

## **EVALUATION OF THE EFFECTIVENESS OF ORGANIZATIONAL AND DENTAL MEASURES FOR THE PREVENTION OF DENTAL PERIODONTAL DISEASES AMONG WORKERS IN THE PRODUCTION OF METAL STRUCTURES OF METAL PROCESSING ENTERPRISES**

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### **ABSTRACT**

Periodontal is a complex multifunctional complex of tissues surrounding and retaining the tooth, interconnected morphologically, functionally and genetically, and includes the gum, periodontal, root cement and dental well (alveoli). Periodontal diseases are one of the urgent problems of dentistry. This group includes all pathological processes occurring in the periodontium. They can be of varying severity and develop independently or against the background of general somatic diseases. Pathological processes in the periodontium can be inflammatory or dystrophic in nature (a combination of them is often observed). Periodontal diseases lead to significant violations of the dental system, the development of purulent-inflammatory diseases of the maxillofacial region and in most cases to infectious sensitization, chronic intoxication and changes in the immune status of the body.

**Key words:** periodontium, root cement, complex multifunctional complex, pathological processes.

### **INTRODUCTION**

In the process of intensive industrial development, the study of the role of harmful and health-related factors of the production environment is timely and very important. After all, unfavorable working conditions contribute to the formation of various pathological processes in the human body [1-10].

The long-term influence of a complex of production factors simultaneously with the deterioration of the health of workers, as a rule, can lead to pathological

changes in the mucous membrane of the oral cavity, periodontal diseases, hard tissues of teeth (Galiullin A.N., 2014).

Metallurgical production belongs to the industry with the most severe, dangerous and harmful working conditions, which have a direct impact on the functional systems of the body, change homeostasis, neuro-humoral regulation in it and lead to pathological changes in the oral cavity (Novikova R.T., 2016).

Harmful conditions for the production of metal structures, despite the availability of occupational health and safety measures, represent extreme conditions for workers and require further development of comprehensive programs for the prevention of major dental diseases.

**The purpose of the study:** to optimize rational measures for the prevention and treatment of periodontal diseases in workers of metal processing production (metal structures).

**Material and methods.** Inspected the oral cavity of 120 workers of the main workshops of the metal processing enterprise AZIA METAL PROF LLC and its branches in Kattakurgan and Urgut. As a control group, the oral cavity of 35 employees of the studied enterprises who are not in contact with harmful factors of this production examined. Research methods: clinical and instrumental, laboratory, biochemical, statistical.

**Results of the study.** The assignment of the working conditions of workers according to the level of the chemical factor to class 3.1 is due to a short-term, but significant increase in the concentrations of harmful substances at the workplaces of the Monomer plant. The general assessment of the working conditions of the apparatchiks corresponds to the 3rd class of the 2nd degree of harmfulness, of the machinists - to the 3rd class of the 1st degree of harmfulness. For apparatchiks, the priority adverse factors are harmful chemicals in combination with nervous and emotional stress, for machinists - the chemical factor in combination with industrial noise.

The second largest professional group (20% of the total number of employees) is the machinists of pumping and compressor units. In conditions of intense noise, the drivers of pumping halls work 60-68% of the shift time (using personal noise protection equipment). The equivalent calculated level for this category of workers is 83 dBA. Machinists of pumping and compressor units, as well as apparatchiks, are exposed to harmful substances at various levels. During monitoring and preventive inspection of equipment, concentrations of harmful substances correspond to the MPC, when performing minor and medium-sized repairs, they may exceed the MPC by 2-3 times. In the process of work, contamination of clothing and skin with oils and chemicals is possible. The general

assessment of the working conditions of the machinists corresponds to the 3rd class of the 2nd degree.

The production of continuous glass fiber consists mainly of technological processes for the preparation of oiling agents and the production of glass fiber. After gluing elementary fibers into glass fiber and giving it certain qualities, oilers of various formulations are used, which are manufactured in the oiling preparation departments (emulsifiers). Operators of continuous fiberglass production are subjected to combined (steam-gas-aerosol mixture of components of several oilers) and complex effects of chemical agents (simultaneous inhalation and epicutaneous intake into the body as a result of abundant contamination of the skin with oilers) in combination with fiberglass dust and a heating microclimate. The chemical factor is due to the use of various oiling agents. They are a multicomponent mixture of plasticizers, softeners, fixers, film-forming, hydrophobic-adhesive and other preparations, the role of which is performed by complex chemical compounds: sebacinates, chromium-containing products, silanes, aliphatic amines, glycols, synthetic resins - dicyandiamidphoraldehyde, epoxy, polyester and others.

