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Azelaic Acid Cream and its Effect on Acne Patients: Evaluation of the Positive and Negative Aspects

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Abstract: **Background:** The excellent profile of the 20% azelaic acid cream makes it a recommended topical therapy for acne. **Objective:** This study focused largely on evaluating the outcomes of Azelaic acid cream use on patients with acne and identifying its impact on general health and quality of life. **Methodology:** We enrolled 82 female patients with acne, aged between 14 and 26 years, between March 2023 and November 2024. All patients underwent several questionnaires to assess skin quality, acne severity, and its impact on patient's quality of life using the Dermatology Life Quality Index (DLQI) and Investigator's Global Assessment (IGA) scales. **Findings:** Our study were enrolled all outcomes of females with ages 14 - 26 years. Due to that, 54.88% of patients had seborrheic, and 63.41% sited in the face. According to the efficiency of azelaic acid cream use, 46.34% got nearly clear skin, and 19.51% got clear skin among all total patients. Azelaic acid cream showed high improvements of skin in each of acne lesions {67.07%} acne severity {62.20%}, comedones {87.80%}, papules {53.66%}, and pustules {45.12.%}.**Conclusion:** Adult women's quality of life and acne severity are significantly enhanced using azelaic acid lotion.

Keywords: Acne; Azelaic Acid Cream; Skin Type; Site of Acne; Dlqi and Iga Questionnaires.

INTRODUCTION

Acne (acne vulgaris) is a chronic inflammatory dermatosis of the pilosebaceous follicle, which affects approximately 80-85% of adolescents (13-18 years), mostly males; prevalence that is reversed in adults: 3% in males and 11-12% in females [Capitanio, B. *et al*., 2010; Dreno, B. *et al*., 2013; Rivera, R. *et al*., 2009; Williams, C. *et al*., 2006; Yentzer, B. A. *et al*., 2010]. It is characterized by the presence of comedones, inflammatory lesions (papules and pustules), and, in the most severe cases, nodules and cysts, scars, and post-inflammatory hyperpigmentation. [Yentzer, B. A. *et al*., 2010]

It mainly affects the face, but it can also affect the neck, back, shoulders, chest, and arms [Collier, C. N. *et al*., 2008]]. Its presentation is variable, with varied and often mixed clinical forms (inflammatory and non-inflammatory lesions), being able to generate physical, psychological, and social discomfort and worsen the quality of life of patients. It usually develops in a benign way, but up to 30% of cases require treatment. [Poli, F. *et al*., 2001; Perkins, A. C. *et al*., 2012; Goulden, V. *et al*., 1999; Tanghetti, E. A. *et al*., 2014]

The diagnosis is mainly based on the clinical examination of the patient; however, advances in imaging and photography techniques can improve the visualization of lesions and facilitate the assessment of severity and the evaluation of response to treatment [Lasek, R. J. *et al*., 1998; Preneau, S. *et al*., 2012; Seirafi, H. *et al*., 2007]. It is not recommended to perform microbiological cultures of the lesions, except in acne with perioral and perinasal pustular rash (suspected of gram-negative folliculitis) and in acne without response to the usual treatments (suspected of S. aureus infection), and hormone analysis is only recommended in women with signs of hyperandrogenism. [Vergou, T. *et al*., 2012; Su, P. *et al*., 2015; Koo, J, 1995; Loney, T. *et al*., 2008]

The information about its etiology and pathophysiology has evolved in recent years, and it is currently considered a complex inflammatory disease, in the development of which several factors may be involved: sebaceous hypersecretion, follicular hyperkeratosis, and pore obstruction; proliferation of bacterial flora in the follicle (Propionibacterium acnes); altered immunity; hormonal alterations (androgenic stimulation); neuroendocrine mechanisms; genetic factors; and, possibly, some external factors such as diet, cosmetics, drugs, smoking, stress, etc. [Dreno, B. *et al*., 2006; Kellett, S. C. *et al*., 1999; Mallon, E. *et al*., 1999]

PATIENTS AND METHODS

We reported the findings in a cross-sectional study that involved 82 adult female patients suffering from acne. The investigation was carried out on all patients in Azadi Teaching Hospital and private clinic in Kirkuk City in, Iraq, among March 2023 until November 2024. All data were analysed and recorded by SPSS, version 22.0.

