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Prevention and Prediction of Dental Morbidity in Chemical Industry Workers

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Annotation: Chemicals of the industrial air environment are detected in the oral fluid, hard tissues of teeth, dental deposits, and biopsies of tissue structures. They aggravate the course of dental caries due to the substitution of calcium ions in hydroxyappatite crystals, chronic inflammation in periodontal tissues, violation of the integrity of the epithelium of the oral mucosa.

However, the influence of chemical factors of industry on the oral cavity of workers, the consequences of these effects have not been fully studied. Given this, the need to continue dental, clinical, functional and microbiological research on this problem has not lost its relevance.

The question of the negative impact of some industries on the oral cavity remains relevant. The relationship between the high prevalence of non-carious lesions of the teeth and the oral mucosa with such production processes as oil and gas extraction, metallurgy, chemical production, bakery and confectionery production has been proved. Dental health contributes to the preservation of the ability to work of an important part of the country's population – workers of industrial enterprises, especially since a number of studies convincingly reveal the role of the dental system in the general state of the body.

Keywords: prevention, industry, disease, dentistry.

The presence of high risks of occupational diseases among workers in industry has been proven. This is due to the entry of compounds of elements into the human body through the oral cavity. Industrial workers are characterized by a high prevalence of dental caries and inflammatory periodontal diseases.

Chemicals of industrial air environment are found in oral fluid, hard tissues of teeth, dental deposits, biopsies of tissue structures. They aggravate the course of dental caries due to the substitution of calcium ions in hydroxyapatite crystals, chronic inflammation in periodontal tissues, violation of the integrity of the epithelium of the oral mucosa.However, the influence of chemical factors of industry on the oral cavity of workers, the consequences of these effects have not been fully studied. Given this, the need to continue experimental, clinical, functional and microbiological research on this problem has not lost its relevance.

The aim of the study is to develop methods for the prevention and improvement of the prediction of dental diseases based on the proposed conceptual approach in chemical industry workers.To achieve this goal, the following tasks were set: - a methodology for the survey of chemical industry workers was developed based on the general methodology proposed by WHO experts; -determination of the dental status of chemical industry workers; -identification of risk factors that have a negative impact on the hard and soft tissues of the oral cavity in chemical industry workers; -assessment of the state of the oral cavity and determination of the level of dental morbidity among workers in comparison

with the population not in contact with industrial harmful factors of the chemical industry; -development of a conceptually new approach to primary and secondary prevention of dental diseases in chemical industry workers; -development of preventive measures to prevent pre-pathological and pathological conditions of the oral cavity in workers.The object of the study. The study will involve 146 chemical industry workers aged 25 to 60 years who have had direct contact with chemical elements for several years. All respondents will be divided into 3 groups: group 1 - shop workers, these are persons directly exposed to chemical elements; group 2 – locksmiths, plumbers, installers, cleaners, laboratory assistants, persons who rarely come into contact with chemical compounds; The 3rd group is an industrial administration that has no contact with chemical elements.The subject of the study will be saliva, a smear from the surfaces of the soft tissues of the mucous membrane the membranes of the oral cavity, blood.Research methods dental, clinical and functional, ecological and hygienic, microbiological, as well as statistical research methods will be used to solve the tasks and achieve the goals set.At the same time, the ratio of the prevalence of gingivitis and periodontitis and work experience in the compared groups was characteristic. Thus, as the length of service increases, the incidence of gingivitis decreases from 38.2% with an experience of up to 5 years to 20.7% with an experience of 20 years or more, and the incidence of periodontitis, on the contrary, increases from 44.6% to 90.4%, respectively.Thus, to enhance deep changes in periodontal tissues (periodontitis) in workers, the duration of exposure to workers has a negative impact on adverse factors in the production of SMS and SDS.As the results of the conducted studies have shown, there is a higher incidence of COPD pathology among workers, than in the control group of the examined.At the same time, allergic stomatitis (15.1%), leukoplakia (13.2%) and candida stomatitis (9.3%) were most often noted, glossitis (8.6%) and chronically recurrent aphthous stomatitis (6.2%), and even less often - chronic cracks on the lips (8.5%)., discursive glossitis (6.5%) and eczematous cheilitis (8.5%) (table 2).At the same time, chronic recurrent aphthous stomatitis (5.6%), desquamative glossitis (5.4%), and then eczematous cheilitis (2.1%) occupy the first place. first place in the control group of employees.It should be noted that the workers had such diseases of COPD (49.9%) as leukoplakia, candidiasis stomatitis, chronic lip cracks, glossitis and cheilitis, which were absent in the examined control group. Allergic stomatitis was observed in both cases, but their frequency was significantly higher ($p<0.001$) among workers.Thus, allergic stomatitis, glossitis and cheilitis, which were observed 4.3-6.2 times more often, respectively, than similar diseases in the control group of the examined, turned out to be the most common pathology of COPD in SMS and PPS production workers. At the same time, anamnetically, the relationship between the occurrence of allergic stomatitis and the work experience of workers in production was clearly revealed.As a result of the conducted clinical, functional, immunological examinations of workers at the SMS and SFS production facilities and clinical, experimental and morphological studies on animals, it was found that under the conditions of exposure to sodium hypochlorite there are such dental diseases as caries, pathological erasability, gingivitis, periodontitis and stomatitis develop.Results.the harmful effects of sodium hypochlorite in clinical and experimental data also confirm that there is a change in the biochemical parameters of rats, body weight and morphological changes in the tissues of the gums, cheeks and liver. In this regard, under experimental conditions, we conducted a study of the protective effect of infusions of medicinal herbs – rosehip fruits, licorice root, mint leaves, sand immortelle and chamomile flowers. In order to introduce them into practical healthcare. The analysis of experimental data showed that during the whole experiment there were no deaths of animals and no visible changes in the general condition in 2 groups of animals. There is a noticeable increase in the body weight of animals simultaneously receiving sodium hypochlorite and complexes of therapeutic and preventive measures, compared with untreated animals.Compared with the control group of the surveyed workers, the degree of occurrence of periodontal diseases (1.1-1.3 times) ($p<0.05-0.001$) and diseases of the SOPR (4.3-6.2 times) is significantly higher among the surveyed workers. In clinical practice, allergic stomatitis, glossitis and cheilitis turned out to be the most frequent pathological conditions of COPD in workers, they were observed respectively more than in the control group of the examined.Conclusion. In workers who work in contact with harmful substances for a long time, there is a decrease in the resistance of the capillaries of the gums and local immunity of the oral cavity, these indicators can serve as one of the integral tests when assessing the health status and organs of the oral cavity of workers. Based on clinical and

biochemical results, which are reflected in the activity of organs and tissues of the oral cavity, in immunological changes, the direct local and resorptive general toxic effect of sodium hypochlorite has been proven, leading to circulatory disorders, metabolism, biochemical parameters and a decrease in the immune reactivity of the oral cavity. the cavity. It has been established that as a result of the constant exposure of sodium hypochlorite to the oral cavity of experimental animals, a number of clinical changes are observed; this statement is reflected in violations of carbohydrate (lactic, pyruvic acid, glucose, glycogen), energy (succinate dehydrogenase, glutamate dehydrogenase, malate dehydrogenase and alkaline phosphatase) metabolites and protein metabolism ((total protein, transaminases ALT, AST, urea), protein metabolism of blood, as well as morphological changes in the liver. tissues, oral cavity: mucous

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