COMPARISON OF THE EFFICACY OF TAZAROTENE 0.1% GEL WITH ADAPALENE 0.1% GEL IN THE TREATMENT OF FACIAL ACNE VULGARIS

Nasma Noor1,2, Mohammad Majid Paracha1, Kashif Kamal1,3, Muhammad Dawood1,4, Sahibzada Mahmood Noor1

ABSTRACT

Objective: To compare the efficacy of tazarotene 0.1% gel with adapalene 0.1% gel in the treatment of facial acne vulgaris.

Methodology: This randomized control trial (RCT) was carried out from February to August 2019 in the Department of Dermatology, Lady Reading Hospital, Peshawar. A total of 106 Acne Vulgaris patients were enrolled in the study using non-probability consecutive sampling. A detailed history followed by thorough clinical examination was conducted for all patients. All patients were randomly allocated in two groups (Group A and Group B) by lottery method. In group A, patients were treated by topical tazarotene gel (0.1%) while the other group had topical adapalene gel (0.1%). Data was analyzed by SPSS version 22, descriptive and analytical statistics were applied where needed.

Results: In present study, age of patients in Group A and B were 28±10.77 years and 30±11.12 years respectively. The male to female ratio in both groups was 1:1.5. In group A, topical tazarotene gel (0.1%) was effective in 72% of the cases whereas topical adapalene gel (0.1%) recorded effectiveness in 62% of cases (p-value=0.3017).

Conclusion: We concluded that Tazarotene 0.1% gel is a more effective treatment option for facial acne vulgaris when compared with Adapalene 0.1% gel.

Keywords: Efficacy; Tazarotene 0.1% gel; Adapalene 0.1% gel; Acne vulgaris.

INTRODUCTION

Acne vulgaris is a disease of skin either due to blockage or inflammation of pilo-sebaceous glands. It victimizes females (5%) more than males (1%) above 40 years of age.1 One previous estimate showed that acne victimizes teenagers up to 90% while 50% of them continue to have its symptoms being adults.2 Its prevalence is high in adulthood due to pubertal hormonal changes.3 It’s a chronic disease by acknowledging the fact that it persists for years requiring long term treatment.4 It affects its victims psychosocially by leaving permanent scars.5 Patients present with open or closed comedones or inflammatory papules, pustules, and nodules affecting those skin areas (face, upper chest, back) that are rich in sweat glands. They can experience pain, redness or swelling. Hence, its sufferers seek medical attention to cure it.6

Correct diagnosis can be made by evaluating carefully the morphology and its severity. As its treatment approach is dependent on the morphology of lesions.7 Among the new advances in the field of medicine is the invention and use of Vitamin-A as its treatment. Literature review revealed that retinoids are safe to use in all acne cases.8 Several treatment options are available as depicted by literature review including both pharmacological as well as non-pharmacological. Medications used for its treatment include retinoid like agents, antibiotics (tetracycline, doxycycline), Oral contraceptive pills, spironolactone and steroids. Various topical retinoid products including tretinoin, isotretinoin, adapalene and tazarotene are available in the market nowadays.9 These agents vary in formulations (cream, gel, liquid, and microsphere) globally.10 Adverse effects linked with retinoid like agents include transient skin irritation that can be decreased by using its lower concentration.11

In the light of increasing burden of this disease among our population as well as limited local data re-
Comparison of the efficacy of tazarotene 0.1% gel with adapalene 0.1% gel in the treatment of facial acne vulgaris

Regarding effective treatment options available, we planned the current project with the aim to compare the efficacy of tazarotene (0.1%) gel with adapalene (0.1%) gel in the treatment of facial acne vulgaris.

■ METHODOLOGY

This randomized control trial (RCT) was carried out from February to August 2018 in the department of Dermatology, Lady Reading Hospital, Peshawar after the Hospital’s Ethical Committee approval. All patients gave detailed history followed by clinical examination. In group A, patients received once daily topical tazarotene gel (0.1%) while the other group received once daily topical adapalene gel (0.1%). A total of 106 patients were included in the study. The details are given in CONSORT diagram in figure 1. The ages ranged from 18-60 years by keeping 95% confidence interval and 90% power of the test. Patients with inflammatory reactions in acne or receiving any other treatment in the last one month and pregnant females were excluded. A clearance of equal to or more than 50% of lesion number from baseline was considered effective at 4th week follow up.

