Research Article

Evaluating The Effect of Adapalene in Treatment of Acne Vulgaris

Hossam M. Abd elwahab[1], Maha H. Ragaie[1] and Amira Kh. Ali[1]
[1]Department of Dermatology, STDs and Andrology, Faculty of Medicine, Minia University, Egypt

Abstract

Background: Acne vulgaris is a common chronic inflammatory disease of the pilosebaceous unit, characterized by the formation of open and closed comedones, papules, pustules, nodules and cysts. It is the most common disorder treated by the dermatologists. This work aims to evaluate the role of Adapalene in treatment of acne vulgaris. **Methods:** The study was conducted on 20 patients with acne vulgaris. The age of patients ranged from 16 to 33 years, a 2mm punch biopsy was taken before and after the treatment. **Results:** Clinical improvement in most of cases which was in the form reduction in the count of acne lesions after 12 weeks of treatment and reduction in the inflammatory infiltrate in the skin biopsies. **Conclusion:** Adapalene is effective in treatment of acne vulgaris.

Keywords: Acne vulgaris, treatment. Adapalene

Introduction

Acne is a chronic inflammatory condition of the pilosebaceous unit[1]. It causes non inflammatory lesions (open and closed comedones), inflammatory lesions (papules, pustules, and nodules), and varying degrees of scarring[2] Its pathophysiology involves three actors, increase sebum production, abnormal follicular keratinization and bacterial proliferation in the pilosebaceous unit[3].

The initial acne lesion is the microcomedone, which is microscopic structure. During the course of acne, non-inflammatory lesions form, including closed (whiteheads) and open (blackheads) comedones, followed by inflammatory lesions that include superficial lesions such as a papules and pustules (≤5mm in diameter) and deep pustules or nodules [4]. Acne leads to significant morbidity that is associated with residual scarring and psychological disturbances such as poor self-image, depression, and anxiety, which leads to a negative impact on quality of life. [5]

Treatment of acne vulgaris includes topical and systemic treatments. Topical modalities is useful in mild and moderate acne, as single agent treatment, in combination and also as maintenance therapy, while systemic treatment used in severe acne vulgaris [6]. The aim is to evaluate the role of adapalene in treatment of acne valguris

Subjects and Methods

The present study has been conducted on 20 patients with mild to moderate acne vulgaris attending the outpatient clinic of the Department of Dermatology, STDs and Andrology, Minia University Hospital. All patients were females. The age of patients ranged from 16 to 33 years. They were attending the Dermatology outpatient clinic of Minia University Hospital in the period from January 2019 to June 2020.

All patients were subjected to full history taking, examination, photography and biopsy before and after the treatment The severity of

inflammation was graded according to (Barakat et al., 2016)[7] as follows;

- Grade 0: $< 5\%$,
- Grade 1: 5-30%,
- Grade 2: 31-70%
- Grade 3: $> 70\%$.

Statistical analysis
Data were statistically analyzed using SPSS program. The statistical difference before and after treatment was expressed in *p value* which was considered significant when it was < 0.05.

Results
We noticed clinical improvement in most of cases which was in the form of decrease the number of non-inflammatory, inflammatory and total acne lesions after 12 weeks of treatment (fig1).

Before treatment   **After treatment**

Fig. (1): excellent improvement after the treatment.

There was reduction percentage in the 3 forms of lesion as follows (0%, 63.3%, 55.6%) after the treatment and there was statistically significant difference before and after the treatment (p<0.001).

After Adapalene treatment, the infiltrate score significantly decreased (P value = <0.001).

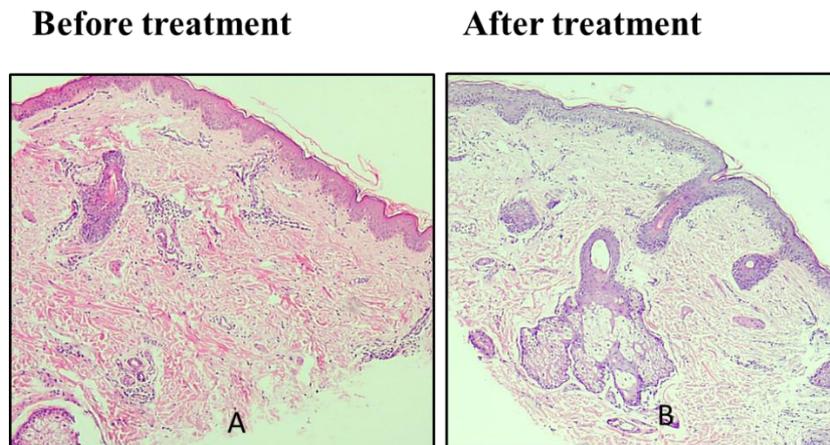**Before treatment**   **After treatment**

Fig. (2): showing significant reduction in the inflammatory infiltrate after the treatment.

Discussion

Acne vulgaris is a disease of the pilosebaceous unit, resulting from the interplay of different factors including; seborrhea, *P. acnes* colonization, hyperkeratinization of the follicular duct and release of inflammatory mediators. Increased sebum lipogenesis by sebaceous gland is considered the major one involved in the pathophysiology of acne [8].

Adapalene (ADP) is a representative of the third retinoids generation and successfully used in first-line acne treatment. ADP binds to retinoic acid nuclear receptors. The comedolytic, anti-inflammatory, antiproliferative, and immune-modulatory are the known ADP effects. Its safety profile is an advantage over other retinoids [9]

Conclusion

Acne vulgaris is a disease of the pilosebaceous unit, resulting from the interplay of different factors including; seborrhea, *P. acnes* colonization, hyperkeratinization of the follicular duct and release of inflammatory mediators. Increased sebum lipogenesis by sebaceous gland is considered the major one involved in the pathophysiology of acne. And conclusion, the present study revealed that adapalene is effective in the treatment of acne vulgaris lesions with minimal downtime.

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