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INFLUENCE OF PSYCHOSOMATIC CONDITIONS ON THE PERIODONTAL TISSUE OF PATIENTS

Abstract. *The severity and character of the course of periodontal diseases depend on a number of factors and psychological stress in particular. Considering these circumstances determination of possible relationships between the psychosomatic condition of patients and the condition of their periodontal tissues has become of a certain interest. The measurement of anxiety level determines the characteristics of the organism activity, affects its health status and periodontal tissue. Objective: to determine the influence of psychosomatic condition on the periodontal tissue of the individuals examined. To study subjective human responses to the effect of various environmental factors a specially designed questionnaire is advisable to be used. The diagnosis of anxiety level was made by means of a self-determination test including reactive and personal anxiety according to Spielberger. The assessment of periodontal tissues status was based on clinical signs and index scoring. More than a half of the respondents - 204 (58.29%) were found to consider their health insufficient subjectively. According to the questionnaire they complained of general somatic diseases available. Testing by means of Spielberger test showed a moderate level of reactive anxiety among the respondents - 34.72±2.45 and a high level of personal anxiety - 50.64±3.58. In patients with a high level of personal anxiety a significantly higher prevalence of periodontal diseases, especially generalized periodontitis, has been detected. The results of the survey showed that more than a half of the respondents - 204 (58.29%) subjectively consider their state of health to be inadequate. Testing by means of Spielberger test showed that the respondents had a high level of personal anxiety - 50.64±3.58. These factors associated together lead to a significant increase in the prevalence of periodontal diseases - 95,09±6,7%, especially generalized periodontitis - 88,72±6,5%.*

Key words*: reactive and personal anxiety, periodontal diseases.*

Introduction. The submitted scientific study is a part of the planned scientific investigation of the Department of Therapeutic Dentistry at O.O.Bogomolets National Medical University "Peculiarities of Diagnostics, Treatment and Prevention of Caries, Periodontal Diseases and Oral Mucosa Occurring Against the Ground of Somatic Pathology", state registration number 0107 U002 901.

Periodontal diseases are widely spread human diseases. They are (especially generalized periodontitis) the cause of a number of teeth extraction. Occurrence of periodontal diseases in different countries is considerable and practically similar except certain regions in Asia. Among Ukrainian population aged from 35 to 44 and older occurrence of periodontal diseases is 92% -98% [5, 8]. An increasing tendency of general amount of these diseases among young people and growth of the number of patients with generalized periodontitis is of a special concern. Occurrence of periodontal diseases among young people (19-24 years of age) reaches up to 30%, and at the age of 25-30 – more than 60% [2, 7, 13, 15].

Degree of severity and the character of periodontal diseases depend on a number of factors. In addition to local irritants (dental deposits, periodontal pathogenic microflora etc.) general condition of the body, general somatic diseases available, environmental effect, and chronic stress occupy an important position as well [17]. The studies conducted are indicative of the fact that periodontal diseases occur more frequently among people older than 30 with systemic diseases, inadequate oral hygiene, high level of stress and low social-economic status [11, 12, 16].

A number of studies deal with a possible correlation between psychological stress and periodontal diseases. Stress has been suggested to play a certain provocative role in the development of periodontal diseases. Individuals in the condition of psychological stress are prone to the development of generalized periodontitis

more than those without it [11, 12, 16].

The results of the studies obtained after investigation of psychological stress effect on young people are of a certain interest. The researches performed evidenced a high anxiety level among students taking their exams [19**, 21**]. Considerably more dental plaques and higher degree of periodontal tissue inflammation were found among them. The researchers have drawn a conclusion concerning a possible negative effect of psychological stress on the periodontal tissue condition among young people [18].

Anxiety measurement as a personal characteristic is especially important as it considerably stipulates individual behavior. An appropriate anxiety level is natural and ever present feature of an active personality [1].

Considering all the mentioned above detection of possible interrelations between psychosomatic condition of patients and condition of their periodontal tissue has become of a certain interest.

Objective: to determine the effect of psychosomatic condition on the periodontal tissue of the individuals examined.

Materials and methods. To study general state of health of the individuals examined a specially designed questionnaire was used that was filled according to they had said. The diagnosis of anxiety level was made by means of a self-determination test including reactive and personal anxiety according to Spielberger [9, 10, 14, 22]. The test enables to assess emotional condition and the level of emotional stress in particular. Reactive and personal aspects of anxiety are assessed. The examined individuals filled in Spielberger's questionnaire that helped to assess personal and situational anxiety. Their answers were assessed according to the keys and general score was estimated by all the statements separately according to the scales (reactive anxiety and personal anxiety).

