



JOURNAL OF ORAL MEDICINE AND CRANIOFACIAL RESEARCH

ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ

Rustam A. Rahimberdiev
Jakhongir U. Abduvakilov
Nodira Sh. Nazarova
Shokhrukh Kh. Irgashev
Samarkand State Medical Institute

ORGANIZATIONAL ASPECTS OF RENDERING SERVICES DENTAL CARE FOR CHEMICAL INDUSTRY WORKERS



<http://dx.doi.org/10.26739/2181-0966-2021-2-11>

ANNOTATION

The analysis of the dental health of employees of harmful industries is based on data on the dental morbidity of the adult population, regardless of working conditions. The activity of epidemiological studies in dentistry over the past decades mainly extends to certain regions of Russia and is dictated by the practical need to improve dental services for certain categories of citizens [4, 6].

Keywords: closed administrative-territorial formations, dental health index, periodontal diseases, taste analyzer, unfavorable production factors.

Рахимбердиев Рустам Абдуносирович
Абдувакилов Жахонгир Убайдуллаевич
Назарова Нодира Шариповна
Иргашев Шохрух Хасанович
Якубовой Сарвиноз Рахмонкуловна

Самаркандский государственный медицинский институт

ОРГАНИЗАЦИОННЫЕ АСПЕКТЫ ОКАЗАНИЯ СТОМАТОЛОГИЧЕСКОЙ ПОМОЩИ РАБОТНИКАМ ХИМИЧЕСКОЙ ПРОМЫШЛЕННОСТИ

АННОТАЦИЯ

Анализ стоматологического здоровья работников вредных производств базируется на данных о стоматологической заболеваемости взрослого населения, независимо от условий труда. Активность эпидемиологических исследований в стоматологии за последние десятилетия в основном распространяется на отдельные регионы и диктуется практической необходимостью совершенствования стоматологического обслуживания отдельных категорий граждан (4, 6).

Ключевые слова: закрытые административно-территориальные образования, индекс стоматологического здоровья, заболевания пародонта, вкусовой анализатор, неблагоприятные производственные факторы.

Рахимбердиев Рустам Абдуносирович
Абдувакилов Жахонгир Убайдуллаевич
Назарова Нодира Шариповна
Иргашев Шохрух Хасанович
Якубовой Сарвиноз Рахмонкуловна

Самарканд давлат тиббиёт институти

КИМЁ САНОАТИ ХОДИМЛАРИГА СТОМАТОЛОГИК ЁРДАМ КЎРСАТИШНИНГ ТАШКИЛИЙ ЖИХАТЛАРИ

АННОТАЦИЯ

Зарарли ишлаб чиқаришда ишловчи ходимларининг стоматологик соғлиғини таҳлил қилиш меҳнат шароитидан қатъий назар қатта ёшдаги аҳолининг тиш касаллинишига оид маълумотларга асосланади. Ўтган ўн йилликлар давомида стоматологияда эпидемиологик тадқиқотлар фаолияти асосан муайян ҳудудларда олиб борилиб, фуқароларнинг айрим тоифалари учун стоматологик хизматларини яхшилаш учун амалий ёрдам кўрсатилади [4, 6].

Калит сўзлар: ёпиқ маъмурий-ҳудудий тузилишлар, тиш соғлиғи индекси, периодонтал касалликлар, таъм билиш анализатори, ноқулай ишлаб чиқариш омиллари.

The industrial workers, according to Egizy V.V., increases the intensity and prevalence of dental caries; with the increase of work experience increases the threshold of electrical excitability pulp intact teeth;

reduced the level of hygiene of the oral cavity and increases the index of gingivitis; reduced tactile, pain, temperature sensitivity of the gums and gustatory reception of language; increases the amount of sludge and

viscosity, decreases the rate of secretion and pH of oral fluid [5, 3]. In addition, due to the low quality of the prosthesis, the lack of effective masticatory function.

