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FEATURES OF THE DENTAL STATUS OF STUDENTS UNDER THE INFLUENCE OF THE PSYCHO-EMOTIONAL STRESS

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Summary. The following article is dedicated to the investigation of the connection between psycho- emotional stress and status of organs of the mouth.
Key words: psycho-emotional state, dental status, stress, pH of saliva, micro-crystallization.

Introduction. For many people the present-day life consists of a chain of the stressful situations, caused by these or those reasons. The person is under the influence of an intense rhythm of life, a flow of information and events. Student's life often seems careless and easy, but anyway training in a higher educational institution is a stress for many students [10]. Each student endures failures differently as it depends on level of his emotional stability, ability to cope with an emotional overstrain and ability to control negative emotions. It is known that the stress leads to decrease in immunity, causes numerous psychosomatic violations and directly influences the health of the person. The chronic stress which accompanies student's life can lead to a number of violations in the organism, as well causing changes of properties and composition of oral liquid. Alongside with it there are processes which stimulate reduction of enamel resistance, weakening its antimicrobial and fermentative features [4]. Development of caries, stomatitis, periodontal disease is a result of it. Therefore, the subject chosen by us is actual and has theoretical and practical value.

The objective of the research. The purpose of our work was the research of the dental status of students during a psycho-emotional pressure.

Materials and methods. During the research 35 students from the third courses of faculty of dentistry were examined, conducted before and during taking modular checkings. The group of the investigated people was made up by almost healthy 18 young men and 17 girls aged from 18 to 25. Primary survey had to define the distribution and intensity of damage of teeth by the carious process, acid resistances of enamel, pH and saliva micro-crystallization for the assessment of a hormonal condition of the organism and its reactivity, level of hygiene of the oral cavity. The second inspection was conducted for the purpose of an assessment of the dental status under the influence of a psycho-emotional pressure during taking modular checking in 3 weeks. To assess the caries situation of an oral cavity the definition of the pH of the oral liquid by the use of a tape of universal indicator paper of the standard scale, level of hygiene of the oral cavity according to Fedorov - Volodkina (1971) and Green Vermillion (1964) indexes, enamel acid resistance by using the TER - test (V. R.Okushko in L.I. Kosarev's modification (1984) [2]. 10 - point scale of colours of printing execution (GOST 2789-73)was used for the assessment of the coloring intensity of the pickled enamel with 2% solution of methylene blue. For the express - diagnostics of the saliva micro-crystallization there were prepared the drugs with use of 0,9% of chloride of sodium and saliva of examined group of students [1]. For studying the character of saliva micro-crystallization the binocular microscope with the digital camera [2] (Microscope Digita Camera / Version 5.0) was used. To define the level of the stress situations in students, the test of self-assessment of stress resistance by S. Koukhen and. Villiansona [9] the scale of stressful vital events by Holmes & Rahe [5] and test for jet uneasiness [6] by Spilberger were used.

Results of research and their discussion. The analysis of questioning of stress resistance at young people showed that 22,9% of persons had high sustainability to psycho-emotional pressure. However, 77,1% of students had the satisfactory indicator of stress sustainability that testified the higher probability of a stress reaction emergence at this group of examinees. By means of test questioning examinees with different level of jet uneasiness were revealed, thus the students were divided into groups. 22,8% of students were in the I group with low level of uneasiness. The II group was made up by 68,6% students with moderate reactivity. Only 8,6% of persons had a high rate of uneasiness and belonged to the III group (tab. 1).

Table 1

Indicators of level of jet uneasiness by Spilberger (primary and secondary testing) (M ± m)

Level of jet uneasiness	Percent of persons with this indicator at primary survey	Percent of persons with this indicator at secondary survey
The I groups To 30 points (low)	22,8 ± 0,01%	9,8 ± 0,02%
The II groups 31-45 points (moderate)	68,6 ± 0,3%	57,6 ± 0,06%
The III groups> 46 points (high)	8,6 ± 0,05%	32,6 ± 0,01%

* Distinctions in comparison with indicators of primary research are probable (p <0,05)

However, secondary inspection showed considerable changes in the indicator of reactivity. In 9,8 ± 0,02% of students of the I group it became low. Moderate level of uneasiness of the II group was observed in 57,6 ± 0,06% of students. The percent of the surveyed students of the III group from high jet uneasiness increased during taking modular checking by 4 times. The indicator at these persons was more than 46 points.

