Original Article

Psychological Assessment of Patients with Oral Aphthous Ulcers

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Abstract

Background and Aim: Recurrent aphthous stomatitis (RAS) is among the most common oral conditions and psychological disorders are among its predisposing factors. The purpose of this study was to determine the frequency and type of psychological disorders in patients with RAS.

Materials and Methods: Seventy-five patients referred to Mashhad Dental School were enrolled in this cross-sectional study: 35 patients with RAS (15 males and 20 females) constituted the study group and 40 healthy patients (15 males and 25 females) comprised the control group. The SCL-90 questionnaire consisting of 90 multiple choice questions was completed by all subjects and a psychologist scored and analyzed the results in order to evaluate the psychological status of patients.

Results: The overall frequency of psychological disorders was 44%; this rate was 68.6% in the RAS patients and 22.5% in the control group ($p<0.0001$). The frequency of anxiety disorder was 42.9% in RAS patients and 7.5% in the control group ($p<0.0001$). The frequency of somatization disorder was 17.1% in RAS patients and 0% in the control group ($p=0.008$). The frequency of depression was 28.6% in RAS patients and 15% in the control group ($p=0.004$). All these differences were statistically significant. There was no statistically significant difference between the two groups in other psychological disorders.

Conclusion: The results showed that psychological disorders were generally more frequent among RAS patients compared to the control group. The most common psychological disorder was anxiety disorder and the frequency of anxiety, depression and somatization was higher in RAS patients.

Key Words: Psychology, Anxiety, Aphthous ulcer

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Introduction

Recurrent aphthous stomatitis has the highest frequency among oral lesions and involves 5-25% of the general population [1]. However, its frequency among different ethnic and socioeconomic groups ranges from 5 to 50%. In a study by Davatchi et al, in 2008, the prevalence of RAS was reported to be 25.2% in subjects older that 15 years old in Iran [2].

Aphthous ulcers are very painful especially during eating, deglutition and speaking [3] and thus, they adversely affect the quality of life of patients [4]. The main etiology of this condition remains unknown and most treatments are symptomatic and supportive [5]. Lesions may be secondary to local trauma, hormonal changes, and infectious agents like HIV, vitamin deficiency, drug intake or allergy. However, systemic conditions like genetic

predisposing factors, immunity disorders, and family history also play a role in some patients [6]. On the other hand, it has been demonstrated that cigarette smoking by increasing mucosal keratinization decreases the prevalence of RAS; also, RAS-free periods are observed during pregnancy [7].

Different theories have been suggested regarding the etiopathogenesis of RAS. But, in general, impaired immunity (mentioned in most studies as the primary or secondary cause), decreased mucosal thickness and increased antigen expression are among the proposed mechanisms [8, 9]. The role of T-cell mediated immunity in the pathogenesis of RAS has been confirmed and decreased ratio of CD4/CD8 cells, increased T cell receptors, and increased level of TNFα in the peripheral blood of patients with RAS have been reported [7].

Stressful life events are significantly associated with development of RAS [10]. Thus, stress may be an etiology of RAS especially in patients with anxious personality [11]. Lack of a direct association between the level of stress and severity of RAS indicates that stress is an initiator of recurrent aphthous attacks rather than being the cause of it [12]. It should be noted that recurrent ulcers can be stressful for patients. On the other hand,

parafunctional habits due to psychological stress can initiate RAS by causing mild trauma [4].

Also, the reason for increased incidence of RAS during the menstruation may be hormonal and physiological alterations leading to physical and emotional changes such as irritability, fatigue and pain [7, 13].

Evidence shows that 5-HTTLPR gene polymorphism is significantly higher in patients with RAS resulting in decreased presentation and absorption of serotonin and affecting depression and anxiety [14]. As mentioned earlier, psychological factors may have a positive correlation with development of RAS, which may be due to the effect on the immunity system.

Recent studies suggest that secretion of corticosteroids due to stress changes the ratio of T8/T4 lymphocytes and decreases efficacy of the immune system. As the result, chemotaxis and neutrophil phagocytosis decrease in patients with RAS [7, 15].

