https://doi.org/10.333279/jkcd.v13i2.576

EFFICACY OF TAZAROTENE 0.1% GEL VERSUS ISOTRETINOIN 0.05% GEL IN THE TREATMENT OF FACIAL ACNE VULGARIS

AYESHA JAMIL[1], GHAFOOR ULLAH[2], FARHAD ALI[3], SIDRA SHABBIR[2]

[1]Basic Health Unit Shamat Pur, District Mardan
[2]Dermatology Unit, Hayatabad Medical Complex, Peshawar
[3]District Head Quarter Hospital, Landi Kotal

ABSTRACT

Objectives: *To compare the effect of isotretinoin 0.05% gel vs tazarotene 0.1% gel in reducing the percent facial acne score for the management of acne vulgaris.*

Materials and Methods: *The randomized controlled study was conducted at the Lady Reading Hospital in Peshawar's Department of Dermatology from January 3, 2020, to January 10, 2020 A total of 114 subjects were carefully selected and randomly divided into two groups (57 in each group). Every single patient had thorough medical evaluations and history assessments. While those participating in group B received topical isotretinoin 0.05% gel three times per day, those in group A received topical tazarotene gel 0.1% three times each day. Scores on the Acne Global Severity Scale and the percentage of facial acne lesions were taken at baseline and the conclusion of treatment. Following the conclusion of therapy, all patients will be followed up with 4 weeks later. To analyze the data, SPSS was used. Chi-square test was used to compared treatment efficacy between the two groups.*

Results: *In group A, the mean age was 18±2.6 years, but group B mean age was almost 19.4±4.4 years. In group A, 57% of the individuals were female, while 43% of participants were males. In Group B, nevertheless there were 60% female participants and 40% male patients. 38 (66%) of the participants in group A (tazarotene) demonstrated efficacy employing the percent facial acne lesion score. On the other hand, isotretinoin (Group B) was successful in 27 (48%) of the patients.*

Conclusion: *During managing acne vulgaris on the face, tazarotene 0.1% gel performs more effectively than isotretinoin 0.05% gel.*

Key words: *Efficacy, Tazarotene 0.1% gel, Isotretinoin 0.05% gel, facial acne vulgaris, Percent facial acne lesions score*

INTRODUCTION

Acne vulgaris is prominent inflammatory dermatological condition. Despite it's often thought of as a self-contained adolescent illness, it regularly extends into adulthood at a high level. Acne about 90% of teens, and in half of those, the disorder extends into adulthood.[1] 1% of males and 5% of women still have lesions at age 40.[2] The latest research reveals an increasing frequency of acne in kids, probably due to pubertal onset.[3] lately there has been an attempt for classifying acne as an ongoing problem due to the fact that it can last for decades and necessitates long-term treatment.[4] Acne undoubtedly has adverse psychosocial influence and can leave scars that are permanent.[5] It follows that patients' motivation to seek medical attention is not surprising.[6]

Since lesion morphology significantly determines the best therapeutic strategy, an in-depth investigation of the morphology and the degree of acne is an essential first stage in medical treatment.[7] The growing popularity of topical retinoids in the medical management

Correspondence:
Ghafoor Ullah
Assistant Professor
Dermatology Unit, Hayatabad Medical Complex, Peshawar
Email: dr_ghafoorullah@yahoo.com

of acne is the most noticeable modern progress. They are advised for all kinds of acne, with the exception of those requiring the use of oral retinoids, since several randomized trials demonstrate their effectiveness in comparison to vehicles.[8,9]

The topical retinoid medications tretinoin, isotretinoin, adapalene, and tazarotene are available.[10] These medicines come in a variety of strengths and forms, including cream, gel, liquid, and microspheres. Formulas differ according on the nation.[11] Transient skin irritation limits the use of retinoids, but this can be avoided by choosing formulations with lower concentrations or cream bases.[12] Adapalene was reported to be the most effective retinoid in a number of small randomized experiments, although tazarotene was also the most irritating, according to certain randomized controlled trials.[13]

In one research, 56% of individuals with face acne vulgaris considered the isotretinoin 0.05% gel to be beneficial.[14] In a different trial, at the fourth post-treatment evaluation, 63.3% of patients receiving Tazarotene 0.1% gel demonstrated 50-75% lesion removal as opposed to just 23.4% of patients receiving Isotretinoin 0.05% gel (p=0.002).[15] In a different trial, in the eighth follow-up week 16, 30% of acne vulgaris patients in the tazarotene group shown good response.

