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The Impact of Psychological Testing on the Patients Suffering from Stomatopyrosis

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A B S T R A C T

Stomatopyrosis is commonly associated with stressful situations, which implies the importance of psychological conditions of the patients with this symptom. Patients suffering from burning mouth syndrome suffered from some psychical disturbances as well. The fact that depression and anxiety are closely connected with stomatopyrosis has been scientifically confirmed. The data which systematically led to this conclusion suggest the possibility of the existence of a psychogenic disturbance as an aetiological factor which leads to stomatopyrosis. Research which might be conducted in order to relate psychogenic disturbances with stomatopyrosis by means of various drugs and procedures, might provide an insight into the relatedness of these factors, which would enable us to treat the cause and not the consequence.This research has been directed towards establishing this »relatedness« by means of psychopharmatics and psychotherapy, and has been confirmed by means of psychological depression and anxiety tests. The research has been conducted on 120 respondents suffering from stomatopyrosis, who were also, as previously diagnosed, suffering from a psychical disturbance. The respondents were divided into 4 groups. Each group contained 30 respondents suffering from stomatopyrosis as the basic symptom, but with different psychogenic disturbances. These groups were: 1) antidepressants, 2) anxiolytics, 3) autogenic training and 4) control group. A detailed clinical and psychiatric check-up was conducted before the treatment started, and was repeated several times in different intervals: after a month, after two months and after four months. Respondents are still undergoing a therapy. Subjective assessment of the intensity of the burning sensation was obtained according to Visual analogue scale and two psychological questionnaires (depression test and anxiety test). Conclusion is: 1) Antidepressants and anxiolytic drugs have a prominent role in the treatment of stomatopyrosis. Psychological tests conducted after a four-month period have shown improvement – there was a decrease in anxiety – 7.5%–8.8%, while depression has in some of the tested groups completely disappeared. At the same time, subjective evaluation of the intensity of the symptom has, according to VAS, showed a fall from 6.93–7.8 cm to 2.13–3.0 cm. At the beginning of the treatment, symptoms were described as »pretty often« with 36.7%–76.7% respondents, and as »permanent« with 23.3%–63.3% respondents. At the end of the treatment, the most frequent description regarding the frequency of the symptoms was »very rarely«. 2) Autogenic training – psychotherapeutic anxiolytic technique – is the therapy of choice as far as stomatopyrosis is concerned, as it both eliminates the problems and emotionally rehabilitates the patient. 3) As far as the therapeutic progress is concerned, it can be taken as the »progress« of the time when the symptoms appear: during the treatment, the frequency and the duration of the symptoms have been shortened at night, while their occurrence during the day has been reported as relatively more frequent.

Key words: *psyhological testing, stomatopyrosis*

Introduction

Mouth is an important part of a human organism. As an organ of speech (*verbum, logos*) and breath (*spiritus*), mouth symbolises a higher level of consciousness, an aptitude for a sensible judgement. It is perceived as something that builds, animates, commands and elevates, but it is also taken as something that can destroy, kill, spoil and humiliate. The dictionary of symbols says: »Mouth can knock down its castles made of words as quickly as it

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builds them«. The meaning implies a possibility of creating a higher and lower world, to which mouth can take us. There are many legends which connect fire and mouth (tongues of flame, fire breathing dragons, the mouth of evil), in which C. G. Jung sees a kinesthetic relationship, a deep interconnection between fire and mouth, so that the basic characteristics of humans are: the use of speech and the use of fire. They both symbolize mental energy. Mouth is the origin and intersection of two lines and it symbolises the origin of contrariness, adverseness, and duality[1].

As we can see, myths and customs have always been somehow related to the notions of mouth and soul, associating them, and the innerness of our personality has always been associated with mouth.

Many diseases of our organism, whether organic or psychic, are often manifested within the oral cavity; they can be manifested as clinical pathological changes or a pathological oral symptom. These are: sensations of pain, heating and burning within the oral cavity.

»Burning mouth« syndrome is a state characterised by a sensation of heating and burning in the mouth, regardless the normal mucosa[2].

»Burning mouth« syndrome is either a sensation of burning or pain of the oral mucosa which can occur in two types: The first type is manifested with pronounced subjective symptoms of burning and pain, with concurrent objective clinical changes. The definition of stomatopyrosis as a disease is being limited to the burning which is not accompanied with clinical pathological manifestations within the mouth. Gruscha et al. have shown that a patient with stomaropyrosis has symptoms of dryness in the mouth and thirst, which are followed by the change of taste, sleeping problems and headaches, leading to non-specific health conditions[3]. Gruscha et al. have concluded that burning sensation is most frequently located on the lips, and then on the tongue. The intensity of symptoms of stomatopyrosis and frequency of their occurrence increases, due to aetiological factors, and especially to some mental disturbances[4].