The study excluded patients who were in need of systemic acne treatment in the time of enrolment and those who had taken an oral contraceptive

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having anti-acne properties over less than seven months.

Azelaic acid cream was to be utilized twice daily, according to the study participants' instructions. The two most significant efficacy metrics were acne severity, as judged by the treating physician using the Investigator's Global Assessment (IGA) scale, and quality of life, as assessed by the Dermatology Life Quality Index (DLQI). IGA grades 1 through 3 were, by definition, included in mild to moderate acne.

At baseline, four to eight weeks (follow-up visit 1) and twelve weeks (follow-up visit 2) visits were planned. Data on the suggested acne treatment (azelaic acid alone or together with additional topical and/or cosmetic treatments), the DLQI score, and the severity of the disease (IGA grade) for the face, neck, and lower back were recorded at each visit.

According to the SPC, burning, pruritus, as well as erythema were the two most common adverse drug reactions (ADRs) linked to azelaic acid. These were specifically indicated in the incident report form (CRF) to be recorded by checking the corresponding box. Additional adverse drug reactions that the patients experienced were recorded in text form. The patient's skin condition (seborrheic, dry, atopic, or mixed) was evaluated at baseline and at the second follow-up visit. Any reasons for leaving the investigation early were also noted.

RESULTS

Table 1: Enrolment Demographic Information of Patients with Acne.

Variables	Patients with acne	
	N = 82	Percentage, %
Age		
14 – 18	15	18.29%
19 – 22	40	48.78%
23 – 26	27	32.93%
body mass index, {kg/m2}		
Underweight {< 18.9}	8	9.76%
Normal weight {18.5 – 24.9}	24	29.27%
Overweight {25 – 29.9}	32	39.02%
Obesity {≥ 30}	18	21.95%
Diet routinE		
Normal	33	40.24%
Bad	49	59.76%
Family history		
Yes	22	26.83%
No	60	73.17%
Allergec status		
Yes	36	43.90%
No	46	56.10%
Education status		
Illiterate	7	8.54%
Elementary school	12	14.63%
High school	23	28.05%
University	40	48.78%
Working level		
Workers	20	24.39%
Un - workers	62	75.61%

Based on demographic characteristics in **Table 1**, patients with ages (19 – 22) years were the most class prevalent in our study, which had 48.78%, 39.02% patients had overweight, and 21.95% patients had obesity, where some patients suffered from acne throughout family history, which include 26.83%.

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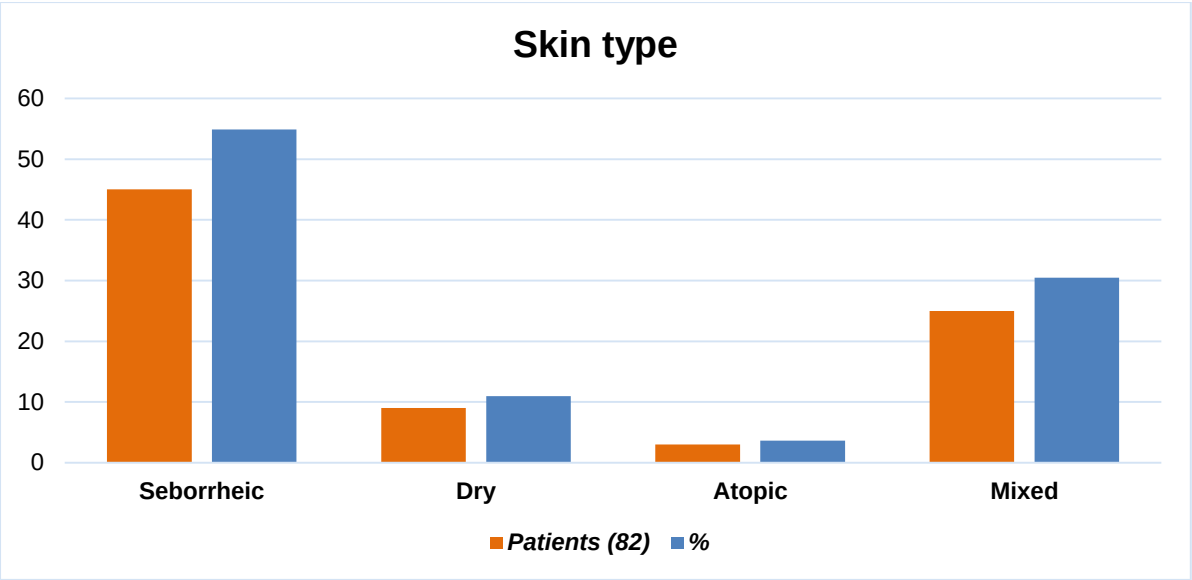

