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# THE PREVALENCE OF DENTAL DISEASES CAUSED BY THE ACTION OF E-CIGARETTES, SPECIFICITY OF DIAGNOSIS AND TREATMENT.

**Sharipova Gulnihol Idiyevna-** Doctor of Medical Sciences, Department of hygiene No. 2, Bukhara State Medical Institute, Uzbekistan.
sharipova.gulnihol@bsmi.uz
https://orcid.org/0009-0009-0825-0534
Tel: +998916488201

**Komilova Zamira Abdurashidovna-** Independent researcher, Department of Therapeutic and Preventive Dentistry, Central Asian Medical University, Uzbekistan.
abdurashidovnazamira192@gmail.com
https://orcid.org/0009-0009-9401-9581
Tel: +998908369700

**ABSTRACT**

In recent years, there has been an increasing incidence of nicotine palate leukokeratosis in the population, which is causing medico-social, economic problems. In particular, the development of this pathology with the consumption of tobacco products occupies a special place in the fact that it creates complexity in their diagnosis and treatment. Several types of ecigarettes are found. E-cigarettes are distinguished by their multifaceted effect on the body.

**Keywords.** Nicotine leukokeratosis of the palate, tobacco, oral cavity, smoking, gingivitis, toothpastes.

**Komilova Zamira Abdurashidovna**
Terapevtik va profilaktik stomatologiya kafedrasi
Markaziy Osiyo Tibbiyot Universiteti
Ilmiy rahbar: DSc, dotsent Sharipova G.I

# "ELEKTRON SIGARETALARNING TA'SIRI NATIJASIDA YUZAGA KELADIGAN STOMATOLOGIK KASALLIKLAR KENG TARQALGANLIGI, TASHXISLASH VA DAVOLASHNING O'ZIGA XOSLIGI"

**ANNOTATSIYA**

Oxirgi yillarda aholi orasida nikotinli tanglay leykokeratozi bilan kasallanish ko'payib bormoqda, bu esa tibbiy-ijtimoiy, iqtisodiy muammolarga sabab bo'lmoqda. Ayniqsa, bu patologiyaning tamaki mahsulotlari iste'moli bilan rivojlanishi ularni tashhislash va davolashda

murakkablik vujudga keltirishi bilan alohida o‘rin tutmoqda. Elektron sigaretalarning bir necha turlari uchraydi. Elektron sigaretalar organizga o‘zining ko‘p qirrali ta’siri bilan ajralib turadi.

**Kalit so‘zlar.** Nikotinli tanglay leykokeratozi, tamaki, og‘iz bo‘shlig‘i, chekish, gingivit, tish pastalari.

**Комилова Замира Абдурашидовна**
Кафедра терапевтической и профилактической стоматологии
Центральноазиатский медицинский университет
Научный руководитель: д.м.н., доцент. Шарипова Г.И.

## «РАСПРОСТРАНЕННОСТЬ СТОМАТОЛОГИЧЕСКИХ ЗАБОЛЕВАНИЙ, ВЫЗВАННЫХ ДЕЙСТВИЕМ ЭЛЕКТРОННЫХ СИГАРЕТ, СПЕЦИФИКА ДИАГНОСТИКИ И ЛЕЧЕНИЯ»

### АННОТАЦИЯ

В последние годы среди населения наблюдается рост заболеваемости никотиновым лейкокератозом неба, который вызывает медико-социальные и экономические проблемы. В частности, развитие данной патологии при потреблении табачных изделий занимает особое место в том, что создает сложности в их диагностике и лечении. Существует несколько видов электронных сигарет. Электронные сигареты отличаются многогранным воздействием на организм.

**Ключевые слова:** Никотиновый лейкокератоз неба, табак, полость рта, курение, гингивит, зубные пасты.

According to WHO, the prevalence of nicotine leukoceratosis among e-cigarette users was: Uzbekistan -12.5%, Europe -9.8%, Russia -15.3%, USA -18.7%, Korea -11.1%. As can be seen, according to world statistics, Uzbekistan ranks 3rd.Both cigarettes and vaping systems have a detrimental effect on health. But if we know almost everything about nicotine, there has been a fierce struggle with smoking in recent years and there are positive results, then the popularity of electronic cigarettes and vapes is not decreasing yet, and although there is more information about them, the full impact has not yet been fully studied[1,5].

In recent years, the incidence of nicotine palatal leukokeratosis has been increasing among the population, which causes medical, social, and economic problems. In particular, the development of this pathology with the use of tobacco products is of particular importance, as it creates difficulties in their diagnosis and treatment. There are several types of electronic cigarettes. Electronic cigarettes are distinguished by their multifaceted effect on the body. Dental diseases resulting from the effects of electronic cigarettes occupy a special place due to their widespread prevalence and complexity in diagnosis and treatment [1,8].

