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ORIGINAL ARTICLE / ÖZGÜN ARAŞTIRMA

Quality of life in adult patients with acne vulgaris before and after treatment

Erişkin akne vulgaris hastalarında tedavi öncesi ve sonrası hayat kalitesi

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ABSTRACT

Objectives: To investigate effect of acne treatment on quality of life in patients with acne vulgaris.

Materials and methods: The study was prospective and conducted in a university hospital, enrolling the previously untreated patients with acne vulgaris. Before treatment, dermatology life quality index (DLQI) was applied to all participants of both study and control group. After 3rd and 6th months of treatment administration, DLQI tool was applied to patients in the study group, and scores were compared.

Results: The acne severity of patients in the study group was 17 (27.9%), 34 (55.7%) and 10 (16.4%) for mild, moderate and severe form, respectively. Mean scoring for DLQI in the study group and the control group was 8.74±5.07 and 2.21±2.44, respectively (p=0.0005). In the study, significant difference were observed in life quality scores between severe acne and mild acne patients, and between severe acne and moderate acne patients (p=0.003 and p=0.011, respectively), but not between mild and moderate acne patients (p=0.937). Effect of gender in acne vulgaris on quality of life was not significantly different (p=0.336). At stage of treatment at the end of 3rd and 6th month, improvements on quality of life was observed significant for overall and all classification of acne severity (mild, moderate and severe; p<0.001, p<0.001 and p<0.001, respectively).

Conclusions: We concluded that acne vulgaris was one of the major skin diseases inversely affecting quality of life in patients and we observed that quality of life improved with treatment in patients.

Key words: Skin disease, acne treatment, dermatological life quality index

ÖZET

Amaç: Akne vulgaris hastalarında akne tedavisinin hayat kalitesi üzerine etkisinin incelenmesi amaçlanmıştır.

Gereç ve yöntem: Çalışma prospektif olarak tasarlandı. Daha öncesinde akne tedavisi almayan hastalar alındı ve çalışma bir üniversite hastanesinde yürütüldü. Çalışma grubu ve kontrol grubu oluşturuldu. Tedavi öncesi hastalara ve kontrol grubuna Dermatolojik Yaşam Kalitesi İndeksi (DYKI) ölçeği uygulandı. Tedavi sonrası 3. ve 6. aylarda DYKI tekrar uygulandı. Tüm Skorlar karşılaştırıldı.

Bulgular: Çalışma grubunda bulunan akne olgularından 17 (%27,9) hasta hafif, 34 hasta orta (%55,7) ve 10 hasta (%16,4) ileri derece akne grubunda idi. Çalışma grubu ve kontrol grubunun ortalama DYKI skoru sırası ile 8,74±5,07 ve 2,21±2,44 idi (p=0,0005). Çalışma grubunda ileri derece akne ile orta derece akne; ileri derece akne ile hafif dereceli akne arasında yaşam kalitesi skoru arasında anlamlı fark izlendi (p=0,003, p=0,011 sırası ile), fakat hafif ve orta derece akne arasında fark izlenmedi (p=0,036). Cinsiyetin akne vulgarisin hastalarında yaşam kalitesi üzerine etkisi izlenmedi (p=0,336). Tedavinin 3. ve 6. aylarında çalışma grubunda yaşam kalitesi tüm olgu ve her bir akne derecesi (hafif, orta ve ileri derece) için tekrar değerlendirildi (sırası ile; p<0,001, p<0,001, p<0,001 ve p<0,001).

Sonuç: Sonuç olarak, çalışmamızda akne vulgarisin yaşam kalitesini ciddi anlamda etkileyen bir majör deri hastalıklarından biri olduğu, fakat tedavi ile yaşam kalitesinin düzeldiği sonucuna ulaştık.

Anahtar kelimeler: Deri hastalığı, akne tedavisi, dermatolojik yaşam kalitesi indeksi

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INTRODUCTION

Acne vulgaris is a chronic diseases characterized by lesions of pilosebaceous comedones, papules, pustules, and nodules. Although it usually begins during adolescence and regresses during mid 20s, individuals can experience acne vulgaris in later adult life. [1] Somehow, it affects almost 85% of adolescent. Among the skin diseases, acne vulgaris is the most frequently encountered. It is more frequent and severe in males. Acne vulgaris usually involves facial areas, but, sometimes it can involve other body region such as trunk, back and shoulder. Several factors take role in its pathogenesis. It has several clinical forms, ranking from mild form of microcomedones to severe form of drained sinus. [2]