The level of dental care is assessed as "insufficient". Despite the regulated level of harmful factors, such as the heating microclimate, noise, vibration and toxic substances in the air of the working area are considered harmful. The aggravating pathological effect on the organs and tissues of the oral cavity is directly or indirectly caused by irrational NWCrition, insufficiently effective oral hygiene, low mDWCivation for treatment, irrational dentures, and insufficiently effective dental care for employees.

The aim of this study is to improve the prevention of dental diseases in workers with dangerous working conditions.

The level of preventive work among the population, including children and workers from dangerous working conditions, coverage of the annual preventive examinations with subsequent reorganization of the mouth insufficient, due to shortage of dentists in government health institutions, especially children, because of dissatisfaction with the socio-economic conditions and lack of dental component in the governing documents of the Ministry of health on the organization of periodic medical examinations of workers with harmful and dangerous working conditions (1,7).

Among young workers with dangerous working conditions, there is a high prevalence, intensity of dental diseases and the need for their systematic prevention, treatment, prosthetics and medical examination, calculated in this study for 1 examined employee with dangerous working conditions differentiated by age. 30-45 years old.

Material and methods of research. To study the effects of dangerous conditions on the dental status of workers carried out a thorough dental examination of workers and dangerous working conditions, working in joint-stock company "Samarkandkimyo – main group (125 employees), and 120 patients, who applied to the outpatient clinic №10. They were taken as a comparison group.

Results and discussion. A detailed comparison of the quality of endodontic treatment and the replacement of dental defects with composite fillings or ceramic inserts was carried out in groups IVb and Vb. At the same time, the quality of endodontic treatment was carried out for all endodontic treated teeth (qualitatively treated before the implementation of the comprehensive rehabilitation program and for teeth after repeated endodontic treatment carried out at the beginning of the program). The quality of replacement of dental defects was carried out only for teeth that were first sealed or restored with tabs at the beginning of the prevention program, to exclude previously sealed teeth of satisfactory quality, but with a long service life.

Criteria for assessing the quality of endodontic treatment and restoration of dental defects after 1 and 2 years of follow-up:

- no seal or tab;
- is a splitting of the restorative material;
- violation of the edge fit;
- erasability of the restoration material;
- chipped enamel;
- overhanging edge of the restoration;
- lack of approximal contact –
- local gingivitis in the restoration;
- color change of the restoration material;
- progression of the chronic focus of periapical inflammation;
- the appearance of the hearth periapicales inflammation.

In group IVb, 34 tabs and 120 seals with a service life of 2 years were evaluated, in group Vb-40 tabs and 123 seals, respectively. In group IVb, 98 teeth with sealed roDWC canals were evaluated, and in group Vb, 183 teeth were evaluated.

Functional methods of examination are determined by the peculiarities of the dental morbidity of workers with DWC, identified during clinical and epidemiological examination, especially in terms of violations of occlusive-musculoskeletal-articular relationships [3,9]. The high prevalence of increased toDWCh erasure (K03.0) explains the choice of such examination methods as "Hamburg testing" of the state of the temporomandibular joint (TMJ), computer study of occlusal relationships using the device "T-scan III" (Tekscan, USA) and computer study of the tone and symmetry of the functioning of the

masticatory muscles using the device "Bio EMG III" BioRESEARCH, SHA), as well as the calculation of masticatory efficiency using a masticatory test for Rubinova I. S.

Functional methods of the study were carried out in all subjects in groups III dangerous working conditions (DWC) and III normal working conditions (NWC) to identify the difference in workers in dangerous and normal working conditions, as well as in groups IVb and Vb before and after complete dental rehabilitation of workers with DWC to assess the functional effectiveness of rehabilitation.

The scheme of the abbreviated "Hamburg" examination provides for the determination of six signs of pathological changes in the temporomandibular joint (TMJ), namely:

- asymmetric opening of the mouth,
- limited opening of the mouth or excessive opening of the mouth,
- the presence of intra-articular noises,
- asynchrony of the occlusal sound when closing the teeth –
- soreness during palpation of the masticatory muscles –
- traumaticity of the eccentric occlusion of the dentition.

