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Original Research

Relationship between Personal Temperaments Based on the Traditional Medicine Knowledge and Lichen Planus and Lichenoid Reaction Disorders

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Abstract

Oral lichen planus and lichenoid reactions are autoimmune chronic inflammatory diseases. Since the inflammatory system is the main pathological process in these lesions, some etiological roles for inflammatory cytokines and personal temperaments (Mizaj) are proposed. In this preliminary study, establishing such an association between personal temperaments with oral lichen planus and lichenoid reactions would develop new horizons for better preventive programming to prevent or control the disease course in affected patients. This case-control study was carried out among 384 patients referred to the oral medicine department of dental school, Tehran University of Medical Sciences, from 2000 to 2017. They were categorized into three groups as follows: oral lichen planus (128), oral lichenoid reactions (128), and healthy control group (128). The temperament was assessed by Mojahedi et al. validated questionnaire, and the results were compared across the groups. Warm temperament was significantly higher in the lichen planus group (P=0.0001). The dry temperament was higher in oral lichen planus and lichenoid groups. In these groups, the intermediate group had the least rate, but in the control group, the moist temperament was less common. No statistically significant difference existed between groups in this era (P=0.210). However, among mixed temperaments, the warm and moist temperament was the same across the groups (P=0.195); the warm and dry temperament was significantly more common in cases with oral lichen planus (P < 0.001); and the cold and dry temperament (P=0.017) and cold and moist temperament (P <0.001) were significantly more common in the control group. The only difference between the two groups of control and lichenoid reactions was cold and dry temperament (P=0.008). This study revealed that warm temperament is related to oral lichen planus. Reestablishing this matter in future studies would help develop some evidence-based preventive strategies to reduce the burden of oral lichen planus.

Keywords: Personal temparement; Oral lichen planus; Oral lichenoid reaction

Introduction

Lichen planus is a relatively common mucocutaneous disorder caused by immunological changes. It can also be autoimmune in pathogenesis. It is a chronic condition with periods of exacerbation and recovery. It was first described by British physician Wilson Erasmus in 1869. Lichens are primitive plants that consist of symbiotic algae and fungi, and the word planus in Latin means flat. Lichen planus has various clinical manifestations that can affect the skin, oral mucosa, nails, genital mucosa, and scalp. This lesion has well-established clinical and histological features that aid in diagnosis [1]. The prevalence rate is nearly 1.27%, ranging from 1-5% worldwide, and the mean

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age of presentation is between the fifth and sixth life decades [2,3]. Lichenoid reactions are a group with different etiologies and the same clinical and histological presentation, including lichenoid contact reactions, drug-induced lesions, and some aspects of graft-versus-host disease [4,5]. These lesions may be misdiagnosed with oral lichen planus lesions [5,6].

Despite some proposed etiological factors such as stress, trauma, diabetes, and hepatitis C, the definite cause of oral lichen planus is not yet understood [7,8]. For this matter, the generally utilized strategies include therapeutic approaches, and there are few preventive instructions in this era [8,9]. Traditional medicine is an important part of integrative approaches for treating oral lichen planus [10,11,12].

Since the inflammatory system is the main pathological process in oral lichen planus and lichenoid lesions, some etiological roles for inflammatory cytokines and personal temperaments (Mizaj) are proposed [13,14]. The individual perspective in Persian medicine is introduced with temperament (Mizaj). Accordingly, each person is placed at one point in the middle of a group from extreme heat to extreme cold. Mizaj of entire body is determined by the heart, brain, and liver organs. The initial hypothesis was developed according to Persian Medicine and was enforced regarding the effects of some dietary regimens on disease manifestations and exacerbations [14,15]. In this preliminary study, establishing such an association between personal temperaments with oral lichen planus and lichenoid reactions would develop new horizons for better preventive programming to prevent or control the disease course in affected patients.

Materials and Methods

This case-control study was carried out among 384 patients referred to the oral medicine department of dental school, Tehran University of Medical Sciences, from 2000 to 2017. They were categorized into three groups as follows: oral lichen planus (128 patients), oral lichenoid reactions (128 patients), and healthy control group (128 patients). In this research, the number of 128 people without oral lesions who visited dental school for routine examinations and met the conditions of inclusion and exclusion criteria were placed in the control group, and a questionnaire was used to determine temperament completely. They were required to attend again by phone call, and the clinical examination was repeated in all cases, and they fulfilled the questionnaires. The questionnaires were fulfilled by a phone call to some patients with restraints for attendance despite their willingness. Inclusion criteria were people with oral lichen planus lesion and lichenoid reaction according to the modified WHO2003 criteria, age range between 30-60 years old, and ability to read and write. Also, the inclusion criteria for the control group were the absence of oral mucosal lesions and the ability to read and write. If satisfied, all the study participants received the necessary information about the project and completed a temperament questionnaire. Exclusion criteria were the patient's lack of satisfaction with the continuation of the study and failure to complete the questionnaire. The sampling of people continued until the desired sample size was reached. The Ethical Committee in Dental School of Tehran University of Medical Sciences approved the study (Ethical code: IR.TUMS.DENTISTRY.REC.1397.013).

