Effects of Anxiety, Depression, Quality of Life and Smoking in Patients With Postadolescent Acne

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Abstract

Background: : Recently, acne has a growing impact with accompanying psychomorbidity. It effects may be seen not only in adolescence, but also in all age groups. Postadolescent acne is seen in patients over the age of 25 years, regardless of the age of the onset. Etiopathogenesis of postadolescent acne has not been fully elucidated. Several environmental factors are accused including stress, environmental pollution, ultraviolet exposure and smoking. Objective of this study is to evaluate smoking, anxiety, depression and quality of life in patients with postadolescent acne and to shed light on its etiopathogenesis.

Material and Methods: A total of 227 patients (with 70 postadolescent acne and 157 acne vulgaris) were included in the study. Patients' gender, age, educational status, marital status, duration and severity of acne were recorded. Grading the severity of acne was made in accordance with the Consensus Conference on Acne Classification. Patients were asked to fill the hospital anxiety and depression scale and SF-36 forms. The data were analyzed using SPSS 20.00 software.

Results: Eighty-seven percent of patients with postadolescent acne and 58% of those having acne vulgaris were female. Mean age was found as 28.88±4.29 years in patients with postadolescent and 18.55±2.38 years in those with acne vulgaris. Anxiety and depression scores were significantly higher in patients with postadolescent acne (p= 0.01, for each). Social functioning, vitality/energy, general health perceptions, pain and physical functioning scores were lower in patients with postadolescent acne (p=008, p=003, p= 0.001, p< 0.001, p= 0.03; respectively). No significant differeces were found between both groups in terms of mental health, physical and emotional role functioning and physical functioning. There was a statistically significant between the groups in smoking (p=0.01).

Conclusion: Postadolescent acne is more effective on quality of life compared to acne vulgaris. Anxiety, depression and smoking are more frequently seen among the patients with postadolescent acne. In conclusion; we believe that emotional stress and smoking play an important role in the etiopathogenesis of postadolescent acne.

Introduction

Acne is usually recognized as a disease of adolescence, although its prevalence has sig-nificantly increased in patients over the age of 25 years. Postadolescent acne is the acne seen at age of 25 and over. The age of onset

is not considered in diagnosis [**1,2**]. Postadolescent acne is more prevalent among women with 14% of women aged between 25 and 40 are influenced. Postadolescent acne is examined in two groups as papulopustular and comedonal acne. Papulopustular acne is characterized with inflammatory papulopustular lesions especially on the lower 1/3 part of the face, chin and neck. Whereas in comedonal, the comedones show distribution throughout the face. Comedonal acne has late-onset and is often associated with smoking [**3,4**].

Etiopathogenesis of postadolescent acne is yet to be fully elucidated. Hormonal parameters are normal in majority of patients. Several environmental factors are emphasized including stress, environmental pollution, ultraviolet exposure and smoking. Emotional stress increases adrenal androgens, causing sebaceous hyperplasia and may play a role in the etiopathogenesis of acne [**4**]. Objective of this study is to evaluate smoking, anxiety, depression and quality of life in patients with postadolescent acne and to shed light on its etiopathogenesis.

Materials and Methods

A total of 227 patients (with 70 postadolescent acne and 157 acne vulgaris) were included in the study. Patients aged 25 and over were accepted as postadolescence acne group. Patients' gender, age, educational status, marital status, duration and severity of acne were recorded. Grading the severity of acne was made in accordance with the Consensus Conference on Acne Classification [**5**]. Literate patients aged over 16 and under 65 years were enrolled. Patients with a history of psychiatric illness or who were using drugs because of a psychiatric disease, those were using isotretinoin or had used in the past and patients with systemic disease or malignity were excluded from the study. Patients were asked to fill the hospital anxiety and depression scale (HADS) and Short Form 36 (SF-36).

The study was approved by the ethical committee of Yildirim Beyazit University Yenimahalle Training and Research Hospital (2016-13) and was conducted in accordance with the Declaration of Helsinki.

Hospital Anxiety and Depression Scale (HADS)

HADS is a scale developed by Zigmond and Snaith in order to determine the risk, level and change in level of anxiety and depression in patients. It consists of 14 questions with the odd numbers measure anxiety and even numbers are related to depression [**6**]. Validation and reliability of the scale for Turkish language was evaluated by Aydemir and the scale was found to be reliable for screening depression and anxiety symptoms in the persons with physical illness. Cut-off values were determined as 10 for anxiety and 7 for depression subscales [**7**].

