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Original Article

Psychiatric Symptoms in Patients with Immune-Related Mucocutaneous Lichen Planus

Narges Hejazi[1], Hossein Eslami[1], Ali Reza Shafiee-Kandjani[2], MohamadReza Ranjkesh[3], Behzad Shalchi[2*], Fatemeh Eskandarpour[2]

[1]Dental and Periodontal Research Center, Tabriz University of Medical Sciences, Tabriz, Iran
[2]Research Center of Psychiatry and Behavioral Sciences, Tabriz University of Medical Sciences, Tabriz, Iran
[3]Department of Dermatology, Faculty of Medicine, Tabriz University of Medical Sciences, Tabriz, Iran

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Abstract

Background: Lichen planus (LP) is one of the most common chronic mucocutaneous diseases with an underlying immunological component. Although the pathogenesis of this condition is not exactly known, numerous studies have been conducted due to the significance of this disease and its high prevalence. Several risk factors and various contexts have been identified for this condition; however, the primary cause is still not fully understood. Some genetic and environmental factors may be involved in the development of the disease. The present study was conducted to examine psychiatric symptoms in patients with cutaneous-oral LP (COLP) referred to the dermatology clinic of Sina Hospital of Tabriz city, northwest of Iran.

Methods: This descriptive study was conducted on 31 patients with LP and 31 healthy individuals referred to the dermatology clinic of Sina Hospital in Tabriz. The information required was collected using the SCL-90-R standard questionnaire, and the data were analyzed using descriptive and inferential statistics with the help of SPSS v.23 and multivariate analysis of variance (MANOVA).

Results: The results showed that people with COLP do not suffer from serious psychiatric conditions but may have merely mild to moderate psychiatric symptoms. However, the MANOVA test indicated that the symptoms had a significantly higher incidence in patients with oral LP compared to matched control subjects ($F(12,47)=13.86$, $P<0.05$).

Conclusion: As shown by the SCL-90-R standard checklist, patients with oral LP expressed significantly more psychiatric symptoms than normal individuals, reflecting the need for these patients for more regular assessments.

Introduction

Lichen planus (LP) is a chronic inflammatory disease with an immunological basis characterized by mucocutaneous involvement.[1] This disease was first described by Dr. Wilson in 1869[2,3] and is known as a chronic inflammatory disease and a type 4 hypersensitivity autoimmune condition mediated by T lymphocytes.[4-6] The disease primarily involves the oral mucosa, skin, hair follicles, genital mucosa, scalp, nails, and rarely, the eyes and urinary tract.[7-10] The clinical picture varies and can be in the forms of reticular, plaques, papular, bullous, erythematous, and ulcerative,[11] with the reticular form being the most common type.[12] According to studies, the disease is more frequently observed in women[13-16] and middle-aged 50-60-year-old adults.[4, 5] The prevalence has been reported between 0.5% and 2.3% in different populations.[17]

Although the exact etiology of this disease is unknown, dysregulated T cell-mediated immune responses are believed to play a major and essential role in pathogenesis.[18] Therefore, it is assumed that any immunomodulation factor can contribute to disease development, such as viral antigens, drugs, chemicals, stress, and genetic factors.[19] These factors activate the immune system and lead to the destruction of the basal layer of the epithelium through proinflammatory cytokines shown in burning mouth syndrome as well[20]; however, this role has not been confirmed in the case of oral LP. On the other hand, the role of psychological factors and stress has been well-recognized in some cutaneous diseases. Studies have shown that psychological factors, including stress, anxiety, and depression play a role in the development of LP by affecting the immune system.[21-24] Based on the available evidence, oral health may be impacted by psychiatric disorders causing high morbidly and low quality of life levels in afflicted patients.[25,26]

***Corresponding Author:** Behzad Shalchi, Email: shalchi.b@gmail.com

Since the etiology of LP is largely obscure, a variety of therapeutic methods are utilized to alleviate the symptoms and discomfort of the patient, but no definite or preventive treatment has been introduced in this regard. Nevertheless, both local and systemic therapies have been reported to be effective.[27] Given that the prevalence of negative psychological symptoms is reported to be 2 to 3 times higher among people who experience the physical symptoms of the disease.[28]

It has also been suggested that psychotherapy may be beneficial to LP patients,[29] highlighting the need for not only treating cutaneous lesions but also managing the psychological well-being of these patients. Therefore, there is a need to focus on factors predisposing to psychological conditions associated with LP and explore psychiatric conditions and their aggravators to identify appropriate therapeutic and preventive strategies.