Diagnoses were established clinically in all cases and pathologically in some patients. The diagnoses were made according to modified WHO criteria [16]. The temperament was assessed by Mojahedi et al. [17] validated questionnaire with a Cronbache's alpha coefficient of 0.71. It included 10 questions with a Likert scale, including eight questions about warm temperament and two items about moist temperament. The items included contact characteristics, plantar status, rate of effect by warmth or coldness, verbal expressions, voice power, somatic movement speed, and thinness and obesity status. For the warmth scale, scores above 19 were considered warm, and less than 14 were known as cold. The scores between these were considered an intermediate group. Also, for the two last scales, the scores less than 3 and more than 5 were considered as moist and dry, respectively, and the score 4 was the intermediate situation. The other questioned items included age, sex, marital status, smoking, alcohol use, history of systemic disease, drug history, allergy, oral hygiene status, ulcer presence, redness, burning sensation, and time passed from disease diagnosis. Oral hygiene status was considered excellent, medium, and weak in cases with two times teeth-brushing per day plus routine use of dental floss, once teeth-brushing per day plus non-routine use of dental floss, and non-routine teeth-brushing without the use of dental floss, respectively. Also, subjects with dentures were recorded as a separate group [18].

Data analysis was performed by SPSS (version 25.0) software [Statistical Procedures for Social Sciences; Chicago, Illinois, USA]. Chi-Square and Logistic-Regression tests were used, and P values less than 0.05 were considered statistically significant.

Results

Among 384 patients attending this research, 240 were women, and 144 were men. The average age of women and men was 38.3 and 41.4, respectively. The frequency of warm temperament in all three groups was higher than the other ones showing a significant difference between the three groups ($P<0.0001$), and warm temperament was significantly higher in the lichen planus group (Table 1).

Table 1. Warm/cold temperament across the groups

Temperament Group	Cold	Intermediate	Warm	Total
Lichen planus	8 (6.3%)	31 (24.2%)	89 (69.5%)	128 (100%)
Lichenoid Reaction	39 (30.5%)	40 (31.3%)	49 (38.3%)	128 (100%)
Control	40 (31.3%)	38 (29.7%)	50 (39.1%)	128 (100%)
Total	87 (27.7%)	109 (28.4%)	188 (49%)	384 (100%)

As shown in table 2, the dry temperament was higher in oral lichen planus and lichenoid groups. In these groups, the intermediate group had the least rate, but in the control group, the moist temperament was less common. No statistically significant difference existed between groups in this era (P = 0.210).

However, among mixed temperaments (Table 3), the warm and moist temperament was the same across the groups (P=0.195); the warm and dry temperament was significantly more common in cases with oral lichen planus (P < 0.001); and the cold and dry temperament (P=0.017) and cold and moist temperament (P <0.001) were significantly more common in the control group. The only differed temperament between the two groups of control and lichenoid reactions was cold and dry (P=0.008).

The background variables were the same across the groups (Figure 1), and the clinical symptoms and findings were similar between the two non-control groups (P > 0.05). Also, drug history was positive in 74, 66, and 32 cases in three corticosteroids groups in 2 and 4 patients in lichen planus and lichenoid groups, respectively (P > 0.05). Oral hygiene was weak in 19, 17, and 21 subjects in lichen planus, lichenoid, and control groups, respectively, without significant difference (P > 0.05). Also, 81, 84, and 72 subjects were female in lichen planus, lichenoid, and control groups, respectively, without significant differences (P > 0.05).

According to the logistic regression analysis, age (P=0.032), gender (P=0.006), and allergy (P=0.001) were significantly related to warmth/coldness status across the groups. Also, according to the logistic regression analysis, age (P=0.031), marital status (P=0.006), and allergy (P=0.001) were significantly related to moisture/dryness status across the groups (Tables 4,5).

