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THE STATE OF ORAL CAVITY IN THE DRUG-DEPENDENT PATIENTS

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The study presents the assessment of the state of oral cavity in patients addicted to drugs depending on the duration of drug use. A total of 45 drug-dependent men and women aged 20 to 50 have been examined. The findings of the study indicate a significantly higher percentage of diseases of the hard dental tissues, periodontium and oral mucosa compared to people who have not used drugs. The conclusions of the study necessitate a significant amount of dental care for drug-dependent patients, both for dental diseases and periodontal tissues, oral mucosa. Generalized periodontitis of the III degree of severity was observed in 75 % of the first group. All 50 % of patients in the second group had an exacerbated course of generalized periodontitis. At the same time, the average value of the hygienic index in the first group was 2.20 ± 0.15 ($p < 0.05$), in the second – 2.44 ± 0.15 ($p < 0.05$), with the following values in the control group – 1.80 ± 0.12 ($p < 0.05$). Such patients should receive comprehensive treatment in specialized medical facilities with the mandatory supervision of a narcologist and a dentist.

Key words: narcotic substances, oral fluid, periodontal diseases, oral hygiene, microbiological examination.

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СТАН ПОРОЖНИНИ РОТА У ПАЦІЄНТІВ ІЗ НАРКОТИЧНОЮ ЗАЛЕЖНІСТЮ

В даному дослідженні проведена оцінка стану порожнини рота у пацієнтів із наркотичною залежністю у взаємозв'язку з часом прийому наркотичних препаратів. Усіх досліджувальних було поділено на три групи. Всього було обстежено 45 наркозалежних чоловіків і жінок у віці від 20 до 50 років. Результати проведеного дослідження свідчать про значно більший відсоток захворювань твердих тканин зуба, пародонта та слизової оболонки порожнини рота в порівнянні із особами, які не вживали наркотичні препарати. Отримані результати обумовлюють необхідність суттєвого обсягу стоматологічної допомоги пацієнтам, які вживають наркотичні препарати, як щодо хвороб зубів, так і тканин пародонта, слизової рота. Генералізований пародонтит III ступеня тяжкості спостерігався у 75 % першої групи. 50 % пацієнтів другої групи мали загострений перебіг генералізованого пародонтиту. При цьому середні значення гігієнічного індексу в першій групі становило 2.20 ± 0.15 ($p < 0.05$), у другій – 2.44 ± 0.15 ($p < 0.05$), при наступних значеннях у контрольній групі – 1.80 ± 0.12 ($p < 0.05$).

Такі хворі повинні отримувати комплексне лікування в спеціалізованих медичних закладах із обов'язковою курацією наркологом та стоматологом.

Ключові слова: наркотичні речовини, ротова рідина, хвороби пародонта, стан гігієни порожнини рота, мікробіологічне дослідження.

The paper is a fragment of the research project "Pathogenetic prevention development in pathological lesions in the oral cavity of individuals with internal diseases", state registration No. 0121U108263.

Oral health is the most important component of health, since it reflects and self-affects the somatic state of a human and significantly depends on the level of intellectual development, medical awareness, and social adaptation.

The annual report the World Health Organization stated that one of the most pressing current issues is the medical consequences of the use of drugs of abuse. These include infectious diseases, neurological and mental disorders, diseases of internal organs and skin [1, 3].

The use of drugs is a protective activity of an individual in the face of difficulties that opens up at the stages of the formation of the human psyche. Addiction to drugs occurs after test use as experiencing excessive opportunities to overcome external and internal circumstances that prevent an individual from meeting the most important needs for him/her [12]. Most researchers believe that premorbid personality traits, which determine the nature and experience of drug addiction, play an important role in the development of drug addiction, the nature of its course and the prognosis of treatment outcomes [1].