It is not a life-threatening condition, but it results in many psychological and emotional problems owing to the high frequency adolescent. Regardless of acne severity, adults are affected inversely by their acne vulgaris. [3] Several previous studies have examined the relationship between acne vulgaris and various psychological factors such as anxiety, depression, emotions, body dissatisfaction and self-esteem. It causes psychological problems and inverse effect on quality of life in patients, by resulting in post-inflammatory hyperpigmentations and cheloidal scar formations. [4] In several studies, it was reported that acne vulgaris could affect quality of life in patients as well as other chronic diseases, such as epilepsy and asthma. [5,6]

Quality of life is a good indicator for healthy well-being. It is important provide health care in preventive medicine and rehabilitation. Quality of life is more inversely affected according to disease chronicity, low expectations of improvement in current diseases and conditions in which outward appearance. Therefore, acne vulgaris is supposed to affect patients more inversely. However, it is shown that quality of life in patients with acne vulgaris was not related with its severity, but clinically improvements in acne vulgaris with treatment could be positive effect quality of life. [7] Acne Vulgaris may have a significant emotional and social impact on patients. It can cause, or be a contributing factor to, social isolation, distorted body image, poor self confidence, depression, and suicidal ideation. These negative consequences do not necessarily correlate with acne severity; therefore, psychological impact should be assessed in all patients. Although many studies investigated quality of life in clinical features using similar inventories, but, a few study investigated effect of treatment on quality of life in acne vulgaris. [8]

The present study investigated improvements and differences on quality of life in patients with acne vulgaris according to clinical severity, sexuality, and pre and post-treatment scores.

MATERIALS AND METHODS

Study design and population

The study was designed as prospective and performed during one year. It was conducted in outpatient clinic of Dermatology Department, School of Medicine, and Karadeniz Technical University. The study enrolled the patients with acne vulgaris. Inclusion criteria are new diagnosis, attendance the study and willing to participation in study. The consecutive patients with newly diagnosed with acne vulgaris and topical treatment during last two weeks and systematic treatment were included. Exclusion criteria are co-morbid skin diseases including psoriasis, pemphigus vulgaris, ichthyosis and vitilligo, and co-morbid systemic disease such as cancer, psychotic disorder and mental retardation.

Study protocol

Two groups (study and control) were established in the study. Study group was composed of patients diagnosed with acne vulgaris, whereas control group was healthy subjects similarly matched with study group. Written informed consent from every participant was obtained. Ethic committee approved our study protocol and conduction.

Age, gender, acne severity and other sociodemographic features such as status of smoking, occupation, marital status, and educational level for every patient were recorded during first examination. Severity of acne vulgaris was rated according to classification developed by Lehmann et al. [9] Accordingly, cases of acne vulgaris in our patients were classified as mild (comedones <20, or inflammatory lesions <15, or number of total lesion <30), moderate (20-100 comedones, or 15-50 inflammatory lesions, or number of total lesion 30-125), and severe acne (> nodules, or > 50 inflammatory lesions, or > 125 number of total lesions).

To evaluate efficacy of treatment on quality of life in patients with acne vulgaris, dermatology life quality index (DLQI) inventory was used. DLQI is developed by Finlay et al. [10] It has been widely used in dermatological studies. It is simple and easy to apply to patients. It included 10 questions and every question ranks from 0 to 3 degree (0, 1, 2, and 3 represent "not at all, a little, a lot and very much", respectively). [11]

Dermatology life quality index inventory application

Dermatology life quality index inventory was applied to patients from both study and control group, and DLQI scores were compared between groups and genders. DLQI inventory was also applied according treatment stages. 2nd application of DLQI was done at mid-treatment, and 3rd one was done at post-treatment. Pre-treatment evaluation was applied at initial. Mid-treatment evaluation was applied 3 months later after initial. Post-treatment evaluation was applied 6 months later after initial. Mid-treatment and post-treatment scores of DLQI were compared with initial or pre-treatment DLQI score. Also, changes in scores of pre-mid and post-treatment DLQI according to classification acne vulgaris severity were compared.

Statistics

For statistical analysis, SPSS version 15.0 was used. Variables with normal distribution and scale variables were stated as mean ± standard deviation. Categorical variables were stated as frequency and percentage. Comparison for score of DLQI between study and control group was analyzed with student T test. Quality of life was also compared between male and female, using Student T test. Repeated measurement variance analysis was used in comparison between stage of pre-treatment, mid-treatment and post-treatment DLQI scores. DLQI according to classification of acne severity was compared using one way analysis of variance, post-hoc Bonferroni test. A p value less than 0.05 was accepted significant.