Browning et al. have established that the burning sensation with patients with mental disturbances is of a higher intensity than with the people suffering from stomatopyrosis caused by some other aetiological factor[5].

In accordance with that, aetiological factors of stomatopyrosis are divided into:

a) local

b) systemic

c) psychogenic.

Nowadays, special attention is being given to the fact that burning sensation within the mouth cavity can be caused by psychological factors as well. Apart from the occurrence of the burning sensation in the oral cavity, there are some other symptoms which are also possible: pricking, pain, itching, and dryness. There are many psychological factors, but among them, the most common ones to be connected with stomatopyrosis are depression and anxiety, emotional instability, non-adaptability and stress.

Depression is a state of a diminished psychophysical activity, characterised by sorrow, apathy, discouragement and aggravated and slowed-down thinking; it is characterised by a series of affective disturbances characterised by intensive feeling of desperateness, helplessness, indisposition, feeling of guilt and inclination to suicide. In some cases, we may find a psycho-motoric restlessness and irritability[6].

Anxiety is a complex, unpleasant feeling of fear, tension and insecurity, accompanied with an activation of autonomous nervous system. Moderate anxiety often has a positive effect on the outcome in different activities. Anxiety is a response to an internal danger. Internal danger is the consequence of the inability of an ego to find an appropriate response to the emotional impulses which were not accepted by the super ego. In such cases, various defence mechanisms may appear[7].

Hammaren and Hugoson have found out that majority of patients suffering from stomatopyrosis have in their lifetime experienced stressful situations, such as stillborn or handicapped babies, for instance. Respondents suffering from stomatopyrosis, as the report suggests, had a history of long-term social problems[8]. This was confirmed by Domb et al.[9].

Grohol et al.[10] have established that patients with stomatopyrosis are more often depressive and anxious than the members of the control group.

Van der Ploeg et al. have interviewed patients with stomatopyrosis by means of four questionnaires, based on psychiatric diagnoses such as depression, anxiety and inclination to neuroses. Psychical stress which might be associated with the emergence of stomotopyrosis is related to a loss caused by death or separation[11].

Schenberg et al. have pointed out the results of clinical testing of depression with patients with stomatopyrosis, which are to be taken into account in all further research[12].

Gruscha et al. have applied psychometric testing, which helped them to establish the importance anxiety has in the emerging of stomatopyrosis[13].

Jerlang et al. have found out that stomatopyrosis may be a result of a complex dynamics, ranging from hysteric conversions to mental separation ('narcissistic nucleus'), which is, in fact, alexithymia[14].

Greenberg et al. established the effectiveness of psychotherapy and psycho-pharmacotherapy with BMS while treating stomatopyrosis whose occurrence is the consequence of a psychical disturbance[15,16].

Hondenhove et al. have concluded that patients suffering from stomatopyrosis whose cause is of psychogenic nature have made the biggest improvement while being treated by psychotherapy[18]. The same has been concluded by Brady[19].

Wexler et al. claim that a combined therapy is more effective with stomatopyrosis[20].

As we have already mentioned, a lot of attraction has lately been given to the emergence of psychogenic factors which cause stomatopyrosis. Due to the presence of various psychical disturbances with the patients suffering from stomatopyrosis, treating the symptoms occurring within the mouth cavity only is simply not enough – what is needed here is an additional treatment with either psycho-pharmacotherapy or psychoterapy.

Antidepressants belong to the group of psychotropic or psychoactive drugs. Psychotropic drugs change the chemical-transmissional system which in synapses with axon terminals of a neuron transmits stimuli to the dendrites of the neighbouring neuron through the synaptic cleft. Drugs such as acetylcholine, dopamine and other antidepressants have both anticholinergic and antiserotonin activity. They are easily resorbed and metabolized in the liver.

Anxiolytics are substances which depress the central nervous system. The most important indication requiring the implementation of benzodiazepine are conditions characterised by anxiety and sleeping disorders. Due to different distribution of benzodiazepine receptors in the brain, it is possible to use both anxiolytics and hypnotics, which do not have to overlap, which, naturally, depends on the dosage of the drug.