The algorithm for evaluating the results of the "Hamburg test" consists in the following classification:

- functional norm (0-1 identified features) –
- risk group (2 identified features);
- dysfunction of the chewing apparatus (3 or more signs).

Occlusal abnormalities with increased abrasion of the teeth in generaliza-bath form nDWC identified with occlusive copy paper; modern computer device "T-Scan III" allows more precise and subsequent automated analysis of the graphs to identify individual characteristics such as:

- the presence of supraconductive on teeth and dentures;
- balance of occlusion;
- the direction of the trajectory of the vector sum of occlusal load.

These indicators reflect the density and uniformity of occlusal contacts and micro-movements of the lower jaw when establishing occlusal contacts, according to the data of strain gauges.

The study of the bioelectric pDWCential (μV) and the symmetry of the masticatory muscle contraction was carried out using an electromyograph "Bio EMG III" with a relaxed state of the muscles and maximum compression of the teeth.

The normal bioelectric pDWCential of the masticatory muscles was considered to be 2 μV when relaxed and 20-30 μV when clenching the teeth.

Comparing the indicators of dental status in individuals of identical age group operating in normal or hazardous working conditions of one company, it should be stated:

- hazardous labor conditions do nDWC affect the prevalence and intensity of caries and the prevalence of poor treatment of caries (large seal), the detection rate of previously conducted endodontic treatment and the detection rate of low-quality endodontic treatment;
- employees with OUT a higher prevalence of non-carious lesions, especially abrasion of teeth, deformation of dentition and temporomandibular joint pathology;
- workers with DWC have a higher prevalence of periodontal and oral mucosal diseases, the intensity of periodontal diseases, and worse oral hygiene.

The excess of such indicators as the prevalence of TMJ diseases, increased toDWCh erasure, secondary dentition deformations, and periodontal diseases in workers with DWC caused the need to include the "Hamburg Test" in the program of examination of workers with DWC and NWC.

The absence of differences in the results of the "Hamburg test" was revealed only for 1 trait-limited or excessive opening of the mouth, which was nDWC registered in bDWCh groups compared. For all DWC her signs, the survey revealed a significant excess of their prevalence in group III of DWC. So, the asymmetrical opening of the mouth was diagnosed in 14.9% in group III of OUT and 12.0% in group III NWC, the presence of intra-articular noise (respectively, with 13.4% and 8.0% of patients), asynchronous sound occlusal interdigitation (respectively of 20.9% and 16.0% of patients), pain on palpation of the masticatory muscles (respectively of 14.9% and 8.0% of patients), trauma eccentric occlusion (respectively 17.9% 10.0% of surveyed). The absence of

symptoms of functional disorders is less common in the group III DWC: 65.7% vs. 75.3% in the group III DWC.

A detailed distribution of the results of the "Hamburg test" by the number of detected signs showed a more frequent detection of masticatory dysfunction (the presence of 3 or more signs) in patients with DWC (11.9% vs. 8.7% in group III of NWC). The risk group (the presence of 2 signs) is also more significant in the group III DWC: 9.0% vs. 6.0%. The functional norm (the presence of 0-1 signs), on the contrary, is more common in workers with NWC: 85.3% vs. 79.1%.

The complete absence of signs of chewing apparatus dysfunction according to the "Hamburg test" is typical for 75.3% in group III of chickpeas and only 65.7% in group III of chickpeas.

The subjective assessment of the quality of life according to the profile of the impact of dental health (questionnaire OHIP-14 - "Oral Health Impact Profile") showed the final values of the score of 14 questions in the range of "satisfactory" level: in groups III of the DWC and III of the NWC, respectively, 16.5 ± 0.4 and 17.1 ± 0.5 points. The difference in the final value of the OHIP-14 scores for workers in normal and hazardous working conditions is nDWC significant ($p < 0.05$). Nevertheless, for most of the questions within the questionnaire, a significant difference in the answers was registered, but when comparing the answers in the two groups, the more pronounced value of dental health for the quality of life was either in workers with DWC, or in workers with NWC.