350 residents from different districts of Kyiv, Vinnitsa and Dnipro were examined and involved into the survey. The cohort included mostly young people (an average age - 31, with maximal 68 and minimal 18). Women prevailed among those involved in the survey – 63,14%, and men constituted only 36,86%.

The finding obtained enabled to create electronic data base in Excel format. The qualitative analysis of the answers obtained from the respondents was made as well.

Examination of the oral cavity included assessment of colour and consistency of the mucous membrane of the vestibule, its depth, condition and height of the frenula attachment. Condition of the mucous membrane of the cheeks, soft palate, hard palate, tongue, mouth bottom was assessed. The gums were examined from the vestibular and oral sides. Their colour, presence or absence of swelling, consistency, and relief of the gingival border were assessed. Availability, localization and intensity of inflammatory process were evaluated by means of Shiller-Pisarev test [4]. Dental deposits were of special concern: their appearance, consistency, amount and localization. To find dental deposits (dental plaques) diagnostic dyes were used.

The oral cavity of patients with generalized periodontitis was carefully clinically examined: condition of the hard dental tissue, dentition, anatomical peculiarities of the vestibular structure, the level of attachment of frenula, condition of the gingival mucosa, periodontal pockets, the width of the gums attached, condition of the gums and osseous tissue of the alveolar processes. The whole examination included anamnesis, clinical examination and X-ray examination. The diagnosis was made on the basis of periodontal disease classification by M.F. Danilevsky (1994) [3].

Oral hygiene was assessed by means of hygienic index of Fedorov-Volodkina and Green-Vermillion index (1964) [4]. PMA index was used to determine the degree of gingival inflammation [3, 4, 20].

The results obtained were statistically processed in the package "STATISTICA 6.1" applying parametric and non-parametric methods. The accuracy of distribution of signs by every variational series, mean values by every sign and their standard errors and deviations were estimated [6].

Results. The results of the survey showed that more than a half of the respondents - 204 (58.29%) subjectively consider their state of health to be inadequate, and 146 (41,71%) of them – satisfactory.

More accurate findings concerning the sickness rate of the patients demonstrated that deterioration of health by one and more signs (sickness, adaptation, physical condition, psychoemotional status) was found in 301 (86,0%) of the individuals involved into the study. 126 (36,0%) individuals suffered from various chronic

diseases (digestive, cardio-vascular, diabetes etc.) at the stage of compensation and sub-compensation. 221 (63,14%) patients admitted negative levels of adaptation, 94 (26,86%) ones considered their state of health insufficient. Therefore, according to the subjective assessment of health 204 (58,29%) individual involved into the study were not satisfied with their health, and 146 (41,71%) patients considered it to be satisfactory.

Testing by means of Spielberger's questionnaire determined a moderate level of reactive anxiety in - 34,72±2,45 and a high level of personal anxiety in - 50,64±3,58. 98 (28,0%) individuals demonstrated a low level of reactive anxiety – 25,86±1,83 on an average, 42 (12,0%) patients admitted a high level of reactive anxiety – 52,33±3,68 on an average. Concerning personal anxiety 21 (6,0%) individuals demonstrated a low level of anxiety – 29,33±2,07 on an average, and 224 (64,0%) of the individuals admitted a high level of personal anxiety – 54,44±3,85 on an average.

To assess the effect of psychosomatic condition on the periodontal tissue the patients were divided into two groups: I group - 204 (58,29%) of those who considered their health to be insufficient and II group - 146 (41,71%) of those who were satisfied with their health.

Tables 1and 2 present the following regularities of distribution of reactive anxiety among the individuals examined.

The results obtained are indicative of practically similar level of reactive anxiety in both groups of the examined patients.

The analysis of findings obtained concerning personal anxiety was indicative of their close

Table 1

Level of reactive anxiety depending on diseases among the individuals of I group

Diseases available	Number	%	Reactive anxiety
Deterioration of health by one or more signs	149	73,39	55,93±3,95
Chronic diseases available	57	28,08	51,27±3,62
Those considering their health to be unsatisfactory	24	11,82	58,22±4,11

Table 2

Level of reactive anxiety depending on diseases among the patients of II group

Diseases available	Number	%	Reactive anxiety
Deterioration of health by one or more signs	108	73,46	54,86±3,88
Chronic diseases available	42	28,57	49,73±3,51
Those considering their health to be unsatisfactory	17	11,56	55,33±3,91

relations with diseases available. Thus, in I group considerably higher level of personal anxiety was found (Table 3). Those who considered their health to be satisfactory demonstrated the following regularities of personal anxiety distribution (Table 4).