Psychotherapeutic procedure of autogenic training is regarded to be efficacious in the treatment of psychical disturbances, and it is an up-to-date method of treating depression and anxiety. Autogenic training is a procedure the aim of which is – relaxation. It originated in the office of the psychotherapist J. H. Schultz, who used this method in order to treat ill people, but it gradually started to be practised with healthy population, in order to prevent a disease. There are two stages of these exercises: the basic stage and the advanced stage. The basic exercises consist of a series of exercises, by which, alongside with physical changes, by means of auto-suggestion, the person experiences a psychical relaxation as well. We might say that autogenic training is autohypnosis rather than autosuggestion. It is a state which enables easier and more effective suggestive functioning. People applying autogenic training have a feeling they have everything in their hands, as they have become both the person being suggested to and the person suggesting. By means of autogenic training, the outer world is being directed towards the inner world, which again enables the focus being directed towards one's own psychical life.

The technique of autogenic training comprises the following:

1) isolate from the surroundings – i.e. find a suitable place for your séance,
2) close your eyes, in order to avoid the communication with the outer world,
3) start with suggestion saying: peace, serene peace (once)
4) what follows are the following suggestions: my right (left) arm is totally comfortably heavy (six times)
5) peace, serene peace (once)
6) my right (left) arm is totally comfortably warm (six times)
7) peace, serene peace (once)
8) i am breathing (six times)
9) my heart is beating peacefully and rhythmically (six times)
10) peace, serene peace (once)
11) my stomach is filled with pleasant warmth (six times)
12) peace, serene peace (once)
13) my forehead is pleasantly cool (six times)
14) peace, serene peace (once).

Each formula is to be acquired within the period of two weeks, which means that autogenic training altogether lasts for three months[22].

Purpose of the work

Stomatopyrosis has recently been associated with stressogenous situations, which points at the significance of psychical conditions of the patients suffering from this symptom. Patients who suffer from burning mouth sensation are reported to suffer from a psychical disturbance of a kind. The data collected indicate that the possibility of psychogenous disturbance can be one of the etiological factors contributing to the incidence of stomatopyrosis. While investigating the efficiency of psychopharmatics and psychotherapy in the treatment of patients suffering from burning mouth sensation, by means of a regression analysis we tried to test the change in the variables during a 4-month monitoring of the patients:

1. assessment of the intensity of the symptom,
2. frequency of the occurrence of the symptom,
3. subjective assessment of the intensity of the symptom.

Materials and Methods

This research is based on the treatment of psychogenic factor associated with the emergence of stomatopyrosis as a symptom. The research was conducted on 120 respondents suffering from stomatopyrosis, who also suffered from a psychical disturbance. The respondents were divided into four groups. Each group contained 30 respondents whose basic symptom was stomatopyrosis, but all of whom had a kind of psychogenic disturbance.

The first group was treated with antidepressants. It contained 23 women and 7 men (further in the paper, this group will be referred to as Antidepressants.)

The second group was composed of the respondents treated with anxiolytics, and it contained 16 women and 14 men (in the text to follow related to as Anxiolytics).

The third group was exposed to treatment by autogenic training. The group comprised 19 women and 11 men (in the text to follow related to as Autogenic training).

The control group contained respondents (22 female and 8 male) submitted to psychiatric treatment only (in the text to follow related to as Control).

While conducting this research, all the respondents underwent a thorough general and oral clinical and psychical check-up, and were tested by means of two psychological questionnaires.

The clinical part of the testing was conducted in the Oral diseases Clinic of Stomatological Faculty and the Psychological medicine Clinic within the Zagreb University Hospital Center. Psychologists conducted psychological examinations. Respondents are under a severe control of psychotherapists. A detailed clinical and psychological check-up was conducted prior to the implementation of the treatment, and followed after one month, after two months and after four months of therapy. The respondents are still undergoing the therapy. The course of the treatment is assessed by the psychotherapist, who has to decide whether to continue with the therapy or to abort it, depending on the psychical condition of the respondents.

Subjective assessment of the intensity of the burning sensation is obtained by means of the visual analogous scale, ranging from 0 to 10 cm (Figure 1). 0 stands for the weakest sensation, while no.10 represents the highest intensity. The respondents decide on their own the degree of the intensity of the burning sensation and mark the appropriate number on the visual measurement scale. Objective measurement is expressed in centimetres.

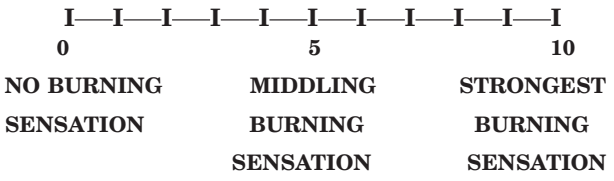

Fig. 1. Visual analogue scale (VAS).