In this regard, various studies have been conducted to characterize important determinates of psychiatric problems in LP patients using different methodologies and tests and on different sample sizes and target populations. Considering the impact of various socioeconomic, environmental, and cultural conditions on people's psychological reactions to problems, it is not surprising that psychological elements and social pressures can differentially influence people's health. In Iran, few studies have been conducted to address the incidence of psychiatric disorders in patients with LP, and our understanding of the impact of these factors on LP development and progression is limited. In this study, we aimed to determine the frequency of the symptoms of psychiatric illnesses in patients suffering from oral LP referred to the dermatology clinic of Sina Hospital of Tabriz in 2019.

Materials and Methods

The statistical population of this descriptive study includes all patients with biopsy-confirmed oral or cutaneous LP referred to the dermatology clinic of Sina Hospital of Tabriz city in the second half of 2019. In this study, the samples were selected by total population sampling, and a total of 40 patients who were willing to participate were included in the study. Due to incomplete questionnaires, 9 people were excluded, and finally, the data of 31 subjects were analyzed. A similar number of gender- and age-matched people without LP were included in the study as the control group. Control subjects were selected from individuals referred for psychiatric disorder screening and had no mucocutaneous disease. The study followed the guidelines of the Declaration of Helsinki, and informed consent was obtained from all participants. In both experimental and control groups, individuals who were consuming anti-depressants and anti-anxiety drugs were excluded from the study. The SCL-90-R standard questionnaire was used to determine the frequency of psychiatric symptoms. Demographic data and laboratory data, including age, gender, and biopsy results, were collected by reviewing medical files and interviews.

SCL-90-R Questionnaire

This questionnaire is one of the most frequently used tools for detecting psychiatric symptoms. It contains 90 items aiming and was first developed to screen the psychological aspects of physical and mental disorders and to discern healthy from non-healthy individuals. This questionnaire was introduced by Derogatis et al[30] in 1973 and revised thereafter based on clinical experiences and psychometric analyses to generate its final version in 1976. In this tool, nine psychological dimensions, including physical symptoms, obsessive-compulsive disorder, sensitivity in mutual relationships, depression, anxiety, aggression, morbid fear, paranoid thoughts, and psychosis, are investigated on a 5-point Likert scale (0-4). Derogatis et al approved the internal consistency of the tool, reporting the highest correlation coefficient for depression (0.95) and the lowest for psychosis (0.77). Using the test-retest method for reliability assessment, 94 patients with psychological disorders were recruited over a one-week interval, retrieving the maximum correlation coefficient for depression (0.73) and the lowest for morbid fear (0.36). In a study in Iran, Mirzaei[31] evaluated the reliability and validity of this tool, reporting reliability coefficients above 0.8 for all dimensions except for the aggression, morbid fear, and paranoid thought dimensions. The approval of the tool's construct validity indicated that this scale could be regarded as a useful tool to separate healthy from mentally ill individuals.

After data collection, patients' information was entered into SPSS v.23 statistical software, and multivariate analysis of variance (MANOVA) was used to compare quantitative variables at a significance level of $P < 0.05$.

Results

The mean age of 31 patients enrolled was 44.16 years, with a minimum age of 20 and a maximum age of 68 years. The mean age of men (n = 10, 32.26%) was 37.60 years, and the mean age of women (n = 21, 67.74%) was 47.29 years.

According to data sub-group analysis in both males and females, the results showed that patients with LP did not suffer from serious psychological problems. A score of 50 was considered the initial threshold in the SCL-90-R questionnaire to diagnose mild to moderate psychiatric symptoms (Table 1).

The results of Wilks' lambda (Table 2) revealed no significant difference or association regarding gender [F (47, 12) = 1.56] and the interaction between gender and study group, [F (47, 12) = 1.62] ($P > 0.05$); however, there was a significant difference between the LP and control groups in at least a single psychiatric symptom (F (47, 12) = 13.86, $P < 0.05$).

Further analyses, as shown in Table 3, revealed significant differences between LP patients and healthy individuals in all nine subscales, and according to the mean scores obtained, LP patients experienced relatively

higher levels of psychiatric symptoms in all dimensions compared to healthy matched controls.