The Short Form (36) Health Survey

SF 36 is the most commonly used scale to measure quality of life with total 8 subscales consisting of 36 items that assess physical and mental health. These subscales are physical functioning, physical role functioning, pain, general health perceptions, vitality, social functioning, emotional role functioning and mental health. The Turkish version was developed by Koçyiğit and collegues [**8**].In general pulsed mode of CO_2 laser is suitable for treatment of thinner, soft and localized form of VEN but is not sufficient for thick, hard, extensive variant of VEN.

Our reasons for this combined therapy are that many of VEN are thickening, extensive and hard; therefore this type is almost unresponsive to the modality treatment mentioned above. Also in this situation using monotherapy with CO_2 laser required numerous passage of laser therapy that resulted in thermal damage and it was very time consuming. Additionally, the result of shave removal as single therapy depended on the experience of the surgeon so that overtreatment or undertreatment is accompanied by complications and recurrence, respectively.

In our study from 14 patients, 10 patients (71.4%) and in 8 cases in which face area was treated, 5 cases (63.3%) showed good to excellent response.

In conclusion, although many forms of VEN show favorite response to most physical modality, combination therapy with shave removal and CO_2 laser could be an appropriate therapy for extensive, thickened, non-pig-

mented and unresponsive to other treatments of VEN.

Statistical Analysis

Descriptive statistics of data are expressed as mean, standard deviation, frequency and percentage. Distribution of data was studied with Kolmogorov- Smirnov test. Kruskal-Wallis, ANOVA, Mann-Whitney U and the independent-samples t-test were used for analysis of the variables. Chi-square test was used in analysis of the proportional data and Fischer test was used when chi-square did not meet the conditions. Statistical analyses were carried out using SPSS 20.0 software.

Results

Eighty-seven percent of patients with postadolescent acne and 58% of those having acne vulgaris were female. Mean age was found as 28.88±4.29 years in patients with postadolescent   and 18.55±2.38 years in those with acne vulgaris. Clinical and demographic charasteristics of the patients are given in (**Table1**). Anxiety and depression scores were significantly higher in patients with postadolescent acne (p= 0.01, for each). Social functioning, vitality/energy, general health perceptions, pain and physical functioning scores were lower in patients with postadolescent   acne (p=008, p=003, p= 0.001, p< 0.001, p= 0.03; respectively) (**Table 2**). No significant differeces were found between both groups in terms of mental health, physical and emotional role functioning and physical functioning. There was a statistically significant between the groups in smoking (p= 0.01).

No statistically significant correlation was observed between anxiety and depression scores and the severity of acne in all patient groups (p=0.17, p=0.38; respectively). There were no statistically significant correlations between anxiety and depression scales and the severity of acne both in postadolescent   acne and acne vulgaris groups (p=0.28, p=0.22; p=0.11, p=0.69; respectively). In addition, there was not a significant correlation between the severity of acne and quality of life scores in all patient groups (p   0.05).

Dıscussıon

Acne vulgaris is a chronic inflammatory dermatosis, influencing almost all adolescents with serious social and psychological effects. Anxiety, depression, low self-esteem, difficulties in personal relationships, unemployment, social depression and even suicidal thoughts may be seen in patients having acne. This psychological problems are not always related with the severity of acne and psychosocial impact should be assessed in all patients. Considering and determination of this situation will considerably increase the effectiveness and success of treatment. There are numerous studies about the psychosocial effects of severe acne especially in adolescence period [**9,10,11**]. However, psychosocial effects of postadolescent acne have not been fully investigated [**12,13**].

