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

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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 through 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 come dones 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-

garding 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.[12] 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 K et al, it was 19.75±4.317.[12] 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 MR 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
		Percentage(%)	Percentage (%)	
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)	≤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

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	

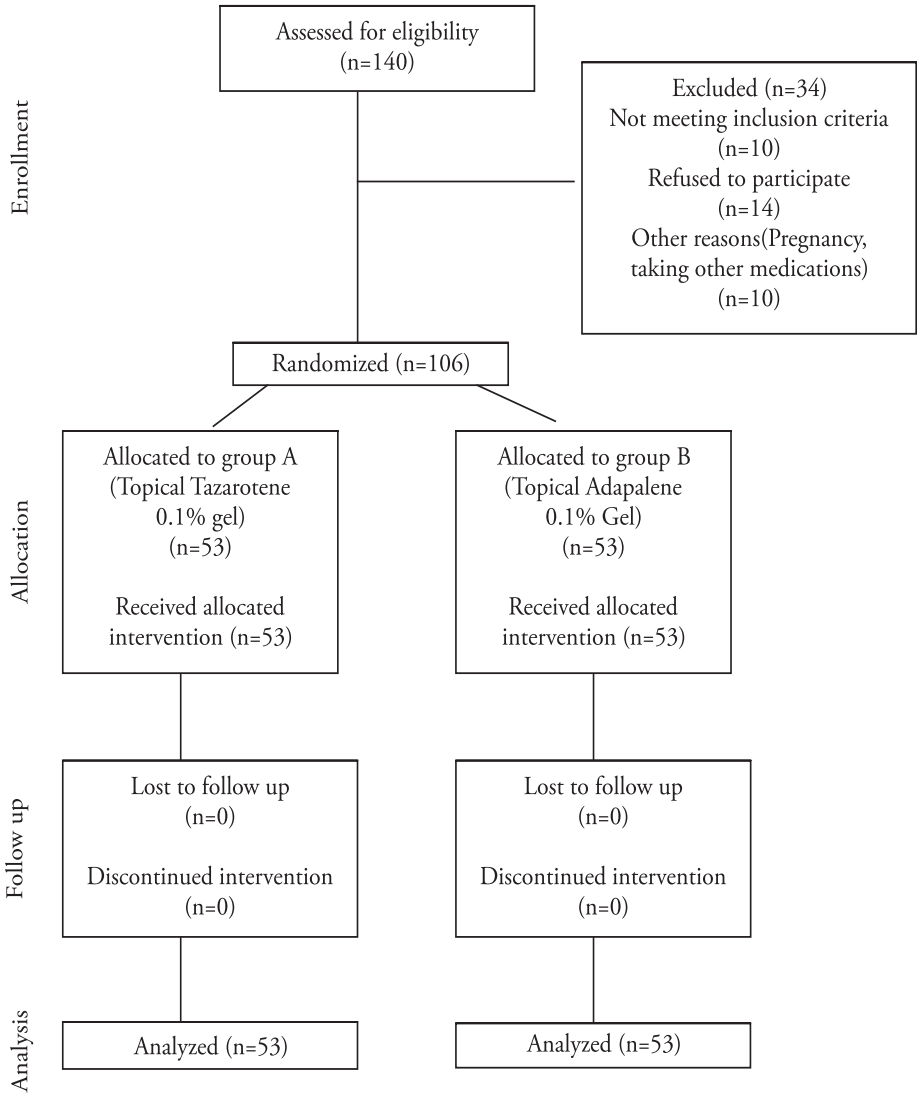

Figure 1: CONSORT diagram showing the flow of participants through each stage of the trial

rotene 0.1% gel showed 50-75% clearance of lesions compared to only 23.4% of those on Adapalene 0.1% gel (p=0.002).[13] In 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.[14] 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.[15] 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.[16] 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.

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.

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Author's Contribution

NN study concept, collected & analyzed the data, and wrote the manuscript. MM collected the data, reviewed literature, analyzed the data and wrote the manuscript. KK collected the data, and reviewed the literature. MD collected and analyzed the data, MN Analyzed the data and did literature review. Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflict of Interest

Authors declared no conflict of interest

Grant Support and Financial Disclosure

None

Data Sharing Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.