Data was entered and analyzed using SPSS v22 software. Frequency and percentages were calculated for parameters like gender and efficacy. Parameters like age and number of lesions at baseline as well as at follow-up was presented as mean ± SD. Data was stratified for age and gender to deal with effect modifiers. Chi square test was used to compare the efficacy in both groups with significant P-value of ≤0.05.

■ RESULTS

The study analyzed 106 patients of Acne Vulgaris, 53 in each group. The mean age of the sample was 28±10.77 years and 30±11.12 years in Group A and Group B respectively, while rest of the details are given in Table 1. Both the groups were followed-up at 4th week post treatment for number of lesions and efficacy of drugs. Results are presented as mean ± SD in Table 2. Patients were stratified for efficacy between groups with respect to their ages and gender; the results are summarized in Table 3.

■ DISCUSSION

Total of 106 patients attending the Outpatient Department of Dermatology were inducted for the study. Acne involves young adults with almost equal distribution among both the sexes. In a study conducted by Khurshid et al, 51.9% were females and 48.2% were males. In our study 60% were females and 40% were males. This female preponderance is probably due to the fact that they are more conscious about the acne and seek treatment earlier than males.

Mean age of the patients in our study was 30±11.12 whereas in study done by Khurshid et al, it was 19.75±4.317. The difference in age is due to the fact that patients in our set up seek medical advice after years of being treated by quacks and not responding.

In a study conducted by Swaroop et al, at the 4th week of post treatment evaluation, about 63.3% of patients receiving Taza-

Table 1: Distribution of General Parameters among enrolled patients (n=106)

| Variables              | Group A        | Group B        | P-value |
|------------------------|----------------|----------------|---------|
| Age (Years)            |                |                |         |
| 18-30 YEARS            | 42(80%)        | 41(78%)        | 0.3491  |
| 31-60 YEARS            | 11(20%)        | 12(22%)        |         |
| Mean±SD                | 28 year ± 10.77| 30 year ± 11.12|         |

| Gender                 |                |                |         |
| Male                   | 23(43%)        | 21(40%)        | 0.6134  |
| Female                 | 30(57%)        | 32(60%)        |         |

| No of Lesion (Baseline)| Group A        | Group B        |         |
| ≤50                    | 16(30%)        | 17(32%)        | 0.0001* |
| >50                    | 37(70%)        | 36(68%)        |         |

*Statistically Significant

Table 2: Follow-up and effectiveness of agents among enrolled patients (n=106)

| Variables              | Group A        | Group B        | P-value |
|------------------------|----------------|----------------|---------|
| No of Lesion (Follow-up)|                |                |         |
| ≤50                    | 38(72%)        | 33(62%)        | 0.0027* |
| >50                    | 15(28%)        | 20(38%)        |         |
| Mean±SD                | 10 ± 3.11      | 12 ± 3.57      |         |

| Efficacy               |                |                |         |
| Effective              | 38(72%)        | 33(62%)        | 0.3017  |
| Not effective          | 15(28%)        | 20(38%)        |         |

*Statistically Significant
Comparison of the efficacy of tazarotene 0.1% gel with adapalene 0.1% gel in the treatment of facial acne vulgaris

Table 3: Stratification for Efficacy between groups with respect to Age

| Age (years) | Efficacy | Group A | Group B | *P value |
|-------------|----------|---------|---------|----------|
| 18-30       | Positive | 30      | 26      | 0.4358   |
|             | Negative | 12      | 15      |          |
| 31-60       | Positive | 8       | 7       | 0.4690   |
|             | Negative | 3       | 5       |          |

Table 4: Stratification for Efficacy between groups with respect to Gender

| Age       | Efficacy   | Group A | Group B | *P value |
|-----------|------------|---------|---------|----------|
| Male      | Effective  | 16      | 13      | 0.5923   |
|           | Not effective | 7   | 8       |          |
| Female    | Effective  | 22      | 20      | 0.3618   |
|           | Not effective | 8   | 12      |          |

In an another study conducted by Rahman MH et al, it was reported that there was reduction in mean from 30.90± 17.17 to 21.17±16.94 at 4th week follow up. These results were quite similar to our mentioned results.

In another study conducted by Tanghetti E et al, it was concluded that patients treated with Tazarotene 0.1% cream showed better results in terms of efficacy measures like reduction in lesion counts and overall disease severity when compared with patients receiving Adapalene 0.3% gel. It also reported that there was significant reduction in post inflammatory hyper-pigmentation when treated with Tazarotene 0.1% cream in comparison to Adapalene 0.3% gel having p-value < 0.05. Similarly, our findings were in line with their observations.