Table 1. Demographic and Clinical Characteristics of the Patients

Feature	Adolescence acne 157 /%	Postadolescence acne 70/%	p value
Gender (Female/male) 91/66	91/66	61/9	<0.001*
Age	18.55±2.38	28.88±4.29	<0.001*
Familial history			0.29
Yes	88(56.1)	34(48.6)	
No	69(43.9)	36(51.4)	
Severity of Acne			<0.001*
Mild	3(1.9)	6(8.6)	
Moderate	37(23.6)	34(48.6)	
Severe	64(40.8)	18(25.7)	
Very severe	53(33.8)	12(17.1)	
Smoking			0.01*
Yes	33(21)	26(37.1)	
No	124(79)	44(62.9)	

Table 2. Comparison of Psychological Test Results Between the Groups

Feature	Adolescence acne	Postadolescence acne	p value
HAD-A	7.57±4.19	9.10±4.90	0.01*
HAD-D	5.70±3.64	7.04±4.02	0.01*
Physical functioning	17.45±3.09	16.51±2.70	0.03*
Physical role functioning	6.90±1.23	6.67±1.33	0.20
Pain	9.47±1.78	8.06±1.99	<0.001*
General Health Perceptions	18.47±3.68	16.71±4.06	0.001*
Vitality	15.73±4.09	13.94±4.16	0.003*
Social functioning	8.10±1.77	7.41±1.86	0.008*
Emotional role functioning	4.74±1.01	4.67±1.00	0.61
Mental health	19.91±5.06	19.18±5.10	0.31

Postadolescent acne is a mild to moderate severity form of acne with the face being often involved. Because facial appearance is important for body image perception of a person, even with low severity acne vulgaris may affect emotional, social and psychological functions. Emotional stress increases adrenal androgens, causing sebaceous [14]. Therefore it may play a role in the etiopathogenesis of postadolescent acne, leading to lead psychiatric problems due to acne lesions [4,12]. In an observation of 10 adult patients with moderate acne lesions, Gupta et al. found depression in 3 patients and reported major depressive episode in 7 patients [12]. In the present study, anxiety and depression scores were higher in patients with postadolescent acne than in patients having adolescence acne. Postadolescent acne may be thought to have higher psychiatric comorbidity with the effects of scars which become more evident with skin aging.

Acne vulgaris is known to have negative impact on social life and to cause restrictions in daily social activities such as geting outdoor, dining out and participation to the sportive events. Therefore, impaired quality of life is expected in the patients with acne [15,16]. Hence, in our study social functioning, vitality, general health perceptions, pain and physical functioning scores were found to be lower in patients with postadolescence acne than in those with adolescance acne. In a study with patients having mild to moderate acne, quality of life has been found to decrease as age increased [15]. Similarly, we found lower qualitiy of life scores in patients having postadolescent acne. In numerous studies, no correlation could be detected between the severity of acne and quality of life. Our findings are also consistent with the literature.

Nicotine causes hyperkeratinization, triggering infundibular epithelial hyperplasia. Therefore, it is thought that smoking may be associated with acne lesions [17]. However, the association between acne vulgaris and smoking is controversial. Some studies have reported a correlation between acne vulgaris and smoking, while others could not find such a correlation [18,19].

On the other hand, there is a strong correlation between postadolescence acne and smoking [4,20,21]. Capitanio et al reported that, 66% of 226 patients with postadolescence acne were smokers. In that study, 72% of the patients with comedonal postadolescence acne and 29% of the patients with papulopustular postadolescent acne were smoking [4]. In their study investigating the relationship between smoking and postadolescent acne, Yang et al. proposed that smoking may lead to acne formation by increasing oxidative stress. In that study, comedones were removed with extraction in the smokers and nonsmokers and proinflammatory cytokines were studies in the samples collected. They found that the levels of IL-1α and LPO were markedly higher and correlated with the severity of acne in the smokers group, but the difference did not reach statistical significance. The authors reported that, a significant result

could be obtained in that study would be conducted with inflammatory acne lesions [**21**]. Smoking may lead to onset of acne as well as aggravate an existing one. We also believe that, smoking play an important role in the pathogenesis of acne by increasing oxidative stress, keratinization in the hair follicles and inflammation.

Conclusion

Postadolescent acne is more effective on quality of life compared to acne vulgaris. Anxiety, depression and smoking are more frequently seen among the patients with postadolescence acne. In conclusion; we believe that emotional stress and smoking play an important role in the etiopathogenesis of postadolescent acne.

References

1. Balta I, Ekiz O, Ozuguz P, et al. Insulin resistance in patients with post-adolescent acne. Int J Dermatol 2015; 54: 662-666. PMID: 24961925.