Discussion

Oral lichen planus and lichenoid reactions are common oral cavity lesions without definite etiological causes. Hence preventive approaches for these lesions are not available. These patients' Management strategies are usually for reducing the disease severity, and curative modalities are not yet accessible. This study assessed the association of temperaments with lichen

Table 2. Moist/dry temperament across the groups

Temperament Group	Moist	Intermediate	Dry	Total
Lichen planus	34 (26.6%)	29 (22.7%)	65 (50.8%)	128 (100%)
Lichenoid Reaction	43 (33.6%)	32 (25%)	53 (41.4%)	128 (100%)
Control	38 (29.7%)	41 (32%)	49 (38.3%)	128 (100%)
Total	115 (29.9%)	102 (26.6%)	167 (43.5%)	384 (100%)

Table 3. Mixed temperaments across the groups

Group Temperament	Lichen planus	Lichenoid Reaction	Control	P value
Warm and dry	36.7%	21.9%	16.4%	<0.001
Warm and moist	18.0%	7.8%	13.3%	0.195
Cold and moist	8.0%	18.8%	11.7%	0.008
Cold and dry	3.9%	3.9%	11.7%	0.017

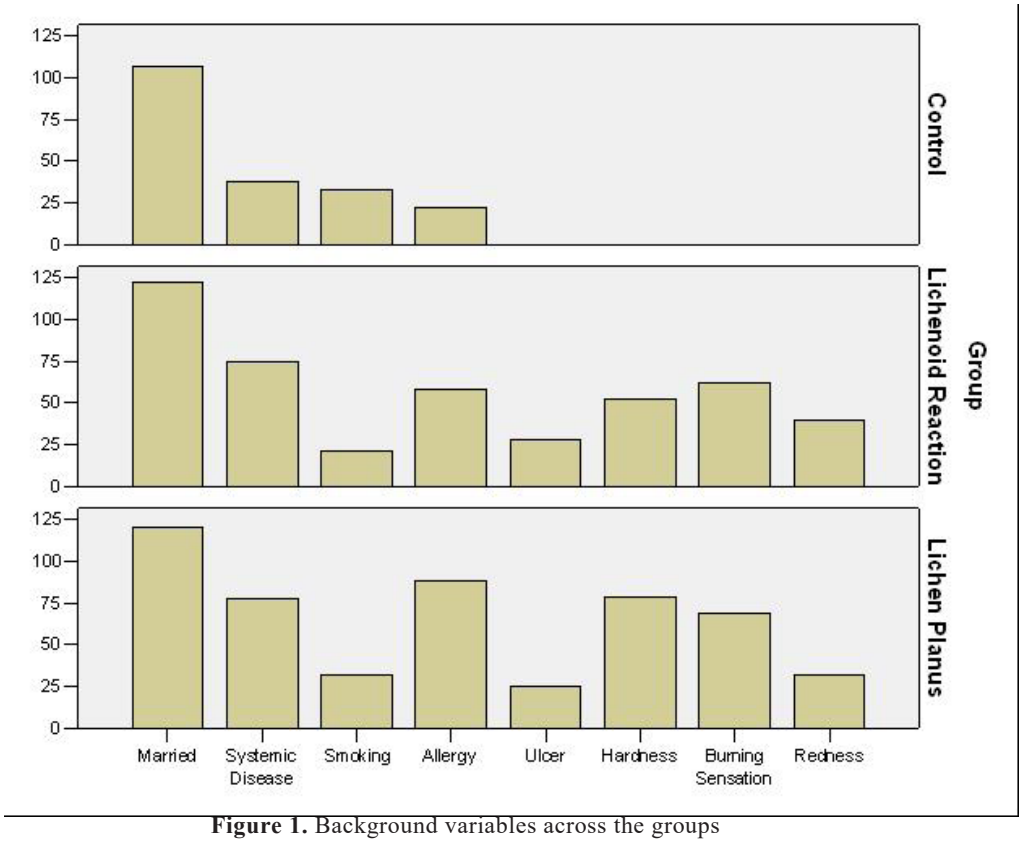

Figure 1. Background variables across the groups

Table 4. The results of regression analysis in examining the effects of different variables on the prognosis of people's temperament in terms of temperature (cold, moderate, and warm temperaments) in the control groups and those suffering from lichen planus lesions and lichenoid reactions in the patients of the Dental School, Tehran University of Medical Sciences