Table 3 demonstrates that diseases available increase the level of personal anxiety among the patients involved into the study. 32 (22,76%) patients who did not admit evident clinical signs of diseases possessed a low level of personal anxiety – 28,33.

Comparison of personal anxiety of the individuals depending on their subjective assessment demonstrated certain differences (Table 5). The findings are indicative of the fact that reliable differences (<0,05) were found in the indices of personal anxiety between the patients

Table 3

Level of personal anxiety depending on diseases among the individuals of I group

Diseases available	Number	%	Personal anxiety
Deterioration of health by one or more signs	192	94,58	65,83±4,65
Chronic diseases available	84	41,38	61,33±4,33
Those considering their health to be unsatisfactory	77	37,93	68,14±4,81

Table 4

Level of personal anxiety depending on diseases among the patients in II group

Diseases available	Number	%	Personal anxiety
Deterioration of health by one or more signs	139	94,56	49,13±3,47
Chronic diseases available	61	41,49	49,67±3,51
Those considering their health to be unsatisfactory	56	38,09	56,22±3,97

from I and II groups.

A certain correlation between the level of personal anxiety and sickness rate among the examined individuals was found. The level of reactive anxiety and diseases available in different groups was practically similar. Diseases available increase the level of personal anxiety. Reliable differences (<0,05) were found among the indices of personal anxiety in case diseases were available.

The epidemiological examination conducted was indicative of a wide occurrence of periodontal diseases among the patients of I group - 95,09±6,7% (Table 6). Approximately similar occurrence of periodontal lesions was found among the patients of II group - 81,51±7,6%. The difference between these indices was statistically reliable (p>0,05).

The analysis of the structure of periodontal diseases demonstrated that among the patients of I group generalized periodontitis was the most spread among other periodontal diseases. It was found in 181 patients (88,72±6,5%). 13 (6,38±1,7%) were diagnosed with chronic catarrhal gingivitis, 7 (3,43±1,3%) – with parodontosis. Clinically healthy periodontal tissues were found only in 3 (1,47±0,7%) examined individuals of I group.

Table 5

Comparison of the level of personal anxiety in I and II groups

Diseases available	Personal anxiety		
	I group	II group	p
Deterioration of health by one or more signs	65,83±4,65	49,13±3,47	<0,05
Chronic diseases available	61,33±4,33	49,67±3,51	<0,05
Those considering their health to be unsatisfactory	68,14±4,81	56,22±3,97	<0,05

Practically similar structure of periodontal sickness was found among the patients of II group: generalized periodontitis in 108 of patients - 73,97±6,9%, chronic catarrhal gingivitis – in 11 patients (7,53±2,3%), parodontosis – in 7 patients (4,79±0,9%), and clinically healthy periodontal tissue was found in 20 examined individuals - 13,69±3,9%. It can be stated that in spite of approximately similar occurrence of periodontal diseases the level of generalized periodontitis among the patients of this group was statistically lower (p<0,05) in case of practically similar rate of inflammatory periodontal diseases.

Conclusions. Investigation of psychosomatic condition of the examined patients and occurrence and structure of periodontal diseases demonstrated a certain relations between them. Higher level of personal anxiety of patients produces a negative effect on the rate of occurrence of periodontal diseases and growth of generalized periodontitis. In case of improved psychosomatic condition of patients sickness rate

Table 6

Occurrence and structure of periodontal diseases among the individuals examined (%)

Group	Number of the examined	Chronic catarrhal gingivitis		Generalized periodontitis		Total periodontal diseases	
		abs.	%	abs.	%	abs.	%
I group	204	13	6,38±1,7	181	88,72±6,5*	194	95,09±6,7*
II group	146	11	7,53±2,3	108	73,97±6,9*	119	81,51±7,6*

** - reliability (p<0 ,05) between the finding of I and II groups of the examined individuals*

on generalized periodontitis was lower.

Therefore, investigation of the effect of psychoemotional stress on the course of periodontal diseases and further development of appropriate diagrams of rational medical treatment of periodontal diseases (generalized periodontitis) among the individuals with psychoemotional instability is a perspective topical task of therapeutic dentistry.

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