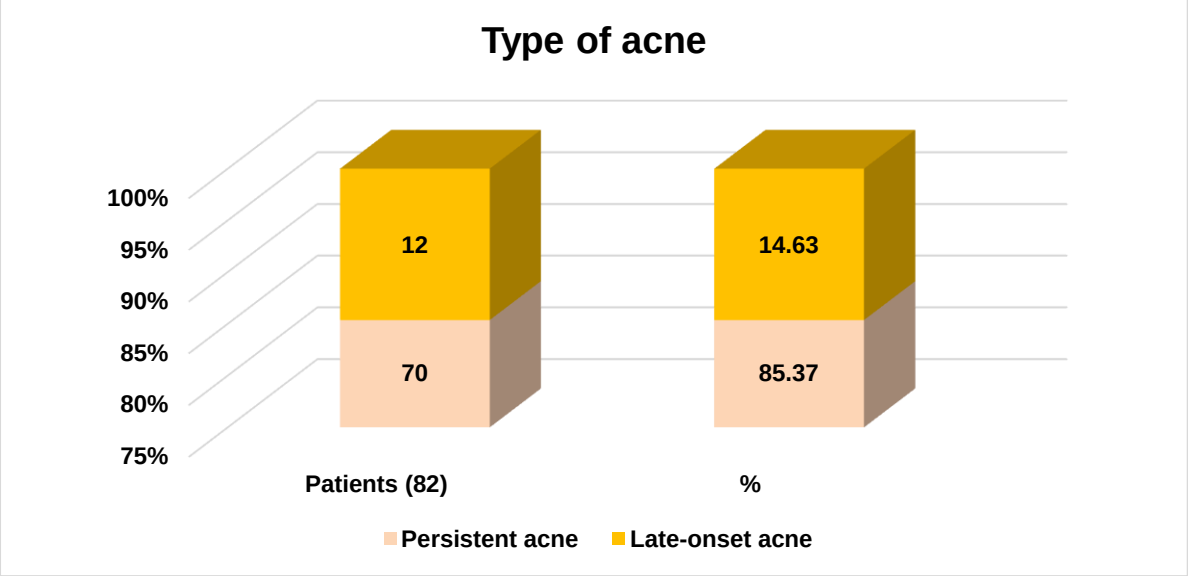

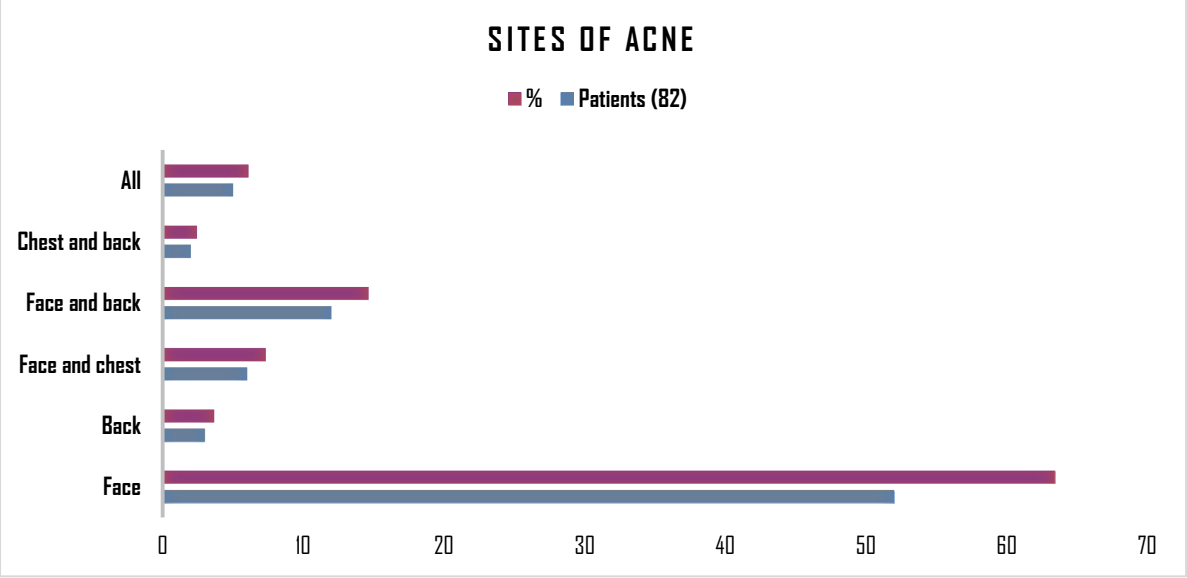

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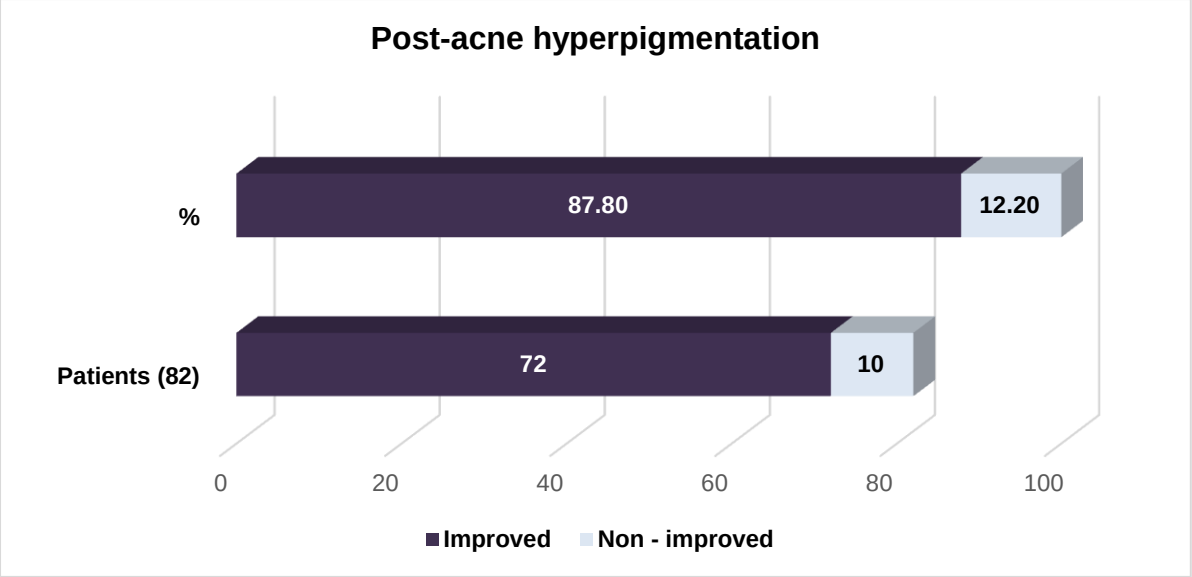

Figure 1: Identification of Skin Diagnoses at Patients

Through diagnoses of patients with acne, 54.88% of patients had seborrheic skin, where almost of acne were cumulated in the face, where 63.41% of patients had acne's face, then it can be defined in **Figure 1.**

All patients used Azelaic acid cream in the treatment of skin acne. After conducting of Azelaic acid cream, 46.34% of patients had *nearly clear skin, and 41.46% of patients had not to get suffered of a healthy quality of life, where these variables can be distributed in* ***Table 2****.*

Table 2: Assessment Skin Grade and Quality – Life by Iga and Dlqi Scales.