Apart from clinical testing, we used psychological examination by means of psychotests. We applied two psychotests depicting respondents' specific psychological conditions. These tests are essential for the evaluation of the psychological condition of the respondents and for the follow-up during the treatment. The testing was conducted in such a way that the questionnaires were filled in by the respondents themselves before the beginning of the therapy, after one month, after two and, finally after four months after the beginning.

As previous studies had confirmed that the most frequent psychological problems connected with the emerging of stomatopyrosis as a symptom are depression and anxiety, we applied two questionnaires in our research:

1) depression questionnaire, and

2) anxiety questionnaire.

The first test to be applied was DEPRESSION QUESTIONNAIRE. It consists of 20 statements which depict the psychological condition of the respondent. The questions define the depression in terms such as: »in a good mood, feeling like whining, quiet and relaxed«. Next to each statement, there are four answers offered, which define the frequency of respective phenomena, such as:

1) almost never,

2) sometimes,

3) frequently,

4) almost always.

The second test was ANXIETY QUESTIONNAIRE. It contains 20 questions which are to be answered with either YES or NO, and which describe the current condition of the patient suffering from the problem in question, such as: do you have headaches, do your hands shake, do you have sleeping problems, etc.

The above described phenomena have been established by means of the above mentioned questionnaires, and for the sake of a statistical analysis, some variables were introduced. The variables marked with an index i and the corresponding index values 0, 1, 2 and 4 are related to the realization of the variables at the beginning of the treatment, and after one month, after two months and, finally, after four months.

Apart from the description of individual variables, we applied the well known methods for testing the hypotheses on a possible connection between certain pairs of variables (χ^2-test, tests based on ranks), which have been so precisely described in the statistics textbook for non-matematicians by B. Petz (cc) and the textbook by D. Ivanković et al. (xx). This paper presents the results of the multi-variant discriminatory analysis applied on the problems related to the study of the impact of psychotherapy and psycho-pharmacotherapy on stomatopyrosis (Ivanković et al.). The level of statistical significance is $p<0.01$.

Results

Psychological examinations have objectivized the psychological status of the respondents. Psychological screening tests, psychiatric interview and the analysis of the respondents can help us determine the psychiatric diagnosis, and, accordingly, the appropriate therapy. In our research we have applied two psychological examinations: an anxiety test and a depression test, as we had in our previous research concluded that depression and anxiety are the two most frequent disorders associated with stomatopyrosis.

The anxiety test has 20 questions which are to be answered with either YES or NO; the questions are related to the current state of the respondent.

The depression test also has 20 statements; each statement is provided with 4 answers which are related to the frequency of the occurrence of the problem mentioned in a particular statement: almost never, sometimes, frequently, and always.

TABLE 1
DISTRIBUTION OF THE RESULTS OF THE ANXIETY TEST OF THE RESPONDENTS TAKEN IN DIFFERENT TIMES AND THE RESULTS OF THE CORRESPONDING χ^2-TESTS

Time of testing	Anxiety test						χ^2-t
	Sex		Positive	Borderline	Negative	Total	χ^2
At the beginning	Women	n	26	26	28	80	
		hp	32.5%	32.5%	35.0%	100.0%	
	Men	n	25	6	9	40	
		hp	62.5%	15.0%	22.5%	100.0%	
	Total	n	51	32	37	120	
		hp	42.5%	26.7%	30.8%	100.0%	
After one month	Women	n	11	35	34	80	
		hp	13.8%	43.8%	42.5%	100.0%	
	Men	n	15	15	10	40	
		hp	37.5%	37.5%	25.0%	100.0%	
	Total	n	26	50	44	120	
		hp	21.7%	41.7%	36.7%	100.0%	
After two months	Women	n	7	19	54	80	
		hp	8.8%	23.8%	67.5%	100.0%	
	Men	n	3	21	16	40	
		hp	7.5%	52.5%	40.0%	100.0%	
	Total	n	10	40	70	120	
		hp	8.3%	33.3%	58.3%	100.0%	
After four months	Women	n	7	10	63	80	
		hp	8.8%	12.5%	78.8%	100.0%	
	Men	n	4	8	28	48	
		hp	10.0%	20.0%	70.0%	100.0%	
	Total	n	11	18	91	120	
		hp	9.2%	15.0%	75.8%	100.0%	

n – the number of cases
hp – horizontal percentage

Table 1 shows the results of the anxiety test in dependence on the sex and the time when the examination was conducted. In the beginning, the anxiety test is positive with 62.5% men and 32.5% women. One month after the beginning of the therapy, the anxiety test is positive with 37.5% men and 13.8% women.