Discussion

The objective was to investigate the frequency of psychiatric symptoms in patients with oral LP. According to the information obtained and sub-group analysis in men and women, patients with LP seemed to suffer from no serious psychiatric problem. However, compared to healthy matched controls and according to MANOVA, patients with oral LP experienced more symptoms in all nine dimensions assessed ($P<0.001$), including physical symptoms, obsessive-compulsive disorder, sensitivity in mutual relationships, depression, anxiety, aggression, morbid fear, paranoid thoughts, and psychosis.

In a study by Mehdipour et al,[11] it was observed that psychological parameters can affect physical health. Also, McCartan and Healy used the Hamilton Anxiety Rating Scale (HAM-A) to show that 50% of LP patients had high levels of anxiety.[32] In the present study, patients with oral LP presented with high levels of anxiety symptoms compared to the control group. The HAM-A is a 14-item questionnaire specifically designed to measure an individual's anxiety levels. The results obtained by McCartan and Healy matched those observed in the present study.

A case-control study by Alves et al[29] showed that anxiety and depression were more prevalent in patients with oral LP compared to control subjects. Also, Farhad-Molashahi et al[33] and Gavic et al [34] argued that elevated levels of stress, anxiety, and depression in patients with oral LP could be indicative of the effective role of these disorders in the development of LP. Using various psychometric surveys, Rojo-Moreno et al[35] and Chaudhary,[36] using the Hospital Anxiety and Depression Scale (HADS), affirmed that oral LP patients had higher levels of stress, anxiety, and depression compared to control subjects. Chiappelli and Cajulis [37] also noted that half of patients with oral

Table 1. Mean and standard deviation of the subjects' T score in SCL90 components

Variables	Groups			
	Lichen planus		Control	
	Female	Man	Female	Man
	Mean ± SD	Mean ± SD	Mean ± SD	Mean ± SD
Somatization	53.23 ± 10.89	51.70 ± 12.75	37.55 ± 3.35	38.54 ± 3.33
Obsessive compulsive	47.28 ± 8.16	43 ± 9.09	36.67 ± 4.36	37.27 ± 3.13
Interpersonal sensitivity	46.76 ± 9.26	46.8 ± 13.43	36.33 ± 2.17	36.4 ± 3.46
Depression	51.09 ± 9.7	46.4 ± 10.69	35.33 ± 2.39	35.77 ± 2.22
Anxiety	51.62 ± 9.6	49.3 ± 11.12	37.77 ± 1.85	38 ± 3.17
Hostility	45.09 ± 7.65	50.5 ± 11.04	38.33 ± 2.82	37.63 ± 3.51
Phobic anxiety	47.9 ± 8.97	45.9 ± 5.66	41 ± 1.5	40.68 ± 1.28
Paranoid ideation	45.42 ± 12.20	43.7 ± 9.49	37 ± 5.14	35.54 ± 5.3
Psychoticism	45.23 ± 5.83	44.1 ± 7.86	37.77 ± 2.58	38.5 ± 2.38

Table 2. The results of Wilks' Lambda test in multivariate variance analysis of psychiatric symptoms

Effect	Test	Value	F	Hypothesis df	Error df	Sig.	Partial eta squared
Group	Wilks' lambda	0.22	13.86	12	47	0.00	0.78
Gender	Wilks' lambda	0.71	1.56	12	47	N.S.	0.28
Group * Gender	Wilks' lambda	0.70	1.62	12	47	N.S.	0.29

Table 3. Results of multivariate variance analysis of T scores of groups in psychiatric symptoms

Dependent variable	Type III sum of squares	df	Mean square	F	Sig.	Partial eta squared
Group						
Somatization	2733.79	1	2733.79	38.10	0.00	0.40
Obsessive compulsive	878.42	1	878.42	20.909	0.00	0.26
Interpersonal sensitivity	1424.96	1	1424.96	22.776	0.00	0.28
Depression	2289.36	1	2289.36	43.392	0.00	0.43
Anxiety	2077.96	1	2077.96	37.656	0.00	0.39
Hostility	1266.21	1	1266.21	28.318	0.00	0.33
Phobic anxiety	483.15	1	483.15	14.360	0.00	0.20
Paranoid ideation	904.05	1	904.05	11.407	0.00	0.16
Psychoticism	560.751	1	560.751	23.070	0.00	0.28

LP experienced exaggerated levels of stress before the onset or aggravation of lesions. In another study by Motallebnezhad et al[38] on an Iranian population, the prevalence of depression was reported to be higher in patients with oral PLs than in controls. Consistently, we witnessed in the present study that patients with oral LP had higher levels of stress and depression symptoms compared to the control group.