2. Ekiz O, Balta I, Unlu E, Bulbul Sen B, Rifaioğlu EN, Dogramaci AC. Assessment of thyroid function and lipid profile in patients with postadolescent acne in a Mediterranean population from Turkey. Int J Dermatol 2015; 54: 1376-1381. PMID: 25771990.

3. Goulden V, Clark SM, Cunliffe WJ. Post-adolescent acne: a review of clinical features. Br J Dermatol 1997; 136: 66-67. PMID:9039297.

4. Capitanio B, Sinagra JL, Bordignon V, Cordiali Fei P, Picardo M, Zouboulis CC.Underestimated clinical features of postadolescent acne. J Am Acad Dermatol 2010; 63: 782-788.

5. Pochi PE, Shalita AR, Strauss JS. et al. Report of the Consensus Conference on Acne Classification Washington ,D.C., March 24 and 25,1990. J Am Acad Dermatol 1991; 24 : 495-500. PMID: 1829466.

6. Zigmond AS, Snaith PR. The hospital anxiety and depression scale. Acta Psychiatr Scand 1983; 67: 361–370. PMID: 6880820.

7. Aydemir Ö. Güvenir T, Küey L, et al. Hastane Anksiyete ve Depresyon Ölçeği Türkçe formunun geçerlilik ve güvenilirlik çalışması. Türk Psikiyatri Dergisi 1997; 8: 280-287.

8. Kocyigit H, Aydemir O, Fisek G, et al. Validity and reliability of Turkish version of Short Form-36 (SF-36). J Drug Treat 1999; 12: 102-106.

9. Gupta MA, Gupta AK. The psychological comorbidity in acne. Clin Dermatol 2001; 19: 360–363. PMID: 11479049.

10. Kaymak Y, Taner E, Taner Y. Comparison of depression, anxiety and life quality in acne vulgaris patients who were treated with either isotretinoin or topical agents. Int J Dermatol 2009; 48: 41-46. PMID: 19126049.

11. Uslu G, Sendur N, Uslu M, Savk E, Karaman G, Eskin M. Acne: prevalence,perceptions and effects on psychological health among adolescents in Aydin,Turkey. J Eur Acad Dermatol Venereol 2008; 22: 462-469. PMID: 18179519.

12. Gupta MA, Gupta AK, Schork NJ et al. Psychiatric aspects of the treatment of mild to moderate facial acne. Int J Dermatol 1990; 29: 719–721. PMID: 2148562.

13. Henkel V, Moehrenschlager M, Hegerl U, et al. Screening for depression in adult acne vulgaris patients: tools for the dermatologist. J Cosmet Dermatol 2002; 1: 202-207. PMID:17147540.

14. Kligman AM. Postadolescent acne in women. Cutis 1991; 48: 75-77. PMID: 1831118.

15. Jones-Caballero M, Chren MM, Soler B, Pedrosa E, Peñas PF. Quality of life in mild to moderate acne: relationship to clinical severity and factors influencing change with treatment. J Eur Acad Dermatol Venereol 2007; 21: 219-226. PMID: 17243958.

16. Yazici K, Baz K, Yazici AE, et al. Disease-specific quality of life is associated with anxiety and depression in patients with acne. J Eur Acad Dermatol Venereol 2004; 18: 435-439. PMID: 15196157.

17. Firooz A, Sarhangnejad R, Davoudi SM, et al. Acne and smoking: is there a relationship. BMC Dermatol 2005; 5: 2. PMID: 15790395

18. Jemec GBE, Linneberg A, Nielsen NH, et al. Have oral contraceptives reduced the prevelance of acne, tobacco smoking and oral contraceptives. Dermatology 2002; 204: 179-184. PMID: 12037444

19. Schafer T, Niehnaus A, Vieluf D, et al. Epidemiology of acne in the general population: the risk of smoking. Br J Dermatol 2001; 145: 100-104. PMID: 11453915

20. Khunger N, Kumar C. A clinico-epidemiological study of adult acne: is it different from adolescent acne? Indian J Dermatol Venereol Leprol 2012 ; 78 : 335-341. PMID: 22565434.

21. Yang YS, Lim HK, Hong KK. et al. Cigarette smoke-induced interleukin-1 alpha may be involved in the pathogenesis of adult acne. Ann Dermatol 2014; 26: 11-16. PMID: 24648681