Scientific sources have shown that the prevalence of oral diseases caused by e-cigarettes is up to 22.4%, and in combination with various syndromes, up to 39.3%. At the same time, the prevalence of nicotine palatine leukokeratosis caused by e-cigarettes, which ranges from 19.7% to 31.4%, indicates the high prevalence of the pathology. This is explained by the fact that the initial stages of the disease proceed without clear symptoms, the lack of sufficient information about changes in both clinical and laboratory tests, and the lack of a single etiopathogenetic approach among specialists. This indicates the need to improve methods of treatment and prevention of the problem [2,7].

Particular attention is paid to scientific research aimed at improving the treatment of oral diseases that occur as a result of an unhealthy lifestyle among the world’s population. In this regard, it is of particular importance to identify the clinical and functional characteristics of the specific course of diseases associated with oral diseases that develop as a result of electronic cigarettes in modern dentistry; assess the role of dental and physiotherapeutic measures in the complex treatment process; develop a comprehensive step-by-step approach plan that takes into account the somatic condition of patients; propose preventive treatment methods based on the dysfunction of the oral

cavity organs caused by electronic cigarettes; and improve the development of methods for assessing the effectiveness of treatment [4,7].

The aim of the study is to improve the modern approach to detection, early diagnosis and prevention of nicotine palatal leukokeratosis caused by electronic cigarettes.

The spread of electronic cigarettes (vaping) has increased significantly over the past 10 years, which has led to a change in the clinical picture of diseases of the oral mucosa. Nicotine leukoceratosis of the palate is a common precancerous disease traditionally associated with classical smoking, which is increasingly being registered in e-cigarette users today. This requires the development of new therapeutic and preventive strategies aimed at early diagnosis, correction of risk factors and effective treatment[5].

Of particular concern among doctors and scientists is the popularity of vaping among teenagers. A person who is "hooked" on this product uses it more often, as the flavors make it easier to smoke, which means that the load on the body increases. And it's not just about the respiratory organs. It is known that vaping liquids include propylene glycol, glycerin, nicotine, diacetyl, aromatic additives, and when inhaling steam, heavy metal ions such as tin, nickel, and others enter the body. For example, pentabromobiphenyl esters, which are responsible for keeping the device warm, disrupt the production of thyroid hormones that regulate the functioning of the heart and brain [3-6].In addition, vaping abuse can lead to a decrease in male testosterone levels and a decrease in sperm count. The negative impact of vaping steam systems on the female reproductive system, especially during pregnancy, has been revealed [6].

Flavorings and heavy metals have a carcinogenic effect on the endocrine glands, hormones with high biological activity that ensure the processes of growth, development, reproduction, adaptation, and behavior. Therefore, it is especially dangerous to use vapes in adolescence, when the body has not yet experienced such a load. In the presence of diabetes, the use of vaping systems is an additional factor in the more severe course of this disease. Therefore, even if a vape does not contain nicotine, it can be dangerous. The legislative equating of vapes with traditional tobacco products, the prohibition of their promotion and use in public places seem to be reasonable actions on the way to public health [3,4].

When smoking electronic cigarettes or vapes, the released vapor contains more than 30 types of dangerous substances. For example, propylene glycol can accumulate in the body, causing allergic reactions, suppurative processes, and malfunction of the liver and kidneys [3].

The thermal decomposition of propylene glycol and glycerol damages the respiratory organs, the central nervous system, and mutagenic processes develop. The risk of addiction increases, including to other substances, such as alcohol [5]. Flavorings also cause allergic reactions up to the development of bronchial asthma. E-cigarette aerosols are dangerous with the content of metals, especially nickel and lead, which damage the nervous, respiratory, endocrine, digestive, cardiovascular and excretory systems [4,8].

The relevance of the study is due to the insufficient knowledge of the pathogenesis of leukoceratosis under the influence of modern nicotine-containing products and the lack of standardized treatment protocols. To study the clinical features and effectiveness of innovative therapeutic and preventive approaches for nicotine leukoceratosis of the palate caused by electronic cigarettes, as well as to conduct a comparative analysis of the prevalence of the disease in different regions of the world.

**The purpose of the study**: to identify nicotine leukoceratosis of the palate caused by electronic cigarettes, to improve a modern approach aimed at early diagnosis and treatment-prevention.

**The research material and method**. 115 electronic cigarettes addressed to the admission department of the Ti clinic of the Central ASIAN MEDICAL UNIVERSITY in patients with nicotine

leukoceratosis of the palate and 65 volunteers of the same age group free from this disease for the control group were selected as the object of the study.