After the period of two months, the anxiety tests show primarily borderline and negative values. The positive outcome is still decreasing and with men it has dropped to 7.5%, and with women to 8.8%. After four months, the anxiety level didn't decrease; on the contrary, with men, the positive outcome has risen to 10.0%. However, the negative outcome of the anxiety test has been constantly growing with both sexes.

Table 2 shows the depression test according to different time intervals and the groups. At the beginning of the therapy, the positive depression test findings were found with 96.7% respondents from the group 1; the second group had positive findings with only 3.3% respondents, which at the same time had the biggest score as far as negative values are concerned – 76.7%, followed with borderline findings – 20.0%. The third group had positive depression test findings with 56.7% respondents, and borderline results with 40.0%. The control group documented the highest depression test borderline value score – 56.7%. After one month since the beginning of the therapy, the number of positive findings has somewhat dropped in the first group – to 80%, with the borderline value having increased from 3.3% to 20%. In the second group, after one month of therapy, the borderline values dropped to 16.7%, and the negative findings grew to 80%. The third group displayed the decrease in the positive values (to 43.7%) and an increase in the borderline values percentage (to 46.7%), and at the same time the negative value increased from 3.3% to 10%. The control group maintained its borderline values at 56.7%.

After two months since the beginning of the therapy, the first group significantly decreased its positive value percentage to 20%, while borderline values grew to 66.7% of the respondents; negative values have emerged in 13.3% of the respondents. In the second group there were no more respondents with positive depression values; the findings are primarily negative – with 93.3% of the respondents. The third group dropped the positive findings to 10.0% and showed the growth in borderline values – 56.7%, as well as an increased negative outcome – 33.3%. After four months, the depression test with the first group showed primarily borderline values – 53.3%, without any positive values and with an increase in the negative values to 46.7%. The second group increased its negative values to 96.7%, without positive values and with a minimum number of borderline findings – 3.3%. The third group showed 76.1% negative values, and 23.3% borderline values, with no positive values. The control

TABLE 2
DISTRIBUTION OF THE RESULTS OF THE DEPRESSION TEST OF THE RESPONDENTS TAKEN IN DIFFERENT TIMES AND THE RESULTS OF THE CORRESPONDING χ^2-TESTS

Time of the test	Group		Depression test			
			Positive	Borderline	Negative	Total
	Antidepressants	n	29	1		30
		hp	96.7%	3.3%		100.0%
	Anxiolytics	n	1	6	23	30
		hp	3.3%	20.0%	76.7%	100.0%
At the beginning	Autogenic training	n	17	12	1	30
		hp	56.7%	40.0%	3.3%	100.0%
	Control	n	6	17	7	30
		hp	20.0%	56.7%	23.3%	100.0%
	Total	n	53	36	31	120
		hp	44.2%	30.0%	25.8%	100.0%
	Antidepressants	n	24	6		30
		hp	80.0%	20.0%		100.0%
After one month	Anxiolytics	n	1	5	24	30
		hp	3.3%	16.7%	80.0%	100.0%
	Autogenic training	n	13	14	3	30
		hp	43.3%	46.7%	10.0%	100.0%
	Control	n	6	17	7	30
		hp	20.0%	56.7%	23.3%	100.0%
	Total	n	44	42	34	120
		hp	36.7%	35.0%	28.3%	100.0%

n – the number of cases
hp – horizontal percentage

TABLE 2A
DISTRIBUTION OF THE RESULTS OF THE DEPRESSION TEST OF THE RESPONDENTS TAKEN IN DIFFERENT TIMES AND THE RESULTS OF THE CORRESPONDING χ^2-TESTS

Time of the test	Group		Depression test			
			Positive	Borderline	Negative	Total
	Antidepressants	n	6	20	4	30
		hp	20.0%	66.7%	13.3%	100.0%
After two months	Anxiolytics	n		2	28	30
		hp		6.7%	93.3%	100.0%
	Autogenic training	n	3	17	10	30
		hp	10.0%	56.7%	33.3%	100.0%
	Control	n	4	16	10	30
		hp	13.3%	53.3%	33.3%	100.0%
	Total	n	13	55	52	120
		hp	10.8%	45.8%	43.3%	100.0%
	Antidepressants	n		16	14	30
		hp		53.3%	46.7%	100.0%
After four months	Anxiolytics	n		1	29	30
		hp		3.3%	96.7%	100.0%
	Autogenic training	n		7	23	30
		hp		23.3%	76.7%	100.0%
	Control	n	4	13	13	30
		hp	13. 3	43.3%	43.3%	100.0%
	Total	n	4	37	79	120
		hp	3.3%	30.8%	65.8%	100.0%

n – the number of cases
hp – horizontal percentage

group had the equal number of borderline and negative values – 43.3% in both, without any change in positive values – 13.3%.

