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THE ROLE OF METAL DUST IN THE FORMATION OF INFLAMMATORY DISEASES OF THE GUMS IN INDUSTRIAL WORKERS

Nazarova Nodira Sharipovna

Head of the Department of Postgraduate Education,

Faculty of Postgraduate Education, Samarkand State Medical University,

Samarkand, Uzbekistan.

Khatamova Madinakhon Anvarovna

3rd year student of basic doctoral studies

Samarkand State Medical University,

Samarkand, Uzbekistan.

Baxriddinova Mohidil Ravshanxonovna

2nd year clinical residency in therapeutic dentistry

Samarkand State Medical University,

Samarkand, Uzbekistan.

ANNOTATION

The article examines the role of metallic dust as a significant occupational risk factor in the development of inflammatory gingival diseases among workers of metal-processing industrial enterprises. The mechanisms of metal aerosol exposure on periodontal tissues, clinical features of gingivitis and periodontitis, and key dental health indicators in this occupational group are analyzed. The findings indicate a high prevalence of inflammatory gingival diseases and emphasize the necessity of comprehensive preventive strategies aimed at reducing occupational exposure and improving oral health among industrial workers.

Keywords: metallic dust, gingivitis, periodontium, inflammatory gingival diseases, occupational hazards, metal-processing workers.

АННОТАЦИЯ

В статье рассматривается влияние металлической пыли как одного из ведущих профессиональных факторов риска на развитие воспалительных заболеваний десен у работников промышленных предприятий металлообрабатывающего профиля. Проанализированы механизмы воздействия аэрозолей металлов на ткани пародонта, особенности клинического течения гингивита и пародонтита у данной категории работников, а также показатели стоматологического статуса. Полученные данные свидетельствуют о высокой распространенности воспалительных заболеваний десен и необходимости разработки комплексных профилактических мероприятий, направленных

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на снижение профессионального риска и сохранение стоматологического здоровья работников.

Ключевые слова: металлическая пыль, гингивит, пародонт, воспалительные заболевания десен, профессиональные вредности, металлообрабатывающие работники.

ANNOTATSIYA

Maqolada metallga ishlov berish sanoat korxonalari ishchilarida milklarning yallig‘lanish kasalliklari rivojlanishida yetakchi kasbiy xavf omillaridan biri sifatida metall changining ta’siri ko‘rib chiqilgan. Metall aerozollarining parodont to‘qimalariga ta’sir mexanizmlari, ushbu toifadagi ishchilarda gingivit va parodontitning klinik kechish xususiyatlari, shuningdek, stomatologik status ko‘rsatkichlari tahlil qilingan. Olingan ma’lumotlar milklarning yallig‘lanish kasalliklarining yuqori tarqalganligini va kasbiy xavfni kamaytirish va xodimlarning stomatologik salomatligini saqlashga qaratilgan kompleks profilaktika chora-tadbirlarini ishlab chiqish zarurligini ko‘rsatadi.

Kalit so‘zlar: metall changi, gingivit, parodont, milklarning yallig‘lanish kasalliklari, kasbiy zararlar, metallga ishlov beruvchi ishchilar.

Introduction.

Diseases of periodontal tissues occupy one of the leading positions in the structure of dental morbidity among the adult population and remain a significant medical and social problem. Professional factors that exert long-term and systematic effects on the human body play a crucial role in their development. Among these factors, metallic dust, characteristic of metalworking industrial processes, is of particular importance.

Employees of metalworking enterprises are exposed to metal aerosols that enter the oral cavity during respiration and deposit on the oral mucosa and tooth surfaces. This exposure creates favorable conditions for dental plaque accumulation, disruption of the oral microbiocenosis, and the development of inflammatory processes in gingival tissues.

Aim of the Study. To assess the role of metallic dust in the development of inflammatory gingival diseases among workers of metalworking enterprises based on the analysis of clinical and hygienic parameters of periodontal status.

Materials and Methods. The study included workers of metalworking enterprises aged 25–55 years with a minimum occupational experience of five years. The examination comprised the collection of anamnestic data, clinical oral examination, and evaluation of dental status.

For objective assessment of periodontal tissue condition, the following indices were used:

- Oral Hygiene Index (OHI-S);
- Papillary-Marginal-Alveolar Index (PMA);
- Gingival bleeding index;

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• Periodontal pocket depth.

The obtained data were processed using methods of variation statistics.

Results. The majority of examined workers demonstrated signs of inflammatory gingival diseases of varying severity. Chronic catarrhal gingivitis was the most commonly diagnosed condition, whereas initial stages of periodontitis were observed less frequently.

Elevated OHI-S values indicated an unsatisfactory level of oral hygiene. Increased PMA and gingival bleeding index scores reflected the severity of the inflammatory process. Workers with longer occupational exposure to metallic dust exhibited a tendency toward a more severe course of inflammatory gingival diseases.

Discussion. Metallic dust depositing on tooth surfaces and the oral mucosa promotes accelerated formation of dental deposits and alters the composition of the oral microflora. Toxic effects and mechanical irritation of gingival tissues contribute to impaired microcirculation and reduced local defense mechanisms.

Prolonged exposure to occupational hazards aggravates inflammatory processes and increases the risk of progression from gingivitis to periodontitis, particularly in the absence of regular preventive measures and systematic dental supervision.

Scientific Novelty. This study clarifies the role of metallic dust as an independent and significant risk factor for the development of inflammatory gingival diseases in metalworking workers. Evidence was obtained demonstrating a relationship between the severity of clinical manifestations of gingivitis and the duration of occupational exposure to industrial metal aerosols.

Conclusions

1. Metallic dust is a significant occupational factor contributing to the development of inflammatory gingival diseases.

2. A high prevalence of chronic gingivitis is observed among workers of metalworking enterprises.

3. The severity of inflammatory changes in periodontal tissues correlates with the duration of occupational exposure.

4. The development and implementation of comprehensive preventive programs, including professional oral hygiene measures and reduction of industrial hazard exposure, are necessary.

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