In the behavior of each drug addict, a unique pattern of interaction with life is revealed, which together with the typical features of drug addicts forms his/her "drug-dependent" life style. The clinical course of drug addiction is conventionally divided into three stages, in the process of formation of which interconnected syndromes are formed in specific dynamics [12]. In 2015, the number of heroin users increased by 2.6 times, accounting for 28.5 % of the total number of registered drug addicts, and the total share of people who use drugs of the opium group reached 65.2 % [7].

Changes in the dental status of drug-dependent individuals are specific and can be one of the criteria for verifying the fact of drug addiction in a patient. Even though the features of somato-neurological, mental and social changes in drug addicts, especially in cases of intercurrent and comorbid addiction, significantly

transform the patterns of the development of pathological processes of various systems of organs and tissues, the clarity and specificity of oral lesions with long-term use of certain drugs of abuse are described in the works of domestic and foreign researchers [2].

The general risk of using narcotic drugs is for the development of dental lesions is associated with the initial changes in the oral mucosa (xerostomia), periodontium and hard dental tissues (dental caries, erosions, pathological tooth wear), which in their chronology of occurrence are initiating and subsequently provoking the progression of concomitant morphofunctional changes such as occlusal dysfunctions, joint deformities, bone defects were studied by Tokmanova S.I. [11]. Also, drug-addicted patients experience changes in oral fluid, which are manifested in changes in biochemical parameters and pH of the latter [5]. One of the most common local complications in addicts is candidiasis [4, 9].

The comparison of the findings of retrospective analysis of the scientific publications and clinical examination of sampling patients among the contingent of patients of the narcological dispensary has revealed in the latter the signs of salivation disorder and symptoms of xerostomia, periodontitis of varying degrees. This situation can be justified both by the direct acidic action of drugs and their systemic effects on glycogen metabolism in the body [8]. It has been proved that in patients with drug addiction the incidence and severity of oral diseases significantly increases [10]. Based on the findings of domestic and foreign studies, it can be stated that the occurrence of dental caries and its complications, inflammatory and dystrophic periodontal diseases, pathology of the oral mucosa is associated with both direct exposure to drugs and their indirect effects associated with long-term intoxication [10, 13]. The effect of drugs on the body is classified as direct and indirect. Direct action is implemented through the humoral factors: blood, lymph, intercellular environment. However, the indirect effect of long-term drug intoxication plays the main role due to changes in neuro-humoral regulation and dysfunction of organs and systems [6]. Drug-dependent individuals experience significant changes in dental status along with severe deteriorations in the body as a whole.

The purpose of the study was to establish diseases of the oral cavity, their relationship with the severity of somatic diseases in drug addicted patients.

Material and methods. The study of the dental status was performed in 45 drug-dependent male and female patients aged 20 to 50 years. The subjects were assigned into two groups, depending on the duration of drug use (up to 1 year and over 3 years). Group I (n=18) involved drug-dependent patients without severe comorbidities; Group II (n=27) involved subjects, diagnosed with Viral Hepatitis C and HIV infection. The control group (n=30) involved subjects of the same age who did not use drugs without concomitant pathology.

Patients who complained of changes in the condition of the oral mucosa or had them in the past history have been selected for the study. The conventional clinical dental methods of examination with the detailed anamnesis concerning a way of life, work, duration of use of narcotic drugs, frequency of their intake, have been applied. A thorough objective examination of the general state and maxillofacial area was performed to assess the condition of the lymphatic system, occlusion, teeth, changes in the oral mucosa, including the periodontium. The presence of irritants for the onset of periodontal diseases, oral mucosa has been evaluated. The state of oral hygiene was determined on the basis of the hygienic Greene–Vermillion. Additionally, microbiological analysis of the oral fluid was performed, as well as smears from the oral cavity according to Yasinovskiy; clinical blood test, the rate of secretion and pH of the oral fluid has been estimated. Oral fluid was obtained according to the A.P. Levytskyi (1988). The protein content in mixed saliva was determined by the O.H. Lowry method (1951).

