DESIGN AND IMPLEMENTATION OF A MODERN PREVENTIVE STRATEGY TO REDUCE DENTAL DISEASES AMONG CHEMICAL INDUSTRY WORKERS

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Abstract. The pathogenesis in the development of caries and non-carious lesions, inflammatory periodontal diseases and diseases of the oral mucosa is described. The manifestations of these diseases are most often due to a pronounced sensitization of the body to harmful production factors, in the oral cavity there is a pronounced change in local immunity, homeostasis with the manifestation of dysbiosis, as a result of which the features of their clinical manifestations change.

Key words: harmful production factors, caries, periodontium, mucous membrane

However, so far there is nothere is a consensus on the influence of occupationally harmful factors on the development of dental morbidity [1, 5]. In this regard, an active purposeful study of the dental status among workers in hazardous and hazardous industries that emit hazardous waste into the environment has recently been carried out [3, 4, 6]. The organization of rational dental care for employees of various industries and enterprises with certain occupational hazards, the timely detection of oral diseases among them and their treatment are of great medical and social importance today [3, 10].

The question of the negative impact of certain industries on the oral cavity remains relevant. The relationship of the high prevalence of non-carious lesions of the teeth, oral mucosa with such production processes as oil and gas production, metallurgy, chemical production, baking and confectionery production has been proven (11). Dental health contributes to the preservation of the working capacity 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 dentition in the general state of the body.

The presence of high risks of occupational diseases among workers in industry has been proven. This is due to the intake of compounds of elements into the human body through the oral cavity (15). Industrial workers are characterized by a high prevalence of dental caries and inflammatory periodontal disease (3).

Chemical substances of the industrial air environment are detected in the oral fluid, hard tissues of the teeth, dental deposits, biopsy specimens of tissue structures (12). They aggravate the course of dental caries due to the replacement of calcium ions in hydroxyapatite crystals, chronic inflammation in periodontal tissues, violation of the integrity of the epithelium of the oral mucosa (5).

Working conditions at industrial enterprises are often accompanied by factors harmful to human health, which are called "production (professional) hazards". Long-term influence of these factors can lead to pathological changes in the oral mucosa, periodontal diseases, hard dental tissues, and contributes to the development of chronic oral diseases [1, 4, 5, 15, 18, 28]. Scientific studies show that the prevalence of major dental diseases among the working-age population reaches 95-100% and has a steady downward trend.

One of the priority tasks of the concept of health development of the Republic of Uzbekistan until 2025 is the formation of a healthy lifestyle. One of the key points in this context is to ensure the sanitary and hygienic well-being of the working population. At the same time, it is known that the impact of unfavorable production factors of a biological, chemical, and physical nature leads to a change in the functioning of various systems of the human body [6]. Dental morbidity occupies a significant place among various human pathologies. There are certain factors affecting their distribution, identification and recognition of various authors around the world [4, 10].

A modern dentist must know the causes of these disorders in order to properly and successfully carry out treatment, as well as to carry out preventive work among the

population.

The analysis of the literature available to us determines the goal of studying the relationship between the development of various dental diseases in persons directly in contact with harmful factors of industrial production.

The unfavorable factors of the industrial environment mainly differ in intensity depending on the ecological situation and professional activity in a particular region, the technical perfection of production.

A number of researchers note a high level of prevalence of dental diseases among workers in the chemical industry. It was revealed that chemicals have a harmful effect on the hard tissues of the teeth, periodontal tissues, and the composition of the oral fluid [11, 34]. A correlation has been established between the concentration of hydrogen sulfide and the prevalence of oral diseases, the amount of harmful emissions into the atmosphere and periodontal disease [27, 32]. Under the influence of vapors of inorganic acids and their derivatives, teeth decalcify with the appearance of acid necrosis of the upper and lower frontal teeth [33].

In a number of scientific papers, the problems of the significant influence of the conditions for the production of synthetic detergents (SMC) on the tissues of the tooth, periodontium and oral mucosa were considered and studied [13, 33].

The leading harmful factors of the working environment and the labor process for workers, the main professions of the petrochemical industry are: the severity and intensity of labor, vibration, noise, unfavorable microclimate (vapors of acetic and terephthalic acids). These factors significantly affect the pH, the buffering capacity of saliva of workers, the macro- and microscopic composition of hard tissues of teeth, the resistance of enamel to adverse factors and contribute to the occurrence of cracks, necrosis of tooth enamel, keratoses of the mucous membrane [14, 21. 22, 23].