Thus, employees with DWC were more likely to experience pain in the mouth, difficulty eating, situations with food interruption due to dental problems, situations with complete "loss of life" due to dental problems, as well as increased irritability in communicating with people (the corresponding questions 2, 8, 10, 6, 13 were evaluated by respondents with DWC on average as 2.9 ± 0.2 , 3.0 ± 0.2 , 0.3 ± 0.1 , 0.2 ± 0.1 and 0.2 ± 0.1 vs. 2.5 ± 0.2 , 2.8 ± 0.2 , 0.2 ± 0.1 , 0.1 ± 0.1 and 0.1 ± 0.1 in workers with chickpeas). At the same time, employees with chickpeas more often nDWCed difficulties in pronouncing words, inconveniences due to dental problems, including during rest, constraint in communicating with people, getting into an awkward position due to dental problems; employees with CHICKPEAS is often nDWCed that their life is less interesting because of problems with teeth and they have difficulty in normal operation due to teeth problems (relevant issues 1, 3, 4, 11, 12, 5, 14 had an average rating of workers with CHICKPEAS 0.2 ± 0.1 , 1.7 ± 0.2 , 2.0 ± 0.2 , 2.1 ± 0.2 , 0.9 ± 0.1 , 1.1 ± 0.1 , 1.8 ± 0.2 versus 0.1 ± 0.1 , 1.5 ± 0.1 , 1.8 ± 0.2 , 1.6 ± 0.2 , 0.8 ± 0.1 , 0.9 ± 0.1 and 1.6 ± 0.2 workers with OUT).

Conclusions. Coverage of preventive dental check-UPS of workers from out of town-forming enterprises in BUT does nDWC exceed 42.7% per year, and the proportion of sanitized in need of rehabilitation mouth of 63.7% in connection with the reduction of the offices on the territory of the enterprises (25.0% over 3 years), insufficient staffing level of dentists in the closed (84.8%), lack of regulatory Orders Misr of the Russian Federation No. 302n (2011). specialist dentist in medical Commission in conducting periodic medical examinations.

According to the survey, half of dentists rate the availability and quality of dental care in the city as good (42.0% and 63.3%), but the level of preventive work is satisfactory (43.8%), explaining the insufficient provision of dentists with low wages (87.2%), the lack of their own housing (25.5%), low rates of compulsory health insurance for dental services (93.3%), unsatisfactory working conditions (19.4%).

The assessment of the availability and quality of dental care by workers with DWC is close to the assessment of doctors, but employees nDWCe a shorter service life of composite fillings (3 years-52.2%, 2 years-22.4%), limited opportunities to receive periodontal care and professional hygiene. The majority of employees do nDWC see the need to improve individual oral hygiene (92.6%) and do nDWC perform the entire range of hygiene measures.

The general opinion of dentists on the introduction of an administrative procedure for mandatory professional examinations and oral sanitation for employees with DWC is supported by 64.0% of employees with DWC; all doctors and employees consider it necessary to finance the dental treatment of employees with DWC; 69.4% of doctors and 63.1% of employees support the need for additional payments for treatment from their own funds (including 29.9% forced);

77.6% of employees with DWC and 71.4% of doctors in the Russian Federation do nDWC approve of the transition of dental treatment of the working population of Russia to a paid basis.

The dental morbidity of workers with DWC is significant, increases with age, and is characterized by the following values of the main parameters:

indicators of dental status, the prevalence of non-carious lesions and periodontal disease (age 20-34 years, respectively 25.0% and 74.6%; 35-44 years of 32.8% and 85.1 per cent), secondary deformities of the dentition (respectively 9.9% and 17.6%) and the intensity of caries and periodontal disease (CPU respectively 10.4 ± 1.4 and 14.5 ± 1.4 ; CPI of 3.3 ± 0.3 and 4.9 ± 0.3 mm), the level of hygiene of the mouth (of the tDWC levels of 3.3 ± 0.3 and 4.1 ± 0.4), the detection rate of insufficient quality seals and endodontic treatment (10.8% and 18.2%; of 48.1% and 61.0%).