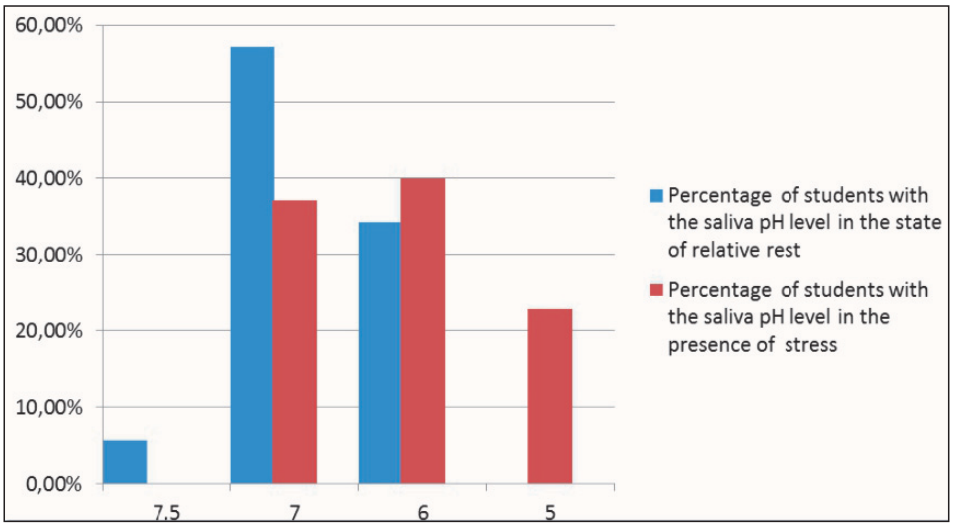

Fig. 1. Percentage of students with the saliva pH level in the state of relative rest and in the presence of stress

On the scale of stressful vital events by Holmes & Rahe it was found out that low level of stressful events is revealed in 42,85 % of the students belonging to the I group. To the II group there entered 40 % of young people with moderate level of the indicator and only 17,1 % of the III group had much higher level of stressful events. Students belonging to the III group with level indicator of the stressful of events more than 300 showed low resilience to stress and bigger risk of emergence of psychosomatic diseases because of psycho-emotional exhaustion (tab. 2).

Table 2

Scale of stressful events	The general percentage of persons with this indicator
I groups 150-199 (low)	42,85 %
II groups 200-299 (moderate)	40 %
III groups <300 (high)	17,1 %

Scale of stressful events by Holmes & Rahe Results of primary research of the dental status showed that prevalence of caries of teeth at students was 85,7% at intensity of the process 14,6 that is a very high rate. Initial and surface diseases of teeth prevailed. Periodontal changes weren't observed. The hygiene index according to Fedorov - Volodkina in 57,1% of the surveyed was 1,1-1,5 points that testified about good level of hygiene of the oral cavity. Satisfactory indicator within 1,6-2 points isn't enough 28,5% of students and only 11,4% of persons of the surveyed group were noted by an unsatisfactory condition of hygiene which was estimated at 2,6-3,4 points. On the Green Vermillion index in 88,6% of students the good indicator within 0-0,6 points is found, at the same time 8,5% of examined group had the index of hygiene 0,7-1,6 points, that is satisfactory. Unsatisfactory hygiene (1,7-2,5 points) was shown in 2,85% of students. Change of the saliva pH was the first reaction that showed changes at the stress - syndrome. Results of research showed that in the state of relative rest, high pH level of oral liquid 7,5 was observed in 5,71% of students. Level of pH equalling 7.0 belonged to 57,1% of students, and pH 6.0 was observed in 34,3% of the examined. Secondary measurements of pH of the oral liquid showed that saliva pH owing to a stressful factor I decreased in 32,6% of people with high level of jet uneasiness. The research group was made up by persons who were less sustainable against the action of stress and whose pH level owing to psycho-emotional pressure was within 5.0, that is during stress the saliva pH tended to shift towards the sour reaction.