To assess the level of stress and anxiety and their correlation with a group of oral conditions that are believed to be correlated with stress and anxiety (such as lichen planus, mouth burning syndrome, and RAS), several studies with different questionnaires and assessment tools have been performed. These tools include the Recent Life Changes Questionnaire, Hamilton Anxiety Scale, Cattle 16 PF, HAD scale, Beck Depression Inventory, General Health Questionnaire and Spielberger State-Trait Anxiety Inventory [16].

Recent investigations have shown that stressful conditions have greater correlation with the occurrence of RAS compared to personal characteristics of patients [17]. Several studies with different tools have also been performed recently in Iran.

Molashahi et al, in 2011 evaluated 90 RAS patients in three groups of patients, positive control (suffering from AFP, BMS, MPD) and negative control group using the Beck Anxiety Inventory (BAI) questionnaire. They reported that patients with RAS and the positive control group had anxiety and depression levels higher than those in the negative control group. Although the association between the level of anxiety and RAS was not significant, the correlation between the level of depression and RAS was statistically significant [18].

In a study by Sanatkhani, patients with RAS were mentally evaluated using SCL-90 questionnaire and psychological interview and it was revealed that 74.3% of patients had some kind of psychological disorder [19].

Chamani psychologically evaluated 550 medical, dental and pharmacy students in Kerman University to determine the prevalence of RAS using Cattle test. The anxiety level of subjects was classified as no anxiety and mild, moderate and severe anxiety. It was reported that patients with RAS were more anxious than those with no history of RAS [20].

The SCL-90 questionnaire is a tool to assess psychological and mental status of subjects. It was designed by Derrogate in 1980 and includes 90 questions. This test assesses the psychological

status of individuals from a week ago until present. Each question asks the individual that to what extent he/she has experienced specific events in the past week.

Four answer choices are provided for each question including none, slightly, much and very much. The patient marks one answer choice in the questionnaire. Questions have been designed in such way that they are not specific for any group, nationality or ethnicity and subjects with minimum educational level of elementary education can answer them.

This questionnaire has numerous advantages and simultaneously evaluates several psychiatric disorders and is comprehensive. Filling it out does not require much time and subjects with minimal education can also respond to its questions. Thus, this study aimed to assess the correlation of psychological disorders with RAS in cases and controls using this questionnaire.

Materials and Methods

This descriptive cross sectional study was conducted in Mashhad University, School of Dentistry in 2011 on two groups of patients with RAS and those with no history of RAS (controls). RAS patients were those presenting to the oral medicine department of university complaining of aphthous ulcers and the controls were selected among those presenting for routine dental treatments to the screening department of the university.

Clinical diagnosis of RAS was made by an oral medicine specialist based on the shape and number of ulcers, history of recurrence and the lesions being limited to the oral cavity. This experimental study was conducted on 75 patients.

The controls had no history of RAS and on examination, had no mucosal lesions.

The inclusion criteria were:

1. History of RAS
2. Elementary education or higher
3. Willingness for participation in the study

The exclusion criteria were:

1. Patients with an underlying condition associated with aphthous-like lesions in the mouth (such as Behçet's syndrome and gastrointestinal diseases like celiac disease, anemia, etc.). The diagnosis of these conditions was made based on the history, review of the systems and for anemia, paraclinical examinations namely CBC, SI, TIBC and Ferritin.
2. Patients who did not want to or could not fill out the SCL-90 questionnaire

A total of 75 subjects met the inclusion and exclusion criteria and entered in the study; out of which, 35 were in the RAS and 40 were in the control group. Demographic information forms were completed for both groups. Also, patients in the RAS group reported some information regarding their ulcers such as duration of affliction and number, location and type of aphthous ulcers and these data were recorded in the examination forms. Subjects were then provided with SCL-90 questionnaire and requested to fill it out completely. Each question of this questionnaire evaluated one of the 9 subscales of psychiatric disorders including somatization, obsessive-compulsive disorder, depression, anxiety, hostility, phobic anxiety, paranoid ideation, inter-personal sensitivity and psychoticism. Also, this test includes seven other questions not categorized under any of the mentioned nine subscales. These questions are clinically important and enhance general scales of the test.

The time allowed for filling out the questionnaire was 12-15 minutes and the answer sheets were then evaluated and scored by a psychologist. For scoring, first the answers were transferred to answer sheets and then using specific formulation, the three global indexes including “global severity index”, “positive symptom total” and “positive symptom distress index” were calculated.