RESULTS

The study group included 69 patients, but 8 patients did not return for follow-up. Therefore, data of 61 patients were analyzed (male=27, 44.3%; female=34, 55.7%). The control group included 33 healthy subjects similar to study group (male= 18, 54.5%; female=15, 45.5%). In control group, the number of female participants was dominant; comparing with study group, but it was not significant. Mean age of patients in the study group was 20.23±3.21 years, whereas that in control group was 21.45 ±3.34 years. Majority of the participants in both group were students. Almost half of the subjects were smokers, and the number of the male smokers was higher than that of female smokers. Most of the participants were post-graduate of high school. Other sociodemographic features were stated in Table 1.

Majority of the patients in study group had moderate level of acne vulgaris (n=34, 55.4%). Of those, 17 patients (27.9%) and 10 patients (16.4%) had mild and severe level of acne vulgaris, respectively (Table 2). The number of the patients according to acne classification was different in gender distribution, but not significant (predominantly moderate acne form, n=20, 58.8% in male and n=14, 51.9 % in female, respectively; $p>0.05$). DLQI scoring was pre-treatment evaluation. Score of dermatological life quality index in study group was compared with that of DLQI in control group, and it was found significantly different (8.74±5.07 versus 2.21±244, $p<0.001$). It was also compared for gender distribution (9.44±5.01 in male and 8.18±5.13 in female; $p=0.336$), and acne severity distribution (6.88±3.77 in mild form, 8.29±4.80 in moderate form, and 13.40±5.52 in severe form, respectively). Significant difference between mild and severe, and between moderate and severe form of acne vulgaris was observed, but not between mild and moderate form ($p=0.003$, $p=0.01$, and $p=0.937$ respectively) (Table 2).

Table 3 showed comparison in DLQI scores at stage of treatment according to acne classification of acne severity. For every class of acne severity (mild, moderate and severe), significant difference between stages of treatment was observed ($p<0.001$, $p<0.001$ and $p<0.001$, respectively). For overall patients with acne vulgaris, DLQI scores was significantly showed improvements on quality of life according to treatment stages ($p<0.001$).

Table 1. Socio-demographic features of participants in both study and control group

	Study Group (n=61)		Controls (n=33)		p*
	Number (n)	(%)	Number (n)	(%)	
Gender					
Male	27	44.3	18	54.5	NS
Female	34	55.7	15	45.5	
Education					
some secondary school	11	18.0	8	24.2	
High school	43	70.5	20	60.6	NS
University	7	11.5	5	15.2	
Smoking					
Smoker	35	57.4	20	60.6	NS
Non-smoker	26	42.6	13	39.4	
Alcohol					
Yes	8	13.1	5	15.2	NS
No	53	86.2	27	81.8	
Duration of Acne Vulgaris (Year)	2.1±1.1		2.3±1.4		NS

*NS: not significant

Table 2. Scores of dermatology life quality index according to groups, gender and acne classification

		Minimum	**Maximum**	**Mean**	P
		DLQI	**DLQI**	**DLQI**	
Groups	*Study*	1	20	8.74±5.07	<0,001*
	Control	0	10	2.21±2.44	
Acne classification	*Mild*	1	13	6.88±3.77	
	Moderate	2	20	8.29±4.80	0,003**
	Severe	5	20	13.40±5.52	
Gender	*Male*	2	20	9.44±5.00	0,336*
	Female	1	20	8.18±5.13	

*Student t test was used, and significant if p<0.05. **One-way ANOVA, Post-hoc Bonferroni test was used. Significant differences were observed between severe and mild acne, and between severe and moderate acne patients (P=0.003, P=0.01 respectively), but between mild and moderate acne patients (P=0.937).

Table 3. Scores of dermatology life quality index according to treatment stage in overall patients and acne classification (mild-moderate-severity)

Stages of treatment/ acne classification		Minimum DLQI	Maximum DLQI	Mean DLQI	P
Overall	*Pre-treatment*	1	20	8.74±5.07	<0.001*
	Mid-treatment	0	17	5.48±3.75	
	Post-treatment	0	18	3.93±3.27	
Mild	*Pre-treatment*	1	13	6.88±3.88	<0.001*
	Mid-treatment	0	10	4.47±3.18	
	Post-treatment	0	8	3.29±2.52	
Moderate	*Pre-treatment*	1	20	8.29±4.80	<0.001*
	Mid-treatment	1	16	5.26±3.48	
	Post-treatment	0	11	3.74±2.77	
Severe	*Pre-treatment*	5	20	13.40±5.52	0.002*
	Mid-treatment	2	17	7.90±4.75	
	Post-treatment	0	18	5.70±5.23	

*Repeated measurement of analysis was used, and significant if p<0.05.