Variable	Non-standard coefficients		standard coefficients	t	P value
	B	The standard error	β		
Fixed coefficient	16.424	1.115	-	14.725	0.0001
Age	-0.044	0.02	-0.115	-2.154	0.032
Marital status	-0.205	0.623	-0.016	-0.329	0.742
Sex	1.202	0.436	0.164	2.758	0.006
Smoking	0.398	0.525	0.047	0.757	0.449
Alcohol	-0.837	0.8	-0.054	-1.046	0.296
Drug	-0.331	0.854	-0.05	-0.387	0.699
Systemic diseases	-0.065	0.219	-0.015	-0.298	0.766
Allergy	1.288	0.373	0.182	3.456	0.001
Health status	-0.065	0. 219	-0.015	-0.298	0.766
Ulceration	-0.141	0.555	-0.014	-0.254	0.8
Burning	0.466	0.404	0.063	1.153	0.25
Roughness	-0.454	0.46	-0.061	-0.987	0.324
Erythem	-0.415	0.507	-0.046	-0.819	0.413
Time	0.155	0.086	0.108	1.808	0.071
Type of lesion	1.771	0.432	0.237	4.099	0.0001

Table 5. The regression analysis results in examining the effects of different variables in predicting people's temperament in terms of Humidity (wet, moderate, and dry moods) in control groups and patients with lichen planus lesions and lichenoid reactions in patients at Dental School, Tehran University of Medical Sciences

Variable	Non-standard coefficients		standard coefficients	T	P value
	B	The standard error	β		
Fixed coefficient	4.002	0.387	-	10.348	0.0001
Age	0.015	0.007	0.123	2.17	0.031
Marital status	-0.627	0.216	-0.153	-2.904	0.004
Sex	-0.196	0.151	-0.082	-1.296	0.196
Smoking	0.306	0.182	0.111	1.68	0.094
Alcohol	-0.243	0.278	-0.048	-0.877	0.381
Drug	0.004	0.296	0.002	0.014	0.989
Systemic diseases	-0.006	0.314	-0.002	-0.018	0.986
Allergy	0.429	0.129	0.185	3.321	0.001
Health status	0.059	0. 076	0.04	0.775	0.439
Ulceration	-0.093	0.192	-0.028	-0.483	0.63
Burning	0.263	0.14	0.108	1.877	0.061
Roughness	-0.127	0.16	-0.052	-0.794	0.428
Erythem	-0.204	0.176	-0.069	-1.161	0.246
Time	-0.002	0.03	-0.005	-0.071	0.943
Type of lesion	0.07	0.15	0.029	0.469	0.639

planus and lichenoid reactions for the first time. The preventive role of traditional medicine approaches for different skin disorders is reported, but there is no study for lichen planus and lichenoid reaction. On the other hand, since these disorders' pathological background mechanisms are inflammatory processes, it is assumed that temperaments are related to disease development besides exacerbations in affected patients [19-23].

This study's main association was between lichen planus and warm temperaments. Also, the warm and dry temperament was related to lichen planus among the combination temperaments. On the other hand, coldness with dryness or moisture had a protective role and was more common among healthy subjects. Among the main strengths of our study was using a valid instrument instead of the clinical interview to determine the temperaments among the patients. Also, among our limitations is a study among the subjects from a single clinical center that would decrease the generalization ability for our results.

Although some association between temperament with other skin diseases such as acne vulgaris and psoriasis was reported [24-26]; it was the first report about lichen planus and the clinical experiences by the authors about the effects of some dietary constituents such as eggplant, honey, and cinnamon may be an indirect confirmative matter. The moist or dry temperaments had no lonely direct associations with lichen planus or lichenoid reactions. The study by Zuhair et al. [27] revealed that warm temperament is accompanied by higher levels of adrenal-released corticosteroids. This matter indirectly establishes the association of lichen planus as an inflammatory disease with the warm temperament [28].

This study found that increased age was accompanied by decreased warm temperament. However, the age range in our study was limited, but this finding may show some clinical relevance for future studies. Also, in our study, the warm temperament was more common among men. It shows no conflict with the further prevalence of lichen planus among female subjects. The association of warm temperament with allergy was also found in our study, which is explained by the basic allergic etiology of lichen planus. However, the moist temperament was not related to lichen planus. It was found that increased age was accompanied by decreased dry temperament. This temperament was also related to the subjects' married status and allergy history.

Conclusively, this study revealed that warm temperament is related to oral lichen planus. Reestablishing this matter in future studies would help develop some evidence-based preventive strategies to reduce

the burden of oral lichen planus in the community; though, further studies are encouraged. Assessment by basic and laboratory factors besides the clinical manifestations would develop further shreds of evidence to establish the obtained association in our study.

Conflict of Interests
None.

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