Data were analyzed using SPSS 18, Chi square test and Fisher’s exact test.

Results

A total of 75 subjects participated in this study including 35 patients with RAS and 40 controls. There were 30 males and 45 females. There were 15 males and 20 females in RAS group and 15 males and 25 females in the control group. No statistically significant difference existed between the two groups in terms of gender (p=0.54).

In terms of total prevalence of psychological disorders estimated by the SCL-90 questionnaire, 33 of all participants had a psychiatric disorder (44%). Of which, 24 had RAS and 9 were in the

control group. The general prevalence of psychiatric disorders was 68.6% among RAS patients and 22.5% among controls; this difference was statistically significant and indicative of the higher prevalence of psychiatric disorders among RAS patients compared to the controls (p<0.0001). Of all subjects with psychiatric disorders, 20 (60%) had more than one psychiatric disorder (concomitant). The findings based on the type of psychiatric disorder and its severity were as follows (Table 1):

1. Anxiety disorder: The overall prevalence of anxiety disorder was 24% among the understudy population, 42.9% among the RAS patients and 7.5% among controls. This difference was statistically significant and indicated higher prevalence of anxiety disorder in RAS patients (p<0.0001).

2. Obsessive – compulsive disorder: The overall prevalence of obsessive-compulsive disorder was 20% among the understudy population, 25.7% among the RAS patients and 15% among controls. The difference in this regard was not significant (p=0.108).

Table 1. The frequency distribution of psychological disorders in the two groups

Type of disorder	Severity of disorder	Patients with RAS	Control subjects	Total	P value
Anxiety disorder	Severe	%0	%0	%0	<0/0001
	Moderate	%34.3	%0	%16	
	Mild	%8.6	%7.5	%8	
	Absent	%57.1	%92.5	%76	
Obsessive-compulsive disorder	Severe	%5.7	%0	%2.7	0/108
	Moderate	%8.6	%0	%4	
	Mild	%11.4	%15	%13.3	
	Absent	%74.3	%85	%80	
Depression	Severe	%2.9	%0	%1.3	0/004
	Moderate	%20	%0	%9.3	
	Mild	%5.7	%15	%10.7	
	Absent	%71.4	%85	%78.7	
Somatization	Severe	%0	%0	%0	0/008
	Moderate	%2.9	%0	%1.3	
	Mild	%14.3	%0	%6.7	
	Absent	%82.9	%100	%92	
Hostility	Severe	%0	%0	%0	0/349
	Moderate	%2.9	%0	%1.3	
	Mild	%0	%5	%2.7	
	Absent	%97.1	%95	%96	

3. Depression: The overall prevalence of depression was 21.3% among the understudy population, 28.6% among the RAS patients and 15% among controls. The difference in this regard was statistically significant (p=0.004).

4. Somatization: The overall prevalence of somatization was 8% among the understudy population, 17.1% among the RAS patients and 0% among controls. The difference in this regard was statistically significant (p=0.004) and indicated higher prevalence of this disorder among RAS patients (p=0.008).

5. Hostility: The overall prevalence of hostility was 4% among the understudy population, 2.9% among the RAS patients and 5% among controls. The difference in this regard was not statistically significant (p=0.349).

6. Concurrent disorders: The overall prevalence of concurrent disorders (more than one psychological disorder in a patient) was 26% among the understudy population, 58% among the RAS patients and 15% among controls. The difference in this regard was not statistically significant (p=0.663). Other psychiatric disorders that the SCL-90 questionnaire can detect them include

phobic anxiety, paranoid ideation, inter-personal sensitivity and psychoticism with no case in this study. Due to the small sample size in all subgroups, the disorders could not be statistically analyzed based on their severity.

Discussion

This study aimed to psychologically assess patients with RAS in comparison with controls. Some previous studies have also investigated the effect of psychological disorders and stress on development of RAS; but the current study used a reliable questionnaire namely SCL-90 for this purpose to assess different types of psychiatric disorders. Also, the current study had a control group and a psychologist assisted in analysis of data, which make the current study a unique one.

A total of 75 subjects were evaluated out of which, 60% were females. In this regard, our study is similar to those of Gallo [12], Sanatkhani [19], Ogura [21], Viraparia and Delavarian [22].