The purpose of this study is to evaluate the safety and effectiveness of topical isotretinoin 0.05% gel vs tazarotene 0.1% gel for the treatment of face acne vulgaris. Despite the fact that isotretinoin is still used locally, recent study demonstrated that tazarotene is superior to it.[15] This will be the first type of research conducted locally to compare the effectiveness of tazarotene and isotretinoin in treating acne as there is no evidence to support the use of tazarotene in our local environment. The results of this study will help the healthcare professionals to implement treatment recommendations that are more effective in managing acne vulgaris. Additionally, this study serves as a foundation for further investigation and improvement of the treatment of facial acne vulgaris, ultimately leading to better patient outcomes and increased quality of care, with an overall improvement in patient satisfaction.

MATERIALS AND METHODS

Over 114 patients (57 in each group) engaged in the investigation conducted at Lady Reading Hospital, Peshawar (MTI LRH) after getting permission from the hospital's ethical and research committee. Sample size of 114 patients (57 patients per group) is calculated with 95% confidence interval, 90% power of test, taking expected percentage of efficacy i-e 60% with tazarotene and 30% isotretinoin. It is based on a randomized controlled trials on patients with acne treated with either tazarotene or isotretinoin. All patients meeting the inclusion criteria and presenting with acne vulgaris of the face (as per operational definitions) were included in the study through OPD. Our team spent time explaining the goal and benefits of the study, as well as the possible hazards and advantages, in order thereby making sure that every patient understood the nature of the research study. Patients were given the option to choose whether or not they wished to participate when this information was delivered. In the event that a patient decided to take part, we subsequently obtained a signed informed permission as proof of their consent to engage in the study. We made every effort to assure each patient's safety and contentment throughout the process in order to ensure that they felt educated and at ease in making their decision.

All patients were worked up with detailed history and clinical examination. The first patient was selected through lottery method and was assigned to the group A, and then next patient was assigned to the subsequent group. Patients in group A were subjected to topical tazarotene gel 0.1% three times a day for 4 weeks while patients in group B were subjected topical isotretinoin 0.05% gel three times a day for 4 weeks.

All patients were followed at the end of 4th week to determine the efficacy in term of clearance of at least 50% of the No of lesions from baseline. Severe acne vulgaris, history of diabetes and hypertension, Systemic therapy with corticosteroids, cytotoxic drugs and History of allergy to retinoids were excluded from study to avoid bias and confounding effect

In this study, the data collected was analyzed utilizing the Statistical Package for the Social Sciences (SPSS) version 22. The categorical variables such as gender and efficacy were analyzed by computing the frequencies and percentage. Furthermore, the continuous variables such as age, number of lesions at baseline, and number of lesions at follow up were analyzed by computing the mean and stan-

dard deviation. The efficacy of the treatment in both groups was compared using the chi-square test, while maintaining a p-value of less than 0.05 as significant. Additionally, the efficacy in both groups was stratified based on the age and gender to determine the effective treatment for each group. All the results were presented as tables and graphs.

RESULT

114 patients (57 in each group) who satisfied the inclusion criteria listed in the material and technique section participated in this study. Both groups, group 1 (tazarotene) and group 2 (isotretinoin), included the same number of patients. Age, gender, place of residence, and socioeconomic position of the patients were evenly distributed across the two groups. (Table1).

The study's participants' ages ranged from 12 to 30. According to Table 1, the mean age for Group A was 18 2 years, whereas the mean age for Group B was around 19 4 years. According to gender distribution, there were 37 (64%) female patients and 22 (34%) male patients in Group 1 respectively. Male patients made up 22 (38%) of the patients in Group B, while female patients made up 35 (62%) of the patients. (Table 1).