The resulting data were subject to statistical processing. The calculation of the Shapiro–Wilk test was used to check the distribution of values for normality. If the data corresponded to the normal distribution, the Student's t-test for independent samples was used to compare them. In the case when the data series were not subject to normal distribution, statistical processing was performed using a non-parametric method of the Mann–Whitney U test ($p < 0.05$).

Results of the study and their discussion. The analysis of the complaints of the patients of the study groups has revealed that 37 patients of Group I and II experienced burning sensation of the oral mucosa, distortion of the sense of taste, dry mouth. Objective examination of patients of Group II revealed the foci of leukoplakia, mainly in the retromolar area, in 20 (74.1 %) individuals, Candida-associated lesions of the oral cavity in 17 (63.0 %) individuals and chronic ulcerative-necrotic stomatitis in 5 (18.5 %) individuals. Pallor of the oral mucosa was typical of most patients of the study groups.

Thorough clinical examination of all patients showed 100 % prevalence of dental caries. In the structure of hard dental tissues lesions in patients of Group I, chronic deep dental caries (30 %), enamel erosion (10 %), necrosis of hard dental tissues (20 %) was detected, and CFE (caries, filling, extracted)

index was 12.5 ± 0.34 , whereas in patients of Group II, necrosis of hard dental tissues and erosion was observed in 50 %, and more than half of subjects had complicated dental caries and CFE index of 16.2 ± 0.19 .

The study of the dental status of the subjects has revealed periodontal diseases in all subjects of Group I and II. At the same time, in the subjects of Group I, chronic generalized III degree periodontitis was diagnosed in 75.0 %, while in Group II it was in 100 % of the subjects with acute course in almost half of them. Drug-dependent patients showed unsatisfactory state of oral hygiene (the mean value of the OH index in Group I, Group II and control group was 2.20 ± 0.15 , 2.44 ± 0.15 and 1.80 ± 0.12 , respectively; $p < 0.05$).

Patients with drug addiction had a directly proportional dependence of the severity of lesions of the oral mucosa and periodontium on the duration of drug use and the severity of concomitant somatic and infectious diseases, which was confirmed by basic and additional methods of examination.

The complete blood count results of the subjects are presented in table 1.

Table 1

Some indices of complete blood count of the subjects (M \pm m)

Blood component	Unit of measurement	Control group (n=25)	Group I (n=18)	Group I (n=27)
Hemoglobin	g/L	130 ± 4.02	125 ± 3.8	$110 \pm 2.5^{* \#}$
Red blood cells	$10^{12}/L$	3.67 ± 0.25	3.16 ± 0.21	$2.6 \pm 0.25^{* \#}$
White blood cells	$10^9/L$	4.8 ± 0.85	4.2 ± 0.80	$6.5 \pm 0.60^{* \#}$
ESR	mm/h	6.0 ± 0.05	5.0 ± 0.05	$15.0 \pm 0.05^{* \#}$
Eosinophils	%	2.8 ± 0.45	2.5 ± 0.45	$5.5 \pm 0.25^{* \#}$
Lymphocytes	%	29.45 ± 0.02	28.40 ± 0.03	$34.8 \pm 0.05^{* \#}$
Monocytes	%	5.25 ± 0.35	5.15 ± 0.35	$6.18 \pm 0.5^{\#}$

Note: in the parentheses – the number of subjects, * – $p < 0.05$ probability of differences in indicators compared with the control group, # – $p < 0.05$ probability of differences in indicators compared with Group I

In drug-dependent patients of Group II, the microbial landscape of oral biotopes was characterized by a predominance of coccal microflora (Streptococcus spp (5.61 ± 0.2 CFU/cm²), Staphylococcus spp. (4.8 ± 0.4 CFU/cm²), anaerobic (Neisseria spp (4.0 ± 0.3 CFU/cm²)) and fungal (Candida (4.8 ± 0.4 CFU/cm²)). A great amount of Candida albicans, Escherichia coli, genus Klebsiella and Proteus, Pseudomonas aeruginosa have been detected, which indicates an increase in opportunistic pathogens. In contrast, in patients of Group I, the studied oral microflora was almost similar to the biotope of the control group.