One previous study done by enrolling 145 acne patients by Webster GF et.al reported that parameters like efficacy and tolerability of retinoid like agents including Tazarotene 0.1% gel and Adapalene 0.1% gel. Their results showed that Tazarotene 0.1% gel was more effective with a significantly increased rate of treatment success having p-value < 0.002. Our results were in line with the above mentioned study depicting that Tazarotene 0.1% gel as a more effective treatment option for acne among our patients.
Comparison of the efficacy of tazarotene 0.1% gel with adapalene 0.1% gel in the treatment of facial acne vulgaris

We admit that our study had a number of limitations. It included too small sample size and financial constraints with lack of resources.

CONCLUSION

We concluded that Tazarotene 0.1% gel is a more effective treatment option for facial acne vulgaris when compared with Adapalene 0.1% gel.

REFERENCES

1. Lynn DD, Umari T, Dunnick CA, Del-lavalle RP. The epidemiology of acne vulgaris in late adolescence. Adolesc Health Med Ther. 2016; 7:13-25.
2. Tan JK, Bhate K. A global perspective on the epidemiology of acne. B J Dermatol. 2015; 172:3-12.
3. Gencler B, Keseroglu O, Kartal SP, Gonul M. Pediatric Acne. In: Selda PK and Müzeýyen G (eds) Acne and Acneform Eruptions. IntechOpen. 2017, pp.41-49.
4. Zouboulis CC. Acne as a chronic systemic disease. Clin Dermatol. 2014; 32(3):389-96.
5. Chuah SY, Goh CL. The impact of post-acne scars on the quality of life among young adults in Singapore. J Cut Anesth Surg. 2015; 8(3):153-58.
6. Niemeier V, Kupfer J, Gieler U. Acne vulgaris–psychosomatic aspects. JDDG. 2006; 4(12):1027-36.
7. Nast A, Dréno B, Bettoli V, Bukvic Mokos Z, Degitz K, Dressler C, et al. European evidence-based (S3) guideline for the treatment of acne—update 2016–short version. J Eur Acad Dermatol Venereol. 2016; 30(8):1261-8.
8. Pena S, Hill D, Feldman SR. Use of topical retinoids by dermatologists and non-dermatologists in the management of acne vulgaris. J Am Acad Dermatol. 2016; 74(6):1252-54.
9. Silva EL, Carneiro G, de Araujo LA, de Jesus M, Trindade V, Yoshida MI et al. Solid Lipid Nanoparticles Loaded with Retinoic Acid and Lauric Acid as an Alternative for Topical Treatment of Acne Vulgaris. J Nanosci Nanotech. 2015; 15(1):792-9.
10. Higgins S, Wesley NO. Topical Retinoids and Cosmeceuticals: Where is the Scientific Evidence to Recommend Products to Patients? Curr Derm Rep. 2015; 4(2):56-62.
11. Tan X, Davis SA, Balkrishnan R, Krowchuk DP, Feldman SR. Factors associated with topical retinoid prescription for acne. J Dermatolog Treat. 2014; 25(2):110-4.
12. Khurshid K, Pal SS. Comparison of efficacy and tolerability of topical 0.1% adapalene gel with 0.05% isotretinoin gel in the treatment of acne vulgaris. J Pak Assoc Dermatol. 2012; 22(3):240-247.
13. Swaroop MR. A Comparative Study of Efficacy of once Daily 0.1% Tazarotene and Adapalene Gel for the Treatment of Facial Acne Vulgaris. Ind J Clin Exp Dermatol. 2015; 1(1):4-8.
14. Rahman MH, Sikder MS, Khondker L. Efficacy and tolerability of 0.1% tazarotene cream and 0.05% tretinoin cream in the treatment of acne vulgaris. Bang Sheikh Mujib Med Univ J. 2016; 8(1):24-9.
15. Tanghetti E, Dhawan S, Green L, Del Rosso J, Draelos Z, Leyden J et al. Randomized comparison of the safety and efficacy of tazarotene 0.1% cream and adapalene 0.3% gel in the treatment of patients with at least moderate facial acne vulgaris. J Drugs Dermatol. 2010; 9(5):549-58.
16. Webster GF, Guenther L, Poulin YP, Solomon BA, Loven K, Lee J. A multicenter, double blind, randomized comparison study of the efficacy and tolerability of once daily tazarotene 0.1% gel and adapalene 0.1% gel for the treatment of facial acne vulgaris. Cutis. 2002; 69(2):4-11.