Items	N = 82	%
IGA GRADE, {0 – 4}		
Clear skin, 0	16	19.51%
Nearly clear skin, 1	38	46.34%
Mild skin, 2	20	24.39%
Moderate, 3	6	7.32%
Severe acne, 4	2	2.44%
DLQI GRADE, {0 – 30}		
No impact on the patient's life, {0–1}	34	41.46%
Mild impact on the patient's life, {2–5}	24	29.27%
Moderate impact on the patient's life, {6–10}	10	12.20%
Severe impact on the patient's life, {11–20}	7	8.54%
Extreme impact on the patient's life, {21–30}	5	6.10%

Table 3: Effectiveness of Azelaic Acid 20% in Treatment of Skin in Different Acne Lesions.

Items	Improved	Un – improved
Acne lesions	55 {67.07%}	27 {32.93%}
Acne severity index	51 {62.20%}	31 {37.80%}
Comedones	72 {87.80%}	10 {12.2%}
Papules	44 {53.66%}	38 {46.36%}
Pustules	37 {45.12.%}	45 {54.88%}

We noticed in **Table 3** that improvements in acne of patients' skin where the most common Acne lesions with 67.07%, Acne severity index with 62.20%, and comedones for 87.80% of all total patients.

DISCUSSION

It demonstrates that acne may have a long-lasting effect on adult women's quality of life and that using a 20% azelaic acid cream can greatly reduce the severity of the clinical condition and enhance quality of life. It's also intriguing to note the

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tenuous relationship between the degree of illness severity and the degree of quality-of-life impairment. [Graupe, K. *et al*., 1996; Nast, A. *et al*., 2012; Dan, H. C. *et al*., 2008; Kircik, L. H. *et al*., 2011; Lee, D. F. *et al*., 2007]

Acne has frequently been associated with psychological illness, including depression as well as suicidal thoughts, low self-esteem, and a lower quality of life [Mastrofrancesco, A. *et al*., 2010; Melnik, B. C. *et al*., 2013]. The current study's findings support the idea that acne may affect adults equally. According to a British survey [Passi, S. *et al*., 1984], 86% of women said their quality of life was a bit severely or extremely impaired. But, with relatively modest connections, the quality of life declined as acne severity increased, particularly at baseline.

Following twelve weeks of azelaic acid treatment, the severity of acne and quality of life improved statistically significantly [Passi, S. *et al*., 1989]. This implies that the physical and mental strain brought on by adult acne can be reduced with appropriate therapy. At 4–8 weeks after the first week of treatment, there was a noticeable improvement in both of the DLQI scores as well as IGA grades; this improvement was even more noticeable among subsequent visits 1 and 2. Following a 12-week course of therapy, 85% of doctors and 75% of patients evaluated the therapeutic effectiveness as good or very good. [Finlay, A. Y. *et al*., 1994]

Originally found as a by-product of studies on pigmentary disorders, azelaic acid has all three pharmacologically active impacts that are relevant to treating acne: it normalizes keratinization, has antibacterial and inflammatory properties, and has no potential for phototoxicity or photoallergic reactions [U.S. Department of Health and Human Services, 2005]. Azelaic acid's effectiveness is equivalent to the effects of pical tretinoin, benzoyl peroxide, erythromycin, as well as oral tetracycline, according to comparative trials with comedonal and papulopustular acne. [Goulden, V. *et al*., 1997]

Although there are certain physical differences, including inflammation, hyperpigmentation, and scarring, the pathophysiology of adult acne does not appear to differ much from that of adolescent acne [Jansen, T. *et al*., 2013]. Because of its non-inducible resistance to bacteria, the possibility for phototoxicity or photoallergic reactions, and the absence of teratogenic effects, azelaic acid is a great therapeutic choice for women who have reached adulthood. [Abdel-Hafez, K. *et al*., 2009; Jones-Caballero, M. *et al*., 2007; Kokandi, A. *et al*., 2009]

CONCLUSION

The current results indicate that acne is an adverse factor in impacting the quality of life for patients. Treatment with a 20% azelaic acid cream for twelve weeks significantly improved either the clinical severity of the illness and the quality of life associated with it in our investigation of acne patients.

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