The analysis of the oral fluid in drug-dependent patients of Group II has revealed a marked deviation of pH values, representing acidity (6.10 ± 0.11) and a decrease in the rate of salivation (on the average of 0.28 ± 0.02 ml/min versus (0.38 ± 0.4) and (0.41 ± 0.5) in subjects of Group I and control group, respectively). Significantly lower indicators of catalase activity (0.16 ± 0.02) were determined in drug-dependent patients of Group II, whereas in the subjects of Group I they were on the average of (0.20 ± 0.03), and (0.24 ± 0.02) in the control group. Elevated protein by 15.1 % was detected in the oral fluid of the subjects of Group II, while in other subjects it was within normal rates.

Changes in the oral fluid in terms of acidic and alkaline phosphatases are presented in table 2.

Table 2

Indices of alkaline and acid phosphatase activity of the oral fluid of the subjects (M \pm m, U/l)

Index	Control group (n=25)	Group I (n=18)	Group II (n=27)
Alkaline phosphatase	54.57 ± 1.23	46.14 ± 1.4	41.55 ± 0.85
Acid phosphatase	18.9 ± 0.92	22.04 ± 0.73	25.03 ± 0.73

Note: in the parentheses – the number of subjects, * – $p < 0.05$ probability of differences in indicators compared with the control group, # – $p < 0.05$ probability of differences in indicators compared with Group I.

Cytological study based on the smear according to Yasinovskiy has established changes in the number of epitheliocytes of the oral mucosa and leukocytes, which confirmed the decrease in local microbial resistance. In patients of Group I and control group a decrease in the number of leukocytes (60–80 %) and epithelial cells (30–40 %) was noted, whereas in the subjects of Group II an increase in the number of leukocytes to 150 % and epithelial cells to 50 % was detected.

The results of our work coincide with the results of previous studies carried out by Tokmanova S.I., Lunitsyna Yu.V. (2014), who observed the development of diseases of the oral mucosa (xerostomia, leukoplakia, candidiasis) and periodontal tissue diseases in patients who took narcotic drugs.

In contrast to previous studies, we observed a high prevalence of dental caries in all patients (100 % of patients), while more than half had complicated caries. There was a direct dependence of the severity of damage to the oral mucosa of patients, periodontal tissues from the time of drug use.

The results of our study indicate changes in pH, biochemical parameters of oral fluid, and salivation rate in patients with drug dependence. The data of our work coincide with the data of Zubachik V.M. (2017), who found a decrease in the rate of salivation by 25 % to (0.31 ± 0.02) ml/min in drug-addicted patients compared with the control group; shifting the pH data to the acidic side (6.16 ± 0.12) and reducing the catalase activity to (0.14 ± 0.02) mcat/l.

The results of our work coincide with the data Tokmanova S.I., Lunitsyna Yu.V. (2013), who observed a relationship between the clinical course of diseases of the oral mucosa on the amount of drug intake.

Therefore, the rehabilitation of this category of patients must be carried out together with internist doctors after a comprehensive examination with further monitoring of the dental and general status of patients.

Conclusion

The evident changes in drug addicts are associated with a complete lack of desire to lead a healthy lifestyle, receive appropriate treatment from a narcologist, follow basic hygiene standards, including proper oral care, regular visits to the dentist. In addition, it is known that drug addiction exacerbates the manifestation of early signs of diseases and leads to a more severe course of existing comorbidities.

The findings of the study necessitate a significant amount of dental care for drug-dependent patients, both for dental diseases and periodontal tissues, oral mucosa. Such patients should receive comprehensive treatment in specialized medical facilities with the mandatory supervision of a narcologist and a dentist.

Our further research will be aimed at studying the effectiveness of an integrated approach in the treatment of diseases of the oral mucosa against the background of concomitant somatic and infectious diseases in drug-addicted patients.

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Стаття надійшла 12.06.2020 р.