After a comprehensive dental examination, a high prevalence of caries, non-carious lesions of the hard tissues of the teeth, periodontal tissue diseases and COPD were determined.

When assessing periodontal tissue inflammation (PMA index (Parma, 1960)) in the group of workers with up to 10 years of experience, we determined a mild degree of inflammation in  $47.1 \pm 0.05\%$ , in the group with 10 to 20 years of experience - in  $24.1 \pm 0.40\%$ , in the group with more than 20 years of experience - in  $2.7 \pm 0.02\%$ . With an increase in work experience, there is an increase in the degree of inflammation in periodontal tissues.

Our study revealed significant differences in the condition of periodontal tissues in individuals with different nature and degree of contact with industrial factors. The greatest prevalence of severe signs of periodontal pathology was found on NCP in apparatchiks and on PSV in operators of continuous fiberglass production. Thus, periodontal pockets with a depth of 4 to 5 mm were diagnosed in  $33.6 \pm 2.44\%$  and  $35.7 \pm 3.66\%$ , respectively, periodontal pockets with a depth of 6 mm and more than  $18.9 \pm 1.77\%$  and  $19.5 \pm 2.05\%$ , respectively. The intensity of the sign per examined person was  $2.7 \pm 0.07$  ( $p < 0.05$ ). Among the mechanics of equipment repair and mechanics of instrumentation and control of the above-mentioned industries, signs of periodontal diseases had approximately the same prevalence. Hard dental deposits were detected in  $28.4 \pm 3.55\%$  of cases, bleeding during probing - in  $36.4 \pm 3.44\%$  of cases, periodontal pockets with a depth of 4 to 5 mm -  $13.4 \pm 2.14\%$  of cases, periodontal pockets with a depth of 6 mm or more -

10,W,64%. The proportion of workers in this specialty with healthy periodontitis was  $10.2 \pm 1.86\%$  ( $p < 0.05$ ).

In NHP workers, periodontal diseases with course features associated with the systematic influence of occupational factors (the transition of mild forms of diseases to more pronounced ones, the formation of deep periodontal pockets, pronounced tooth mobility) can be attributed to production-related diseases.

To identify the role of negative occupational factors of production in the occurrence and development of diseases of the oral mucosa, we determined the dependence of this pathology on work experience and profession. When examining the oral mucosa in Wood's rays, early (preclinical) signs of leukoplakia were determined in  $28.7 \pm 1.66\%$  of NCP workers and in  $34.3 \pm 2.54\%$  of fiberglass production workers. In the control group, the indicators were significantly lower: only  $7.2 \pm 0.78\%$  of the examined patients showed early changes in the mucous membrane ( $p < 0.05$ ). Table 6 presents data on the prevalence of COPD diseases among workers of various specialties.

The high prevalence of COPD diseases among workers in professions such as continuous fiberglass production operators, equipment repair fitters and apparatchiks is explained by the direct and prolonged contact of these workers with adverse production factors and, above all, catalysts, benzene, styrene, ethylene, toluene, throughout the working day. The results of the study indicate a direct correlation ( $g=0.67$ ;  $p < 0.001$ ) between the prevalence of COPD diseases and work experience in this industry, the degree of contact with adverse factors.

Thus, occupational hazards, when a person falls into their sphere of influence, begin to play an important role in the development of dental diseases, affecting their frequency and intensity, as well as determining the severity of their course.

**Conclusions.** When conducting annual preventive examinations of petrochemical workers, it is necessary to involve dentists in interdisciplinary medical teams in order to determine the prevalence and intensity of dental diseases, their early diagnosis and drawing up an individual medical examination scheme taking into account the state of "local immunity and processes of free radical oxidation of oral fluid.

For the prevention and treatment of major dental diseases, along with traditional methods of oral sanitation, correction of the state of local immunity, free radical oxidation is necessary:

- with elevated levels of HCL, applications of 5% Mexidol solution, the use of toothpastes with antioxidant action are recommended as an antioxidant: "Mexidol dent", "Blend-a-med blendax bee balm", "Silca complete Vitamin", "Colgate total propolis", "32 complex",

- with reduced LV CL indicators, it is impractical to use laser therapy and toothpastes with prooxidant action: "Lacalut aktiv", "Parodontax", "ROCS", "Cedar balm" to normalize SRO indicators. As an immunomodulator, it is effective to use "Lycopid" 10 mg sublingually 3 times a day for 30 minutes. before meals, the course is 14 days.

To enhance the reparative processes in the oral mucosa, it is effective to use a 30% tocopherol solution orally 3-5 drops 3 times a day; topically - applications to the lesion 3 times a day for 10-15 minutes and "Sozhoseryl dental paste" 30 minutes before meals.

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