The results of the anxiety test are graphically shown in Figure 1, in which the results are given according to the time intervals and the groups of respondents.

At the beginning of the treatment, i.e. before the very treatment, the presence of anxiety in the first group was mostly negative, with some borderline and few positive findings. After one month, the presence of negative values grew, while the borderline values maintained their percentage as far as anxiety test is concerned. After two months of therapy, the negative values of anxiety tests grew even more, and the same happened after four months of the therapy.

The second group showed a high percentage of positive and borderline values of anxiety test. After one month, the anxiety test showed almost equal number of positive and borderline findings, negative findings being scarce. After two months of the treatment, negative and borderline findings are equalized, and after four months, the anxiety test findings were mostly negative. The third group had at the beginning of the therapy predominantly positive values, with some borderline and negative values of anxiety test. During the therapy, the borderline values significantly grew; after two months, the borderline values were equal to the negative ones, and after four months of therapy, majority of respondents displayed a high percentage of negative values, with borderline values still existing.

The control group had at the beginning of the treatment an equal number of negative, positive and borderline values of anxiety test. After one month, the number of negative findings grew, while positive findings dropped. After two months, negative values continued to grow, which happened after four months as well.

Table 3 shows the numerical relationship between anxiety test results according to the groups of respondents and the time interval. At the beginning of the treatment, the first group had primarily positive anxiety test values (80%), while borderline values were smaller (16.7%), and positive values minimal (3,7%). The second group had primarily positive values of anxiety test (90%), with 10% of borderline values and none of the negative findings. The third group had at the beginning of the treatment 53.3% of positive values, 30% borderline and 10% negative. The control group showed mostly borderline values (43.3%), followed with positive values (23.3%) and negative values (33.3%). After one month, the first group showed an increase in the negative findings, which rose to 86.7%; with 13.3% of borderline findings and none of the positive findings. The second group showed a significant fall in the number of positive findings – which dropped to 43.3%, while borderline values grew to 53.3%, with the emerging of negative values with 3.7% of the respondents. The third group showed primarily borderline values (60%), while positive findings dropped to 23.3% and negative grew to 16.3%. The fourth group showed a slight decrease in the number of positive findings to 20%, while borderline values were found with 40% of the respondents; negative findings grew to 40%. After two months, the anxiety test in the first group was mostly negative – 90%, with a minimal percentage of borderline (6.7%) and positive (3.3%) findings. The second group had equal values of borderline and negative findings (43.3%), with only 13.3% of positive values. The third group showed borderline and negative findings with 50% of the respondents, without any positive findings. The control group had negative findings with 50%, borderline

TABLE 3
DISTRIBUTION OF THE RESULTS OF THE ANXIETY TEST OF THE RESPONDENTS TAKEN IN DIFFERENT TIMES AND THE RESULTS OF THE CORRESPONDING χ^2-TESTS

Time of the test	Group		Anxiety test			
			Positive	Borderline	Negative	Total
	Antidepressants	n	1	5	24	30
		hp	3.3%	16.7%	80.0%	100.0%
At the beginning	Anxiolytics	n	27	3		30
		hp	90.0%	10.0%		100.0%
	Autogenic training	n	16	11	3	30
		hp	53.3%	36.7%	10.0%	100.0%
	Control	n	7	13	10	30
		hp	23.3%	43.3%	33.3%	100.0%
	Total	n	51	32	37	120
		hp	42.5%	26.7%	30.8%	100.0%
After one month	Antidepressants	n		4	26	30
		hp		13.3%	86.7%	100.0%
	Anxiolytics	n	13	16	1	30
		hp	43.3%	53.3%	3.3%	100.0%
	Autogenic training	n	7	18	5	30
		hp	23.3%	60.0%	16.7%	100.0%
	Control	n	6	12	12	30
		hp	20.0%	40.0%	40.0%	100.0%
	Total	n	26	50	44	120
		hp	21.7%	41.7%	36.7%	100.0%

n – the number of cases
hp – horizontal percentage

TABLE 3A
DISTRIBUTION OF THE RESULTS OF THE ANXIETY TEST ACCORDING TO THE GROUPS OF RESPONDENTS IN DIFFERENT TIMES OF EXAMINATION AND THE RESULTS OF THE CORRESPONDING χ^2–TESTS