Aiming at research of the state of reactivity before and after an emotional pressure and definition of hormonal balance of the organism the reaction of saliva micro-crystallization was applied. Micro-crystallization lies in the interaction of chloride of sodium with polysaccharides, colloids and mucin of the saliva. For express - diagnostics of saliva micro-crystallization children were divided into groups because under the influence of sexual steroids the contents of mucin and saliva structure changes. Despite the state of relative rest young men had sharply expressed hypoandrogenie. In the drug of the dried-up saliva it was observed fern-like formations with total absence of cross branches, deformation and thickening of crystals (fig. 2). At the psycho-emotional stress the crystals were disorganized (fig. 3). It was possible to see their separate thickening that testified about sharply expressed hypoandrogenie.

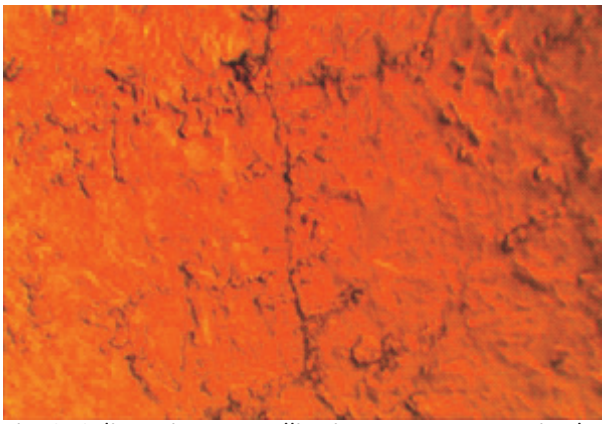

Fig. 2. Saliva micro-crystallization at young men in the state of relative emotional rest (fern-like formations with total absence of cross branches, deformation and thickening of crystals)

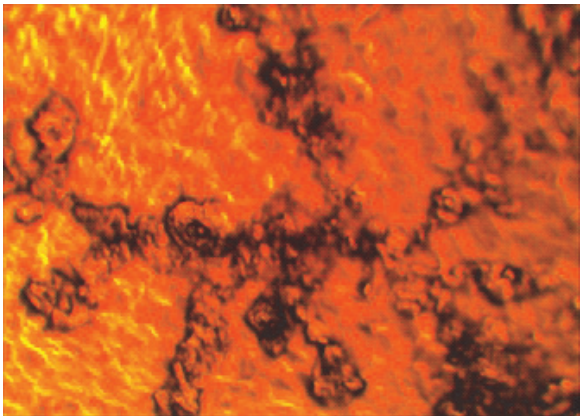

Fig. 3. Saliva crystals at young men are disorganized during the stress

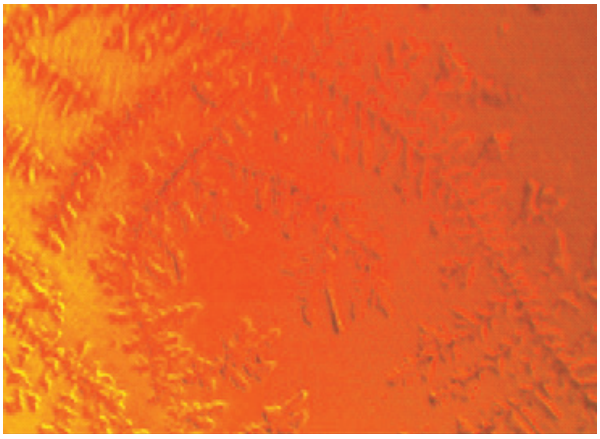

Fig.4. Saliva micro-crystallization at girls in the state of relative emotional rest (conglomerates of crystals with thickenings and numerous plates of crystals on the surface)