Table 2 displays the percentages of facial acne lesions for groups A and B. The average baseline lesion for groups A and B was, respectively, 78 44

Table 2: Percent Facial Acne Lesions score for Group A (tazarotene) and Group B(isotretinoin). It includes baseline lesions, follow-up lesions, efficacy, and percent reduction.

	Group A (n=57)	Group B (n=57)	P-value
Baseline Lesions, mean ± SD, n	78 ± 44.3	62.7 ± 39.1	0.052
>50 Lesions, n (%)	39 (68.4%)	26 (45.6%)	0.01
Lesions at follow up, mean ± SD, n	60.1 ± 44	50.4 ± 38.7	0.21
>50 Lesions	22 (38.6%)	17 (29.8%)	0.32
Percent Reduction, mean ± SD, %	28.6 ± 15.6	26.5 ± 18.4	0.05
Efficacy, n (%)			
Effective	38 (66.7%)	27 (47.4)	0.03
Not effective	19 (33.3)	30 (52.6)	
Improvement, n (%)			
Completely cleared	0(0%)	0(0%)	0.09
Marked Improvement	0(0%)	0(0%)	
Moderate improvement	6 (10.5%)	6 (10.5%)	
Mild improvement	32 (56.1%)	21 (36.8%)	
Insignificant	19 (33.3%)	30 (52.6%)	

Table 1: Demographics including age, gender, residence, socioeconomic status, occupation for group A (tazarotene) and Group B(isotretinoin). Frequencies and percentages are given for each group.

	Group A (n=57)	Group B (n=57)	P-value
Age, mean±SD, years	18±2.6	19.7±4.4	0.12
Gender, n (%)			
Male	20 (35.1)	22 (38.6)	0.68
Female	37 (64.9)	35 (61.4)	
Residence, n (%)			
Rural	21 (36.8)	26 (45.6)	0.34
Urban	36 (63.2)	31 (54.4)	
Socioeconomic status, n (%)			
Low	15 (26.3)	10 (17.5)	0.006
Middle	42 (73.7)	38 (66.7)	
High	0 (0)	9 (15.8)	
Occupation, n (%)			
Labor	0 (0)	5 (8.8)	0.03
Office Job	8 (14)	15 (26.3)	
Student	40 (70.2)	29 (50.9)	
None	9 (15.8)	8 (14)	

Table 3: Global Acne Grading System (GAGS) score for Group A (tazarotene) and Group B(isotretinoin). It includes baseline lesions, follow-up lesions, efficacy, and percent reduction.

	Group A (n=57)	Group B (n=57)	P-value
Baseline Lesions, mean ± SD, n	18.1 ± 3.5	16.4 ± 4.6	0.02
Lesions at follow up, mean ± SD, n	16.3 ± 4.4	14.8 ± 5	0.11
Percent Reduction, mean ± SD, %	11.1 ± 12.12	10.5 ± 14.4	0.67
Efficacy, n (%)			
Effective	9 (15.8%)	12 (21.1%)	0.46
Not effective	48 (84.2%)	45 (78.9)	
Improvement, n (%)			
Insignificant	48 (84.2%)	42 (73.7)	0.14
Mild	9 (15.8%)	12 (21.1%)	
Moderate	0 (0)	3 (5.3%)	

and 62.7 39. Additionally, the number of patients in groups A and B who had more than 50 lesions at baseline was 39 and 26, respectively. At the time of the follow-up, the number of patients in groups A and B with more than 50 lesions was 22, respectively. The percentage reduction from the baseline for groups A and B was 28% and 26%, respectively, as shown in Table 2.

Table 2 displays the effectiveness of the two groups. Tazarotene in group A was successful in 38 (66%) of the patients and ineffective in 19 (34%) of the patients. In contrast, isotretinoin in Group B was successful in 27 (48%) individuals while being ineffective in 30 (52%) patients.

Table 3 displays the Global Acne Grading System (GAG Scale) results for Group A and Group B. The mean GAG score for groups A and B at baseline was 18 3 and 16 4, respectively. The mean GAG score for groups A and B at the follow-up was 16 and 5, respectively. Both group A and group B saw a GAG score drop of about 11% after 4 weeks ($p>0.05$). Group A (tazarotene) was successful in 9 (16%) patients and ineffective in 48 (84%) individuals when it came to efficacy. While isotretinoin (Group B) was ineffective in 45 (78%) individuals and efficacious in 12 (21%) patients.