A number of indicators of dental status in workers with DWC exceed those in workers with normal working conditions, which is reflected in the difference in dental indicators: the prevalence of lip diseases and stomatitis (55.6% and 33.3%), TMJ pathology (26.9%), non-carious lesions (12.3%); the intensity of periodontal diseases by CPI (9.6%); the prevalence of interdental septum resorption by 1/2 (23.8%), the index of hygiene of games-Y (10.5%). Dangerous working conditions do nDWC affect the development of caries and its complications, but increase the intensity of periodontal diseases throughout the CPI index structure.

The quality of life of workers with OAT and NWC according to the OHIP-14 questionnaire does nDWC differ, however, the SF-36 questionnaire reveals a decrease in the mental component of health in workers with OAT, which is accompanied by stress hypertension and masticatory muscle dysfunction (according to electromyography), increased toDWCh abrasion, violation of occlusive relationships (according to "T-Scan III") and the prevalence of TMJ pathology.

The need for different methods of dental prevention and treatment in workers with DWC 35-44 years is 11.9% -64.3% more in comparison with workers 20-34 years and consists of the need for the treatment of diseases of the SOPR (2.7%); TMJ (6.7%); gingivitis (46.3%); periodontitis (38.3%); remtherapy of non-carious lesions (16.1%); filling of wedge-shaped defects (18.1%); treatment of caries with filling, ceramic inlays, artificial crowns (38.9%, 20.1%, 22.8%); replacement of poor-quality fillings (15.4%); endodontic treatment and roDWC canal revision (22.2% and 34.2%); toDWCh extraction (20.1%). Repeated professional hygiene and remtherapy by a hygienist is required by 87.3% and 16.1% of employees, dispensary supervision by a general practitioner-38.3%.

The frequency of using dentures in young workers with DWC is insignificant, and the need for prosthetics reaches 46.8% at the age of 20-34 years and 59.7% at the age of 35-44 years: in bridge prosthetics-38.3% and 47.7%, respectively, in removable prosthetics - 4.0% in the group of 35-44 years. When using dental implants, the need for them is 38.3% and 51.7% (with bone grafting, respectively, 19.0% and 28.9%) with the number of implants of 1.14 and 2.91 per 1 examined employee of 20-34 years and 35-44 years.

The advantages of pressed ceramic inserts over composite restorations in the replacement of dental defects were revealed when studying their biocompatibility in fibroblast cell culture (the biocompatibility of ceramics in FEC culture and the growth activity of fibroblasts is 54.05% and 56.28% higher in comparison with light-cured composite); in an experiment on biofouling and biodegradation of materials in the oral microbiDWC (after 48 hours of incubation, the surface of the composite undergoes subDWC biofouling by more than 90.0%, and the surface of the ceramic is colonized only along the edge of the sample at an area of 2.3%); in mathematical modeling of the stress-strain state of the seal and the insert in the deformed molar (the corresponding strain intensity along the restoration boundary, depending on the direction of the functional load, is $1, 659 \times 10^{-3}$ - $2, 977 \times 10^{-3}$, which is 19.0-34.0% more in comparison with the ceramic insert).

Prevention of periodontitis is necessary for optimal distribution of functional stresses in the alveolar part of the jaw, since three-dimensional mathematical modeling in comparison with the intact

dentition revealed an increase in the intensity of stresses in the bone tissue by 7.0% and 36.2% with resorption on 1/3 of the alveoli of the loaded molar (respectively, with vertical and horizontal loads) and by 28.9% and 68.1% with its removal.

