Personality characteristics of patients with resistant burning mouth syndrome

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The personality characteristics in 32 patients with resistant burning mouth syndrome (BMS) after treatment of diagnosed medical and odontologic diseases were examined and compared with a sex- and age-matched control group. After evaluation of burning mouth symptoms, the personality, the psychologic functioning, and the quality of life were determined by using the Karolinska Scales of Personality (KSP), an additional Personality Scale (PS), a Psychological Functioning Scale (PFS), and a Quality of Life Scale (QLS). The result showed that, compared with a control group, the patients with resistant BMS had a significantly lower score in socialization scale and significantly higher scores in somatic anxiety, muscular tension, and psychasthenia scales. Furthermore, the patients with resistant BMS were significantly more easily fatigued and more sensitive and showed a tendency to be more concerned about their health. With regard to the psychologic functioning, the BMS patients had significantly more problems taking the initiative, more easily became dizzy, and had more sad thoughts. They also showed a tendency to report palpitations and/or indigestions more often. The observed significant differences in personality and psychologic functioning might suggest that the burning sensations are psychosomatic symptoms in these patients. We recommend that patients with resistant BMS should undergo psychologic investigation. If psychologic and/or psychosocial disturbances are diagnosed, adequate treatment should be offered. □ *Psychologic functioning; psychologic tests; psychology; quality of life*

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Burning mouth (BM) is a condition characterized by painful burning sensations in the mouth, and burning mouth syndrome (BMS) is defined as oral burning symptoms, when they occur in an oral cavity with a normal mucosa (1).

The etiology of BMS is considered to be multifactorial. It has been suggested that the causative factors can be divided into three main groups: local, systemic, and psychogenic (2). The local etiologic factors include such factors in the oral cavity as effects of dental treatment, candidiasis, hypersensitive reactions, and dysfunctions of the masticatory system and the salivary glands (1–4). With regard to the systemic etiologic factors, deficiencies of various types and both hormonal and immunologic disturbances have been observed (1, 2, 5–7).

It has been suggested that psychologic and psychosocial factors play an important role in BMS, and such psychogenic factors as stressful life events, different degrees of mental disorder, and long-term social problems are considered to be the commonest of these types of etiologic factors (3, 8, 9). Lamb et al. (10) reported that psychogenic factors could explain the burning mouth symptoms in more than 50% of patients with BMS, and Browning et al. (11) found psychiatric diagnoses in 44% of patients with BMS. Diagnoses such as depression, generalized anxiety, hypochondria, and cancerophobia have been reported in patients with BMS (10–17).

BM and BMS have been cured by means of odontologic and medical treatment in about 30–70% of cases (1, 10, 18, 19). Thus, a large number of BMS patients remain resistant to such treatment and still have burning mouth symptoms (19).

Resistant BMS after treatment of diagnosed medical and odontologic diseases might be a somatic manifestation of mental distress. Therefore, it would be of interest to examine the personality characteristics in patients with resistant BMS. The aim of the present study was to describe the personality, the psychologic functioning, and the quality of life in patients with resistant BMS.

Subjects and methods

Subjects

The material in the present study comprised 32 patients with resistant BMS after treatment of diagnosed odontologic and medical diseases. The patients were selected from 75 patients who were consecutively referred to the Department of Oral Diagnosis, School of Dentistry, Umeå University, for BM. Twenty-six (81%) were women, with a mean age of 55 years (range, 40–69 years), and six (19%) were men, with a mean age of 46 years (range, 38–57 years). A control group, consisting of 32 persons, sex- and age-matched with the 32 patients with resistant BMS, was selected from staff

or patients. The persons in the control group did not have any burning mouth symptoms.

Oral and medical examination and treatment

The patients were odontologically and medically examined and treated in accordance with the protocol for the management of patients with BMS, which has been proposed by Bergdahl & Anneroth (20), including complete anamnesis, general medical and odontologic examination, laboratory investigation, and an epicutaneous patch test. For a more detailed description of the analyses performed, see Bergdahl & Anneroth (20). All the odontologically and medically diagnosed diseases were treated, but the treatment had no influence on the burning sensations.

Evaluation of the BMS

The BMS symptoms were evaluated by means of a special testing protocol (20). All evaluations were made by the same dentist. The protocol describes the location of the BMS and includes a description and an estimation of the intensity of the symptoms, using a scale of the Likert type, graded from 1 to 7, from endurable to unendurable. In addition, the protocol includes information on whether the symptoms occur intermittently or continuously and on when during the day the symptoms occur.

Psychologic inventories

Four psychologic inventories were administered, the Karolinska Scales of Personality (KSP), an additional Personality Scale, a Psychological Functioning Scale, and a Quality of Life Scale.