Of studies on the role of psychiatric disorders in development of RAS, some have only evaluated the level of anxiety and stress. Some used tools for detection of psychiatric disorders while some others did not. For instance, Pedersson [4] used Social Readjustment Rating Scale (SRRS) and Gallo [12] used an international accredited questionnaire to assess stress. Bujeeb [23] used Self-Rating Anxiety Scale (SAS) questionnaire to assess anxiety, Viraparia used examination and a questionnaire to assess depression and Soto Araya [16] used Recent Experience Test and Hospital Anxiety Depression Scale (HAD) to evaluate stress, anxiety and depression. Thus, the current study is superior to the afore-mentioned ones since we used SCL-90 to comprehensively assess different types of psychiatric disorders. Also, this tool requires not much time or education for completion and also assesses somatization. The SCL-90 questionnaire has some disadvantages including high number of questions, the need for elementary education and the need for a psychologist to interpret the results.

Review of literature revealed that similar studies have been conducted in this regard with differences in terms of the questionnaires and tools, understudy population, sample size, etc.

The results of the current study showed that the general frequency of psychiatric disorders was 44% among the understudy population, 68.6% among the RAS patients and 22.5% among controls. These values are way different from those reported by Sanatkhani stating a 42.9% frequency for psychiatric disorders in patients with RAS in oral medicine department of Mashhad University, School of Dentistry [19]. The difference between the results of the two studies, despite similar location, may be due to the age, gender, socioeconomic differences, level of education and assessment time point.

The current study showed that the frequency of psychiatric disorders was significantly higher in RAS patients than in controls ($p=0.000$). This finding is in accord with the results of Tang et al, who also had a control group similar to the current study. They used Eysencke Personality Questionnaire (EPQ) and SCL-90 to assess psychosocial status of subjects. The results showed that psychological disorders may play an underlying role in development of RAS [24].

Our results confirm those of Mollashahi et al. They showed that level of anxiety and depression in RAS patients was significantly higher than that in in negative controls (no disease). In comparison with positive control (patients with burning mouth syndrome, unusual facial pain and myofascial pain-dysfunction syndrome) the difference in level of anxiety of patients was not significant but the difference in level of depression was significant [18]. Also, our study results were in line with those of Chamani et al, who reported a significant association between development of RAS and the mean score of anxiety in males and females [20].

Anxiety was the most common psychiatric disorder in our understudy population; which confirms the results of Bujeeb [23], Tang [24] and Soto Araya [16].

Of the evaluated disorders including anxiety, depression, obsessive compulsive disorder, somatization and hostility, this study showed that anxiety, somatization and depression could be correlated with development of RAS but the remaining disorders were not correlated with the occurrence of RAS. This finding is in accord with the results of the study by Soto Araya [16] who

demonstrated an association between levels of stress and anxiety with occurrence of RAS.

However, our results were in contrast to those of Viraparia who did not find a correlation between depression and RAS. Also, Mahmood et al, similar to the current study, reported that level of anxiety in patients with RAS was higher than that in controls, but frequency of depression was not significantly different between the two groups. This result, in terms of prevalence of depression, is different from our finding [17]. In a study by Mollashahi, similar to the current study, levels of anxiety and depression were reported to be higher in RAS patients compared to controls [18]. Studies on the correlation of other psychiatric disorders with RAS are scarce. Cawson reported that RAS patients may have obsession as well [25].

However, our study did not find a correlation between RAS and obsessive-compulsive disorder. Such difference in results may be due to differences in the mean age, sex, level of education, time point of the study, tools used for psychological assessment and different methodologies of studies.

It may be stated that SCL-90 questionnaire plays a screening role for detection of psychological disorders and provides a general estimate of the frequency of these conditions. However, after that, the detected disorders must be thoroughly evaluated by a psychiatrist and confirmed using specific questionnaires.

This study had some limitations such as exclusion of illiterate subjects, small sample size and unreliable response of patients to questions. Future studies are required after controlling for such limitations.

Conclusion

Prevalence of psychiatric disorders was higher in RAS patients compared to controls. The prevalence of anxiety, somatization and depression was higher in RAS patients compared to controls as well. Thus, considering the importance of mental health, and the role of psychiatric conditions in development of RAS, psychiatric counseling or psychological therapy may be required to be included in treatment planning of patients with RAS.

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