DISCUSSION

A frequent inflammatory condition of the pilosebaceous unit called facial acne vulgaris is characterized by comedones, papules, pustules, inflamed nodules, superficial pus cysts, and (in severe instances) canalizing and deep, inflamed, occasionally purulent sacs.[1]

114 individuals with mild to moderate face acne vulgaris who were enrolled in the outpatient dermatology department were included in the research. Young adults, virtually equally split between the sexes, are affected by acne. 51.9% of the participants in a research by Khurshid K et al. were women, and 48.2% were men. 40% men and 60% women participated in this study.[14] This female majority is likely caused by the fact that women are more aware of their acne than men are and seek treatment early.

The patients' average age in our research was 19 and 4, whereas it was 19 and 4 in the study by Khurshid K et al.[14] The age difference is caused by the fact that patients in our system seek medical counsel after being treated for years by quacks and failing to improve.

At the 4th week of the post-treatment evaluation in a study by Swaroop MR et al., 63.3% of the Tazarotene 0.1% gel exhibited 50-75% of the target population.[15]

In a different trial, Rahman MH et al. observed that during the fourth week of follow-up, the lesions had decreased from 30.90 17.17 to 21.17 16.94.[16] These results were quite comparable to the ones previously described.

Once-daily use of tazarotene 0.1% cream and adapalene 0.3% gel in individuals with moderate-to-severe acne was described in a different research by Tanghetti E et al.[17] Patients treated with tazarotene 0.1% cream outperformed those treated with adapalene 0.3% gel in terms of many acne efficacy measures (reduction in lesion counts, percentage of patients achieving a 50% lesion count reduction, as a whole degree of illness, and investigator's global assessment). Tazarotene 0.1% cream substantially reduced post-inflammatory hyperpigmentation (PIH) more than adapalene 0.3% gel (P=0). Adapalene 0.3% gel and tazarotene 0.1% cream both seemed to be almost as well tolerated and more effective in decreasing acne lesions and PIH, respectively. The results indicated above matched those of our study. In a different research, Webster GF et al. reported that 145 patients with mild-to-moderate facial acne vulgaris underwent a multicenter, double-blind, randomized, parallel-group trial to assess the effectiveness and tolerability of tazarotene 0.1% gel with isotretinoin 0.05% gel.[18] For up to 12 weeks, both therapies were administered once daily in the evening. In the sense of a considerably higher probability of treatment efficacy (> or = 50% global enhancement) (78% vs 52%; P=.002) and substantially greater declines in the general extent of disease (P.0001), non-inflammatory lesion count (P.0001), and inflammatory lesion count (P=.0002), therapy with tazarotene was linked to outcomes that were comparable to ours.

When compared to adapalene, tazarotene was briefly more likely to cause burning, pruritus, erythema, and peeling during the first few weeks of therapy (P.01).

Considering the average values of the aforemen-

tioned variables were continually less than medium in both treatment categories, patients considered that both regimens were equally well tolerated at the conclusion of the course of treatment.

Infrequent, often minor, and consistent across treatment groups was irritation. In conclusion, 76% of those who had treatment with tazarotene 0.1% cream and 69% of people who received treatment with adapalene 0.3% gel described their skin as pleasant or extremely comfortable. Tazarotene and adapalene had been administered averagely at quantities of 0.32 g and 0.42 grams, correspondingly, exhibiting cost-effectiveness proportions of $79.95 for tazarotene and $107.88 for adapalene per effective session of therapy.

These cost-effectiveness predictions stand satisfactorily with an assortment of cost and efficacy assumptions, as determined by the sensitivity evaluation. In a nutshell, tazarotene (0.1%) gel showed simultaneously more efficient and considerably more cost-effective than isotretinoin (0.05%) gel.

CONCLUSION

When treating face acne vulgaris, tazarotene 0.1% is more successful than isotretinoin 0.05%.

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