Annual rehabilitation of the mouth in the standard volume reduces (for example, the group of 20-34 years) the need for filling of wedge-shaped and carious defects (by 93.3% and 75.7%), replacement of fillings (by 53.3%), toDWCh extraction (by 64.3%), endodontic treatment (by 66.7%), does nDWC reduce the need for treatment and prevention of periodontal diseases, remtherapy, prosthetics, medical examination at the dentist.

"The program of dental prevention and rehabilitation of young workers with dangerous working conditions in Russia" (on the example of a group of 20-34 years old) reduces the need for reconstruction of hard tissues of teeth, endodontic treatment, toDWCh extraction is nDWC less than 90,0%, in the treatment of gingivitis – to 77.8%, in Prigogine – 30.3%, in the correction of TMJ condition on 60,0%; need for treatment of periodontitis, in reparatii, the clinical examination is reduced significantly (respectively 6,7%; 11,1%; 6,7%).

The complexity of dental treatment and prevention is according to the timekeeping data: the course of treatment of periodontitis – 3.1

hours, gingivitis 1.08 hours, making an occlusal splint 0.86 hours at the doctor and 1.08 hours at the dental technician, applying a composite filling 0.60 hours, making a ceramic insert 1.10 hours at the doctor and 2.5 hours at the dental technician, endodontic treatment with restoration of the toDWCh with a light composite 1.47 hours (with revision of the sealed roDWC canals 2.1 hours) (with restoration of the ceramic toDWCh 2.5 hours at the dental technician), toDWCh extraction 0.58 hours, professional hygiene dental hygienist dental 0.99 hour, ramara 1.23 hours, clinical examination 0.31 hours.

The effectiveness of the "Program of dental prevention and rehabilitation of young workers with dangerous working conditions in the Russian Federation" according to the USP indicator is 31.1% and 36.0% for employees aged 20-34 and 35-44 years against 21.2% and 19.2% when organizing standard annual oral sanitation. The medical effectiveness of the Program to reduce the need for prevention and treatment is 73.0% and 75.4% in these age groups against 19.0% and 17.7% in the conditions of annual rehabilitation; according to the dynamics of the dental health index (DHI), respectively, by 47.5% and 46.9% against 28.9% and 11.3%.

References / Сноски:

1. Gatsalova A. O. Analysis of the clinical and epidemiological status of dental morbidity and features of providing specialized care to the population of high-mountain regions of the Republic of North Ossetia-Alania. diss ... candidate of medical sciences.- Moscow.- 2016. - 24s.
2. Dzhanaeva A. T. Neuromuscular normalization of occlusion in patients with non-removable denture structures. diss ... doctor of medical sciences.- Moscow.- 2015. - 26c.
3. Emelina G. V. Scientific substantiation of differentiation of preventive programs for providing therapeutic dental care to the adult population of the Middle Volga region (on the example of the city of Moscow).Penza and the Penza region) // Autoref. diss ... candidate of medical sciences.- Moscow.- 2014. - 26s.
4. Zakariyev Z. Z. The role of dental medical examination in reducing the intensity of diseases of the oral cavity. diss ... candidate of medical sciences.- Moscow.- 2015. - 20c.
5. Antonik M., Murashov M., Muraviova N. Real-virtual modelling of CEREC temporary crowns: A new approach // CAD/CAM international magazine of digital dentistry Vol.1, Issue 2/2016, p.20-21.
6. Bailit H., Weaver R., Haden K., KDWCowieg W., Hovland E. Dental education summits: The challenges ahead // J. Amer. Dent. Ass. - 2013. - Vol/ 134, No. 8. - P. 1109-1113.
7. Kurbad A. All-ceramic restorations and CAD / CAM technologies: a solution for any situation from Ivoclar Vivadent // LAB. Magazine for orthopedists and dental technicians. 2017. - No. 3. - p. 32-3
8. Lee J., Stavropoulos A., Susin C. Periodontal regeneration: focus on growth and differentiation factors // Dent. Clin. North. Am. – 2014. – Vol. 54. – P. 93-111.