DISCUSSION

The present study indicated that acne treatment not only provided clinical improvements, but also improved in psychological improvement in patients. Quality of life is one of the good indicators for psychological well-being. In our study, DQLI inventory was used to assess quality of life. DQLI is designed for use in adults, patients over the age of 16 years. It is self explanatory and can be simply handed to the patients who asked to fill it in without need for detailed explanation. It can be completed in short time. Generally, it indicates effect of medical problem on social and physical activity of the patients last one or two weeks. In our study, use of DQLI was suitable and good indicator for quality of life in our patients.

Psychosocial state is inversely affected in majority of dermatological diseases. It is marked in skin disorders, especially, in which physical appearance is more affected. Acne vulgaris is one of the skin disorders because it involves facial area and is usually seen during period of adolescence. In several studies, it was shown that quality of life in most of the patients with acne vulgaris was inversely affected, compared to normal population. Although it is mainly seen during period of adolescence, it can be seen in later period of life and can cause scar formation resulting unwanted physical appearance. It is considered that age, acne severity and acne treatment in the patients with acne vulgaris have influences on quality of life. [12,13]

There are three types of acne: comedonal, papulopustular, and nodular. All of which result from a multifactorial pathophysiologic process in the pilosebaceous unit: [1] sebum production, [2] follicular hyperkeratinization, [3] proliferation and colonization by Propionibacterium acnes, and the release of inflammatory mediators. The resulting lesions include non-inflammatory open (blackheads) and closed (whiteheads) comedones, as well as inflammatory papules, pustules, and nodules. [14] Acne severity is rated according to the Combined Acne Severity Classification that classifies acne into mild, moderate, and severe, based on the number and type of lesions. In our study, classification criteria developed by Lehmann et al. was used to classify the patients.[9]

In our study, as in other studies, life quality in acne vulgaris was inversely affected. It was shown in several studies, compared with normal population. However, some studies claimed that it did not affect quality of life. [15,18] Rubinov et al. [19] found that quality of life in patients control group was more inversely affected in patients with cystic acne vul-

garis. In our study, we obtained different result. Influence of acne vulgaris on quality of life may show distinctive pattern between male and female patients. In some studies, it was suggested that female patients with acne vulgaris was more inversely affected, compared with male patients. [20] Nevertheless, significant difference was not detected between male and female patients in some studies. We found no significant difference on quality of life between male and female patients.

It was anticipated that the more increase in clinical degree of acne severity; quality of life is the more inversely affected. Most of the study indicated that clinical degree in acne severity was correlated with quality of life. [21] The present study indicated that there was correlation between acne severity and quality of life. We found that quality of life in severe acne was significantly different from mild and moderate acne, but mild acne was not significantly different from moderate acne.

With clinically amelioration in acne vulgaris, improvements on quality of life is anticipated. The present study also investigated correlation between treatment and quality of life. Fehnel et al. [22] found that clinical amelioration in acne vulgaris after treatment was correlated with improvements on quality of life. In our study, consistent with this result, we obtained that overall improvement on quality of life at stage mid and post-treatment was significantly different from pre-treatment stage. We also obtained similar results for classification of acne severity.

Although we did not investigated comparison on quality of life in patients with acne vulgaris with other systemic diseases such as alopecia aerate, psoriasis and atopic dermatitis. Some studies suggested that quality of life in patients with acne vulgaris was more inversely affected than other systemic diseases. Kellet et al. [23] compared quality of life in patients with acne vulgaris with quality of life in patients with psoriasis, cancer, and found that there were more scores in anxiety and depression.

Limitations of our study were small sample size. Second one was that life quality in acne vulgaris was not compared with other dermatological diseases. Another limitation was that comparison was not done between agents. Therefore, we need further studies with large sample size, and investigating comparison between agents and with other skin diseases.

In conclusion, it was voluble for any change on life quality in patients, so acne vulgaris must be considered as a skin disease with the potential to inversely affect the quality of life. Hence, psychiatric and psychological support along with pharmacological therapy should be part of acne treatment plan.

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