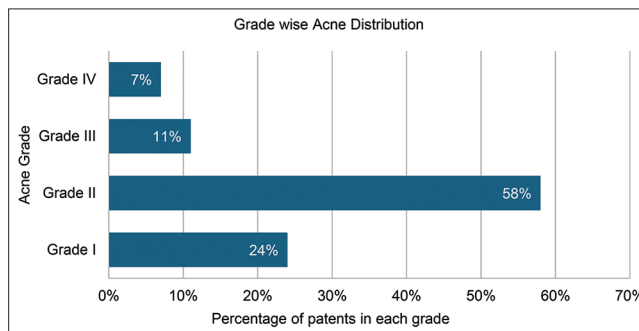

Fig. 1: Age-wise distribution of acne
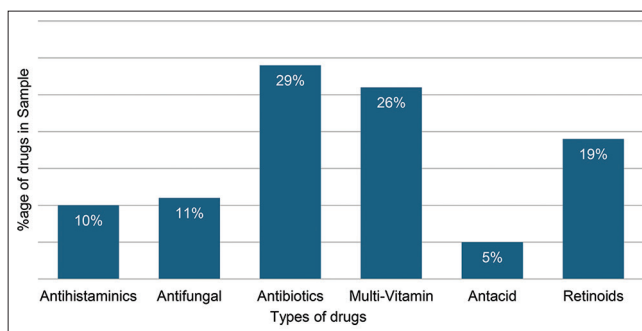

Fig. 2: Grade-wise distribution of patients

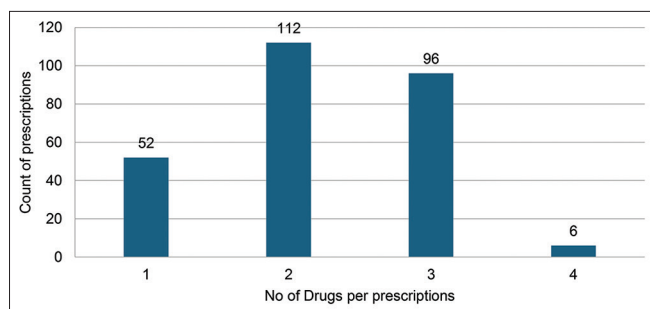**Fig. 3: Distribution of the drugs prescribed**

Fig. 4: Distribution by the number of drugs per prescription

Table 1: WHO core prescribing indicators

WHO core prescribing indicators	Frequency/percentage
Average number of medicines per encounter	3.21
Percentage of medicines prescribed by generic names	62.35
Percentage of encounters with an antibiotic prescribed	29
Percentage of encounters with an injection prescribed	0
Percentage of medicines prescribed which are from National List of Essential Medicines (NLEM) 2022	23.47

WHO: World Health Organization

Patro *et al.* (60%) [4]. The average number of drugs per encounter in our study was 3.21, which is higher than the optimal value of 1.6–1.8 as recommended by the WHO [5]. However, it is similar to the study conducted by Patro *et al.* (3.003) [3]. The percentage of encounters with generic names in our study was 62.35%, which is lower than the optimal value of 100% as recommended by the WHO [5]. However, it is significantly higher than the study conducted by Patil *et al.* (0%) [6]. The percentage of encounters with an antibiotic in our study was 29%, which exceeds the optimal range of 20–26.8% as per WHO [5], and is also higher than the study by Pathak *et al.* (15.91%) [7]. The percentage of medicines prescribed from the NLEM was 23.47%, which is significantly lower than the optimal value of 100% as recommended by the WHO [5], but still higher than the study conducted by Patel *et al.* [10].

The most common class of drugs prescribed in our study was antibiotics (29%), which contrasts with the study by Pathak *et al.* where antifungal drugs were most common (21.02%) [7]. The most commonly prescribed antibiotic was doxycycline, which aligns with the study by Belhekar *et al.* [8]. Most of the prescriptions in our study contained two drugs (112), which is consistent with the study by Goyal [9].

In our study, the majority of drugs prescribed were topical (74.32%), similar to the study by Patel *et al.* (77%) [3]. FDCs accounted for 7.24% of the drugs in our study, while in the study by Nandini *et al.*, it was 11.48%. The most common FDC in our study was clindamycin and adapalene topical preparation, which is consistent with the study by Ahmed [10].

Limitations of the study

The study had a few limitations. Since it was conducted at a single location, the findings may not be generalizable to a larger population. A longer data collection period would have been necessary to gather a more significant number of samples. In addition, due to the cross-sectional nature of the study, it was not possible to observe long-term trends in the use of ophthalmological medications.

CONCLUSION

In our study, the proportion of drugs prescribed by generic names and from the NLEM was lower than the optimal values recommended by the WHO. Therefore, physicians and prescribers should be encouraged to prescribe more generic drugs and those listed in the NLEM. Periodic audits should be conducted to minimize errors, optimize prescriptions, and ensure the effective treatment of acne vulgaris. Drug utilization studies provide objective evaluations and analyses of prescribers' practices, offering feedback that can help improve prescribing behavior. This approach promotes rational drug use among the population. Hospital administrations can implement a formulary to guide dermatologists, treating physicians, and relevant prescribers, ensuring that prescriptions are limited to those that offer the most effective treatment for patients.

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