Time of testing	Group		Anxiety test			
			Positive	Borderline	Negative	Total
	Antidepressants	n	1	2	27	30
		hp	3.3%	6.7%	90.0%	100.0%
	Anxiolytics	n	4	13	13	30
		hp	13.3%	43.3%	43.3%	100.0%
After two months	Autogenic training	n		15	15	30
		hp		50.0%	50.0%	100.0%
	Control	n	5	10	15	30
		hp	16.7%	33.3%	50.0%	100.0%
	Total	n	10	40	70	120
		hp	8.3%	33.3%	58.3%	100.0%
	Antidepressants	n	1	2	27	30
		hp	3.3%	6.7%	90.0%	100.0%
	Anxiolytics	n	5	3	22	30
		hp	16.7%	10.0%	73.3%	100.0%
After four months	Autogenic training	n		5	25	30
		hp		16.7%	83.3%	100.0%
	Control	n	5	8	17	30
		hp	16.7%	26.7%	56.7%	100.0%
	Total	n	11	18	91	120
		hp	9.2%	15.0%	75.8%	100.0%

n – the number of cases
hp – horizontal percentage

with 33.3%, and positive with 16.7% of the respondents. After four months of the therapy, all four groups showed some improvement, i.e. the anxiety test results were mostly negative: in the first group 90%, in the second group 73.3%, in the third group 83.3% and in the fourth group 56.7%.

The results of the analysis of psychological examinations as far as the time intervals and the groups of respondents are concerned have shown a statistical significance, i.e. the anxiety test has shown some improvement in the psychical condition of the respondents caused by the therapy, except for the control group, whose improvement in the psychical condition was lagged.

Discussion

Psychological examination was conducted by means of psychological tests, which at the very beginning showed psychical changes with respondents. The examination was further conducted and repeated after one month, after two months and after four months, with the purpose of an objective recording of the possible improvement or aggravation caused by/experienced during the treatment.

Psychical changes are the consequences of social and material conditions of the respondents and they are also dependent on their personalities. Please note that problems related to war and post-war period have caused numerous psychical traumas in Croatia.

The anxiety test showed a bigger percentage and intensity with men (62.5%) than with women (32.5%) at the beginning, but these values dropped during the treatment to 7.5% with men and 8.8% with women.

The depression test is a test which record depression process with respondents suffering from stomatopyrosis, and it was being applied on all the four groups during the period of 4 months, as well as the anxiety test.

During the therapy, the results of the depression test showed the depression was decreasing (from 56.7% to 0.0%), that is to say, the negativity of the assessment grew, and the growth was most prominent with the third group, i.e. the one with patients treated with autogenic training and in the first group, i.e. the one treated with antidepressants (from 96.7% to 0.0%).

Hondenhove et al. established that patients suffering from both stomatopyrosis and psychical disturbances after psychotherapeutic treatment of relaxation felt much better, as both their psychical symptoms and stomatopyrosis were significantly decreased[18]. Jerlang studied the influence of meditation as one of unofficial psychotherapeutic techniques on the patients suffering from stomatopyrosis, and his findings were very successful[14]. Hondenhove et al. successfully applied mediation as a helping technique in the treatment of stomatopyrosis[18]. Brady obtained similar results[19]. Gruscha et al. established that clonazepam, the drug treating depression, has a positive effect with patients suffering from stomatopyrosis[3]. Domb et al. found out that antidepressants reduce problems with patients with stomatopyrosis[9]. Greenberg et al. established that hypnosis improves the condition of the patients suffering from stomatopyrosis[16]. Van der Ploeg et al. found out that 94 out of 100 patients with

stomatopyrosis have symptoms of depression[11]. Half of the respondents were treated by psychotherapy and psycho-pharmacotherapy, and the other half only by psychotherapy. The results obtained showed that the treatment which combined psychotherapy and psycho-pharmacotherapy gives better results. The outcomes the above quoted scientists got are similar to the ones we obtained. Our research has confirmed the assertion that if patients suffering from stomatopyrosis and at the same time have a certain psychogenic disturbance are treated against depression and anxiety, the symptoms of stomatopyrosis within their mouths will disappear, which supports our idea that stomatopyrosis might be one of the symptoms of the above mentioned psychical illnesses.

Gaining insight into their mutual correlation, we might notice a particular pattern, i.e. grouping of statistically significant coefficients. Thus, the values of the very variables regarding the time of the testing are in mutual correlation, which shows their permanent changeability in time. Equally noticeable are the blocks of significant correlations between different variables in all the time intervals, which proves that the variables which were co-related at the beginning of the examination stayed the same throughout the entire period.