However, Allen et al[39] did not observe a significant difference between patients with oral LP planus and control subjects regarding anxiety levels. In similar studies, Di Stasio et al,[40] Thanakun and Musikasukont,[17] Hirota et al[41], and Li et al[42] found no significant relationship between oral LP and stress, depression, or anxiety. Variabilities observed between the results of these studies can be due to differences in the surveys employed, the populations studied, or sample sizes (for example, the results of Di Stasio et al[40] could be influenced by the size of the samples recruited).

As mentioned, Farhad-Molashahi et al,[33] Rojo-Moreno et al,[35] Chaudhary,[36] and Chiappelli and Cajulis[37] all found a significant relationship between oral LP and stress or anxiety, whose results are in agreement with our findings. The 90-item SCL-90-R questionnaire has been designed to analyze the symptoms related to nine psychiatric dimensions, including stress and depression. If needed, individuals screened by this tool can be further evaluated by undergoing more specific tests. In the present study, the results obtained by the SCL-90-R checklist revealed that patients with oral LP show significantly more frequencies of symptoms such as stress and depression compared to healthy subjects, highlighting the need for extended psychiatric evaluations in these patients.

Studies have explicitly denoted a reciprocal link between the central nervous system and the immune system, and alterations in the central nervous system can affect the function of the immune system, predisposing to autoimmune diseases.[42] Therefore, it is not unexpected that psychological disorders interfere with the normal functioning of the immune system. Clinical experiences of many researchers also affirm a link between psychological disorders and LP lesions, indicating that patients with LP are in fact predisposed to psychiatric disorders when facing this type of psychological pressure.[43]

Prospective studies are recommended to investigate the effect of psychiatric treatments on the regression or recurrence of LP lesions. Also, by including a larger population, it is amenable to obtain more robust findings in this area. It is also recommended to include LP patients from different socioeconomic levels, visiting clinics and doctor offices across different areas of the city to be able to better extrapolate the link between LP disease, psychiatric problems, and quality of life. The SCL-90-R questionnaire used in the present study offers a screening tool that, by illuminating psychiatric symptoms at a specific dimension, guides psychologists toward using specific diagnostic tests. In future studies, it is advisable to evaluate other psychiatric conditions using their specific tests in patients with oral LP to achieve more reliable conclusions.

Conclusion

In general, our findings revealed that not only depression and stress but also seven more psychiatric symptoms studied by the SCL-90-R checklist, were significantly more prevalent in patients with oral LP compared to healthy individuals, highlighting the need for these patients for further regular psychiatric assessments. Our results support the effective role of psychological problems in the etiology and pathogenesis of LP and hold promise that the resolution of these problems can facilitate the treatment of LP patients, reducing the burden of diseases associated with psychological etiologies and boosting public mental well-being.

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Authors' Contribution

Conceptualization: Narges Hejazi.
Data curation: Hossein Eslami.
Formal analysis: Behzad Shalchi.
Funding acquisition: MohamadReza Ranjkesh.
Investigation: Narges Hejazi.
Methodology: Ali Reza Shafiee-Kandjani.
Project administration: MohamadReza Ranjkesh.
Resources: Narges Hejazi.
Software: Behzad Shalchi.
Supervision: Hossein Eslami.
Validation: Behzad Shalchi.
Visualization: Narges Hejazi, Hossein Eslami, MohamadReza Ranjkesh.
Writing–original draft: Fatemeh Eskandarpour.
Writing–review & editing: Fatemeh Eskandarpour, Behzad Shalchi, Ali Reza Shafiee-Kandjani.

Competing Interests

The authors have no conflicts of interest to declare.

Data Availability Statement

The datasets are available from the corresponding author on reasonable request.

Ethical Approval

The present study was reviewed by the Ethics Committee of Tabriz University of Medical Sciences and granted the ethics code of IR.TBZMED.REC.1397.1087

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