According to the materials of observations, foreign scientists came to the conclusion that under the influence of sulfuric and hydrochloric acids, roughness and abrasion of the surfaces of the front teeth and enamel erosion occur [30].

It has been established that chemicals polluting the air of the copper powder shop

disrupt the structure and chemical composition of the mineral base of the tooth, contributing to the development of demineralization of hard tissues, and also lead to the development of leukoplakia, cheilitis, papillomatosis, oncopathology [8, 29].

In experimental works, morphological changes in the structure of the dentin of teeth under conditions of high lead content are presented. Chronic exposure to lead contributes to demineralization with foci of destruction in all areas of the dentin, the development of diseases of the oral mucosa, and increases the prevalence of periodontal diseases (gingivitis and periodontitis) [16, 31].

It is important to take into account that the teeth of the workers of such main production units of the industrial group as the ammonium nitrate shop, the nitric acid shop and the methanol shop are most affected by carious disease [7].

In glass production, the development of keratoses and hyperkeratoses on the mucous membrane of the oral cavity and lips is facilitated by prolonged exposure to high temperatures; air polluted with harmful chemicals also has a toxic and irritating effect on the oral mucosa [9].

Erosion and pathological abrasion of enamel caused by the presence of hydrochloric, sulfuric, and hydrocyanic acids were noted among workers in chemical industries [17, 36].

An increase in the total number of bacteria with a predominance of gram-negative bacteria was determined in the study of physical, biochemical and bacterioscopic parameters in the oral cavity in workers at ethanol production enterprises [26].

The research results confirm the role of industrial aerosols in the occurrence of dental diseases in production workers in contact with such carcinogens as benz (a) pyrene, inorganic arsenic compounds, lead, cadmium, crystalline silicon dioxide, and in workers exposed to resistant to aerosols of mineral oils, soot, formaldehyde and exhaust gases of diesel engines [12].

A number of authors indicate that harmful factors (gasoline, sulfur dioxide, carbon monoxide, etc.) in the production of rubber products cause violations in workers of local immunity of the oral cavity and a number of biochemical indicators of mixed

saliva, affecting the prevalence of major dental diseases. diseases [10].

A high prevalence of diseases of the hard tissues of the teeth and periodontium has been established in all examined persons who are in contact with cadmium and its compounds in the metallurgical production [24].

Bulyakov R.T., Chemikosova T.S. (2015) note that the leading harmful factors at fiberglass production enterprises are fiberglass dust and products for its manufacture, which affect the incidence of dentoalveolar system [6].

In the works of some researchers, it was noted that the increase in dental morbidity among workers in the production of non-ferrous metals is directly dependent on the severity of adverse factors [2].

In their studies, foreign authors present the results of the analysis of data on the significant impact on the occurrence of diseases of hard tissues of teeth and periodontal tissues of an unfavorable microclimate and physical factors: an excessive level of acoustic and electromagnetic vibrations, thermal and ionizing radiation [37, 38].

The main hazardous production factors in the development of dental diseases among workers in industrial enterprises are ionizing radiation and a chemical factor [18].

In bakery industries, it has been established that dental caries can be caused by sugar dust in the air [20].

The results of the study of the dental status of vibration production workers showed that in patients suffering from vibration disease, the main place in the pathogenesis of periodontitis belongs to neurovascular dystrophy of periodontal tissues [3].

A number of authors point to the dependence of the process of dental morbidity on various psychosocial factors. The effect of stress on the incidence of periodontitis in industrial workers has been shown [21].

Occupational stress can be caused by the physical intensity of work. It has been shown that the most significant factors for the examined persons are fear, nervousness or stress at work and problems with the economic support of the family, as well as

interpersonal relationships in the family [19].

Thus, the literature available to us highlights the modern view of the complex impact of harmful production factors that determine the high prevalence of dental diseases among workers in industrial enterprises. The analysis carried out shows that the incidence rates of teeth and periodontal disease are related to the nature of the work performed.

At the same time, it should be noted that the studies we analyzed did not reveal the results of studying risk factors in modern industries. Located in special economic zones, residents of which, as a rule, must comply with the safety requirements of the personnel working area. Also, scientific works do not take into account new requirements in the prevention of occupational diseases.

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