Based on the results obtained in this research, it was confirmed that patients suffering from stomatopyrosis at the base of which is a psychogenic problem will improve their condition during the treatment, and their stomatopyrosis symptoms will be lessened as well. The same was established by other authors who were quoted in this paper.

Conclusion

Comorbidity of stomatopyrosis with anxiety and depressive phenomena proves, among other factors, a psychogenic etiology of the disease.

Antidepressants and anxiolytics have an important role in the treatment of stomatopyrosis. A subjective assessment of the symptom intensity has been gradually decreased. At the beginning of the therapy of the patients claimed their symptoms to be frequent (often), and of them said that their symptom was continuous. At the end of the treatment, the most common grade assessing the frequency of the symptom was: rarely.

Autogenic training – a psychotherapeutic anxiolytic technique is the therapy of choice as far as stomatopyrosis is concerned, functioning both as a means of elimination of the disturbances within the oral cavity and of emotional rehabilitation of the patient.

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PSIHOLOŠKI TESTOVI PROCJENE PSIHIČKOG STANJA KOD STOMATOPIROZE

SAŽETAK

Stomatopiroza ili sindrom »gorećih usta«, u užem smislu definicije, je stanje koje karakterizira osjećaj žarenja i pečenja u ustima unatoč normalnoj sluznici. Ovo istraživanje usmjereno je na liječenje stomatopiroze s naglaskom na primjenu psihofarmaka i psihoterapije. Cilj rada je bio ispitivati utjecaj antidepresiva, anksiolitika i autogenog treninga na simptom stomatopiroze, u odnosu na psihološko testiranje. Ispitivanje smo provodili na ukupno 120 ispitanika sa simptomima

stomatopiroze. Ispitanici su bili podijeljeni u četiri podjednake skupine od po 30 osoba. Svi su ispitanici liječeni lokalnom standardnom terapijom. Prva skupina je, pored toga, dobivala antidepresive, druga anksiolitike, treća je liječena autogenim treningom a četvrta je bila kontrolna skupina. Svi su bolesnici ispitani klinički i uz pomoć psiholoških testova za depresiju i anksioznost prije početka liječenja a isto ispitivanje se dalje provodilo nakon mjesec dana, dva mjeseca i četvrtog mjeseca liječenja. Podaci su, zatim, statistički obrađeni. Iz našega istraživanja smo zaključili da se, kod stomatopiroze, radi o osobama starije životne dobi, pretežno ženskoga spola. Većina ispitanika su službenici; na drugom mjestu po učestalosti zanimanja su umirovljenici. Pečenje u ustima bilo je prisutno kod svih ispitanika; najčešće lokalizirano na usnama, po intenzitetu uglavnom nepodnošljivo. Napetost i stres pojačavaju simptome. Na vizualnoj analognoj skali (VAS skala) subjektivna procjena simptoma iznosi 7-8 cm, što je visoka razinu pečenja. Kvantum salivacije pokazuje, u našem istraživanju, lagano smanjenje količine sline, a nakon liječenja dolazi do normalizacije. Osim kliničkog ispitivanja stomatopiroze primijenjeni su i: Upitnik depresije te Upitnik anksioznosti. Tijekom terapije rezultati testa depresije pokazuju smanjivanje depresije (od 56,7% do 0,0%), što je najviše zapaženo u skupini koja je liječena autogenim treningom i u prvoj skupini bolesnika koja je liječena antidepresivima. Test anksioznosti pokazuje veći postotak i intenzitet anksioznosti kod muškaraca (62,5%) nego li kod žena (32,5%) što se smanjuje tjekom liječenja kod muškaraca na 7,5%, odnosno kod žena na 8,8%. Došlo je do vidnoga poboljšanja kliničke slike stomatopiroze. Poboljšanje kliničkih simptoma kao i psihičkoga stanja statistički je bilo značajno. Na osnovu našega istraživanja zaključujemo: komorbiditet stomatopiroze s anksioznim i depresivnim pojavama dokazuje, uz ostale faktore, i psihogenu etiologiju te bolesti. Daljnja bi istraživanja trebala dati odgovor na pitanje je li kod stomatopiroze riječ o psihosomatskom ili konverzivnom poremećaju. Antidepresivi i anksiolitici imaju istaknuto mjesto u terapiji stomatopiroze; autogeni trening – psihoterapijska anksiolitička tehnika – jest terapija izbora za stomatopirozu kako u otklanjanju smetnji u ustima tako i u emocionalnoj rehabilitaciji bolesnika.