The KSP consists of 135 items describing 15 personality scales classified into 5 groups (21). The scales Impulsiveness, Monotony Avoidance, and Detachment are included in the first group and describe impulsiveness, sensation-seeking, and social withdrawal and cover different aspects of extraversion. The second group describes psychopathy versus conformity and includes Social Desirability and Socialization scales. These scales measure aspects of social adjustment, negative childhood experiences, and poor school and family adjustment. The third group, anxiety-related scales, is divided into two subgroups. The first subgroup describes nervous tension and distress, including the Somatic Anxiety and Muscular Tension scales. These scales concern autonomic disturbances, distress, and tenseness. The second subgroup describes cognitive-social anxiety and consists of the scales Psychic Anxiety, Psychasthenia, and Inhibition of Aggression. The second subgroup concerns anxiousness, worry, anticipatory anxiety, uneasiness, lack of energy, and lack of assertiveness. The fourth group consists of the hostility-related scales—the Suspicion and Guilt scales—and describes high scorers as distrusting people's motives, being remorseful and ashamed of bad thoughts. Finally, the fifth group includes the aggressivity-related scales: the Indirect Aggression, Verbal Aggression, and Irritability scales, describing high scorers as sulky, telling people off when annoyed, and lacking patience.

The Personality Scale (PS), the Psychological Functioning Scale (PFS), and the Quality of Life Scale (QLS) are instruments especially developed by our group for the current and for other investigations in progress with the aim of covering other aspects of the psychosocial make-up of the patients not covered by the KSP.

The PS consists of 29 items with scales of the Likert type, graded from 1 to 15. The PS is derived from the Eysenck Personality Questionnaire (22) and the Cesarek Marke Personality Schedule (23) and concerns personality factors that are supposed to be relevant and not covered by the KSP. The PS includes measures of calmness, extraversion, introversion, independence, level of emotionality, thoughtfulness, fatigue, and ambitiousness. Examples of the items include: 'Are you dependent on others?', 'Are you easily fatigued?', 'Are you pedantic?', 'Are you sensitive?', 'Are you worried about your health?', 'Do you care about your health?', 'Are you a daydreamer?', 'Are you stubborn?', and 'Are you a leader?'.

The PFS aims to assess the present ability to cope with different emotions, to make decisions, and to concentrate. The ability to sleep well, to experience sexual interest, and to have a good appetite is also described. The PFS is also a Likert-type scale and comprises 18 items in all, graded from 1 to 15. Examples include: 'Do you feel joy?', 'How do you get on with people?', 'Can you take the initiative easily?', 'Do you feel inferiority?', 'Can you concentrate easily?', 'Do you get dizzy easily?', 'Can you make decisions easily?', 'Do you get palpitations and/or indigestion easily?', 'Do you remember things?', and 'Do you think sad thoughts?'.

The QLS, also a Likert-type scale, comprising 14 items graded from 1 to 15, covers various aspects of quality of living—for example, relations to colleagues, family, and friends. Items referring to level of everyday activity, loneliness, and finances are also included. The following are some examples of the items: 'Are you very busy?', 'Do you have good relations with the family?', 'Do you have meaningful leisure-time activities?', 'Do you have a sound economy?', 'Do you feel lonely?', 'Do you frequently phone other people?', 'Do you easily come in contact with other people?', 'Are you satisfied with your housing?', 'Do you frequently invite people home?', and 'Do you like your job?'.

The Likert-type format of the PS, PFS, and QLS was chosen to make it easier for the participants to complete the inventories, especially in view of an ongoing multifactorial study of patients with BMS, presumed oral galvanism, or symptoms presumed to be caused by electricity or visual display units in which a large battery of assessment instruments is included.

Table 1. Type of inventory/scale, description of high scorers, the mean scores (M), the standard deviations (SD), and the p values in the Karolinska Scales of Personality (KSP), the Personality Scale (PS), and the Psychological Functioning Scale (PFS) in patients with burning mouth syndrome (BMS) ($n = 30$) and a control group ($n = 32$)

Inventory scale	Description of high scorers	BMS group		Control group		
		M	SD	M	SD	*P* value
KSP						
Socialization	Positive childhood experiences, good school and family adjustment	66.2	5.6	69.8	6.6	<0.05*
Somatic Anxiety	Autonomic disturbances, restless	21.4	5.6	15.8	5.7	<0.001***
Muscular Tension	Tense and stiff, not relaxed	20.9	6.6	14.6	4.8	<0.001***
Psychasthenia	Easily fatigued, feeling uneasy when urged to speed up, and when facing new tasks	23.3	5.8	19.4	4.9	<0.01**
PS						
	Almost indefatigable	7.3	3.7	9.0	2.8	<0.05*
	Non-sensitive	4.0	1.8	5.0	2.4	<0.05*
	Do not care about their health	7.2	3.0	8.5	2.9	<0.1
PFS						
	Hard to take the initiative	6.5	3.6	4.7	2.5	<0.05*
	Not easily dizzy	9.8	4.5	12.6	3.0	<0.01**
	Have sad thoughts	8.3	4.0	5.7	3.9	<0.01**
	Hardly ever get palpitations and/or indigestion	8.9	4.3	10.8	3.9	<0.1

The personality of the 32 patients in the resistant BMS group and in the control group were determined by using the KSP and the PS. The PFS was also administered to determine the psychologic functioning and the QLS to describe the quality of life. The personality, the psychologic functioning and the quality of life of patients with resistant BMS were determined by comparing the results of the psychologic inventories in the two groups.