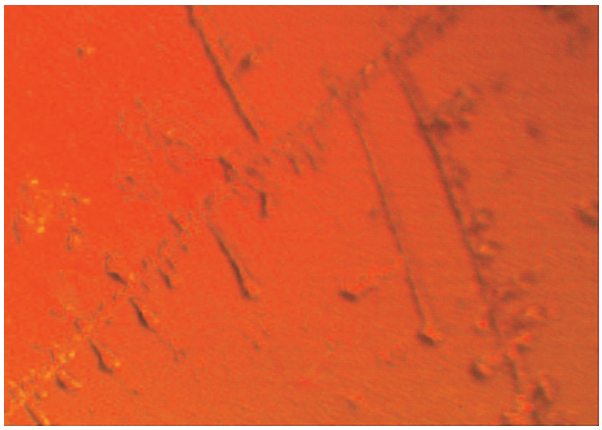

Fig. 5. Saliva micro-crystallization during the stress at girls (existence of single branches and bunches of crystals at stress)

Results of definition of TER - test in the state of emotional rest showed that 36 % of students possess high resistance of enamel of teeth to the effect of acids. 53% of students had average degree of resistance of enamel, and only in 11% surveyed it was possible to observe much reduced resistance of enamel. For the purpose of determination of resistance of enamel at modular control repeated testing of enamel resistance for TER - test was held, however, essential changes of the indicator of dependence on a stressful situation weren't revealed. It was possible to assume that changes of the dental status come through certain time owing to the action of long-lasting stress.

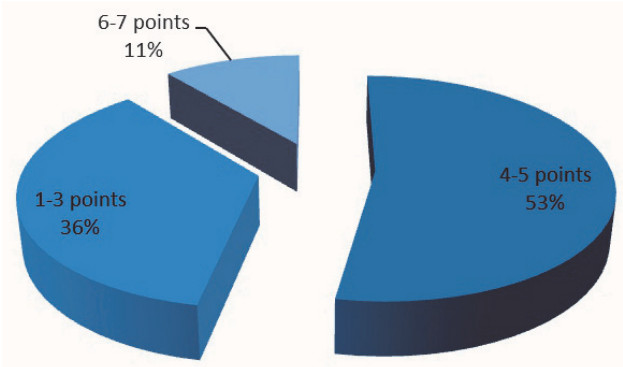

Fig. 6. Percentage of students with the TER - test indicator at primary survey of students.

Conclusions.

1. Maladaptation of the psycho-emotional state ,which was characterized by the increase of jet uneasiness and decrease in resistance to stress.

2 . Changes in the psycho - emotional state first of all influenced the characteristics of the oral fluid, in particular the shift of pH in acid side and micro-crystallization of saliva; TER - test remained unchanged.

3 . It is possible to assume that further structural changes in firm tissues of teeth in the form of violation of enamel resistance will arise owing to the action of chronic stress.

4 . Students have a high level of prevalence (85,7%) and the intensity of caries process of 14.6 against good oral hygiene. It probably explains chronic dysfunction of organism with periods of exacerbation emotional state at the time of modular controls .

5 . A periodic change of the phase of chronic stress was accompanied by changes in the endocrine system.

The young men were observed the hypoadrogenie, and the girls the hyperestrogenizm, indicating that the imbalance of sex hormones.

6 . Psycho-emotional state of students showed that the percentage of examinees with low level of jet uneasiness prevailed in the state of relative rest. During the psycho-emotional pressure the level of jet uneasiness became high, and it indicates the increase in risk of emergence of psychosomatic diseases.

Prospect of further development. Further development the issue of the impact of stress events on the condition of oral cavity organs is to perform the scientific work of the therapeutic stomatology department .

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