Statistical methods

Differences in the results of the psychologic inventories between the BMS group and the control group were tested by independent two-sample t tests on the mean scores. Probabilities equal to or below the 5% level, using two-tailed tests, were denoted statistically significant.

The reliability of the PS, PFS, and QLS was measured by using Cronbach's alpha. Cronbach's alpha reliability coefficient (α) is based on the internal consistency of the inventories. Statistical routines from the SPSS for Windows were used.

The alpha coefficient was 0.72 for the PS, 0.64 for the PFS, and 0.52 for the QLS.

Results

Dropouts

There were two dropouts in the group with resistant BMS. One woman was excluded because she was diagnosed as having Huntington's chorea. Another woman did not want to participate in the study as the traveling distance between her home and the clinic was too long.

Evaluation of BMS

The location of the BMS was most frequently the tongue (77%), followed by the lips and the palate. Burning and smarting sensations were the commonest symptoms. Continuous symptoms during the day or all the time were most common. The intensity of the BMS was on average 4.5 scale points. Citrus fruit was the commonest cause of onset and of increasing the intensity of BMS, whereas cold drinks decreased the symptoms. Eight (27%) patients reported taste alterations.

Personality characteristics

Personality. In the KSP scales (Table 1) the patients with resistant BMS had a significantly lower score on the socialization scale ($p < 0.05$) than the control group. Furthermore, the patients with BMS had significantly higher scores on the somatic anxiety scale ($p < 0.001$), the muscular tension scale ($p < 0.001$), and the psychasthenia scale ($p < 0.01$). With regard to the PS inventory (Table 1), the patients with BMS were more easily fatigued ($p < 0.05$) and more sensitive ($p < 0.05$) and showed a tendency to be more concerned about their health.

Psychologic functioning. According to the PFS inventory (Table 1), the psychologic functioning of the BMS group differed from that of the control group. The patients

with resistant BMS had significantly more problems in taking the initiative ($p < 0.05$), got dizzy more easily ($p < 0.01$), and had more sad thoughts ($p < 0.01$). The patients with resistant BMS also showed a tendency to report palpitations and/or indigestion more often.

Quality of life. The QLS inventory showed no significant differences in quality of life between the patients with resistant BMS and the control group.

Discussion

Many different etiologic factors have been identified as causing BMS. The multifactorial characteristics of BMS make it important that these patients are handled methodically, using a standardized treatment protocol (1, 20). The protocol suggested by Bergdahl & Anneroth (20) was used in the present study and proved to be very effective when dealing with patients of this kind. Patients with BMS can be cured to various extents by identifying and treating odontologic and medical diseases. In many patients, however, as in the present study, the symptoms remain. In these cases it is of especial interest to examine whether there are any detectable underlying psychologic factors. The importance of psychologic factors as predisposing factors in BMS has been emphasized earlier (3, 8, 9). The results of the present study confirm this observation in that, when compared with the control group, patients with resistant BMS had a significantly lower score in the KSP socialization scale, indicating negative childhood experiences and poor school and family adjustment. In addition, patients with resistant BMS had significantly higher scores in the KSP somatic anxiety and muscular tension scales, indicating autonomic disturbances, distress, and tenseness. Finally, a higher score on the KSP psychasthenia scale describes uneasiness and lack of energy. The observed significant differences in personality might suggest that the burning sensations are psychosomatic symptoms in these patients. The results of the various psychologic inventories administered in this study were consistent. A low score on the socialization scale in the KSP, for example, could be associated with problems in taking the initiative as described in the PFS. Furthermore, high somatic anxiety and muscular tension scores in the KSP could be associated with the tendency to get dizzy easily in the PFS, and a high psychasthenia score in the KSP with a disposition towards fatigue in the PS. Patients with resistant BMS were also found to have more sad thoughts in the PFS, which could be manifested as high scores in the somatic anxiety, muscular tension, and psychasthenia scales in the KSP and could be an expression of a depressive disorder.

The lack of significant differences in the QLS between the BMS group and the control group can be interpreted in various ways. One explanation could be that the BMS patients had learned to live with their problems and, therefore, did not experience any decrease in quality of life. Another explanation could be that the QLS reflects a subjective evaluation of the quality of life. It is possible that an inventory with a more objective evaluation would have shown differences between the BMS group and the control group. With regard to the reliability of the PS and PFS the α values indicated that these inventories had an acceptable reliability albeit still low. With regard to the QLS the α value was only slightly more than 0.50. Thus the lack of difference between groups may be due to the low reliability.

BMS seems to be part of a complex pattern of somatic and psychologic symptoms with both physical and psychologic causative factors, probably with an interaction between these factors. This underlines the importance of maintaining a holistic approach to these patients. The effect of the treatment of diagnosed odontologic and medical diseases on BMS should be evaluated afterwards, and patients with resistant BMS should then undergo a psychologic investigation. When psychologic and/or psychosocial disturbances have been diagnosed, treatment with psychotherapy should be initiated, and its effect on the BMS evaluated. Such studies on the effect of psychotherapy on BMS are in progress at our departments. Preliminary results indicate that such treatment is important in alleviating burning mouth symptoms.

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