An analysis in literary sources showed that the effects of oral diseases, treatment of dental diseases and their prevention were studied as a result of e-cigarettes. The conduct of a number of research works devoted to the study of this problem testifies to the impact of diseases caused by patients as a result of e-cigarettes and the imperfection of the traditional method of treatment of disease complications.

**Results obtained and their discussion**. The methods of clinical examination, cytological and histological examination of biopsies, immunological analysis, as well as questionnaires on smoking and vaping habits were used. The patients were divided into two groups: the control group (traditional therapy) and the main group (innovative therapeutic and preventive measures, including topical application of anti-inflammatory and regenerating drugs, vitamin and mineral support, physiotherapy, psychological assistance and a vaping cessation program).Statistical processing was performed using the $\chi 2$ criterion, t-test, and regression analysis ($p<0.05$ was considered statistically significant).

One plain cigarette contains 15-20 milligrams of nicotine, and nicotine in an HQD (electronic cigarette) reaches a concentration of 20 milligrams (however, there are options for 30-50). It may seem that HQD is safer than a tobacco cigarette, because it takes longer to consume nicotine from it, but this is an illusion. Saline nicotine saturates the body faster than free nicotine, so smoking HQD increases the risk of overdose. This is generally a distinctive feature of electronic cigarettes: people often use them uncontrollably – people often know the number of regular cigarettes smoked per day.

Glycerin and propylene glycol, which are not dangerous in themselves, can irritate the mucous membrane of the respiratory tract if they are poorly cleaned. Poorly purified ingredients cause difficult-to-treat lung diseases. This will lead to the fact that over time a person simply will not be able to breathe fully. In addition, these components, as well as numerous flavor and aroma additives, of which there are especially many in HQD, can lead to the development of an allergic reaction. It can manifest as rashes and redness on the skin around the mouth and nose, as well as irritation and inflammation in the oral cavity. Allergies often cause a burning sensation [7].

We must not forget about the burns and injuries that e-cigarettes and HQD cause in the event of a battery explosion. This can happen if low-quality batteries are used in production or if the user modifies the cigarette himself. Contact with liquid (ingestion or contact with skin or eyes) can also lead to health problems [4].

Cigarette smoking is precisely the main cause of the development of chronic bronchitis and emphysema. The rate of incidence and death from chronic bronchitis and pulmonary emphysema in kashandas is directly related to the duration and intensity of smoking. Pulmonary emphysema has been reported to occur 12.9 times more often in kashans than in non-smokers, while in 82% of cases of chronic bronchitis, smoking is the chief etiological factor. Depending on the degree of exposure to tobacco smoke, smoking men find 4-25 times more deaths than non-smoking men from infections of the upper respiratory organs.

In smokers, deviations from norm are more common in functional lung tests than non-smokers, including lung tissue elasticity test, permeability of large and fine air-carrying pathways, and diffusion capacity. Weakly expressed obstruction of the small respiratory tract is even noted in smoking adolescents. Studies of the pathogenesis of pulmonary emphysema suggest that smoking leads to an increase in the amount of proteases capable of damaging lung tissue in the lungs. This injury is most likely due to the separation of elastases from pulmonary leukocytes, which have increased amounts, as well as the inactivation of pulmonary antiproteases with oxidants, which are part of tobacco smoke. Tobacco smoking leads to an increase in the frequency of the development of respiratory infection diseases, as well as an increase in the frequency of deaths of kashans from pneumonia and influenza. Chronic laryngitis and tracheobronchitis develop more in them than in non-smokers [3,4,5].

Cigarette smoking can be considered the cause of the development of cancer in the hoarseness, mouth and esophagus. According to foreign scientists, tobacco smokers have a relative risk of developing cancer in the esophagus 2.1 times higher than non-smokers, and when smoking is combined with alcohol consumption, this risk increases 8.1 times. It is known that alcohol consumption has a synergistic effect with smoking, increasing the risk of developing oncological diseases.

In the process of smoking, the organs and tissues of the oral cavity undergo excitatory, thermal, toxic and carcinogenic effects. The intensity of the effect is determined by many factors, including the individual morphological and functional characteristics of the oral mucosa, the duration of smoking, as well as the intensity. The physical and chemical wound that tobacco smoke delivers depends on the type and quality of tobacco, its growth (use of mineral fertilizers, pesticides) and drying conditions. Temperature indicators are of great importance in the mechanism of traumatic action on the tissues of the oral cavityx[3,8].

Smokers are 22 times more susceptible to lung cancer during their lifetime than non-smokers. Tobacco smoking is a major cause of lung cancer, causing more than two-thirds of worldwide lung cancer deaths each year and causing about 1.2 million deaths. Non-smokers also do not lose the chance of developing lung cancer if they are exposed to passive smoker smoke at home or at work every fifth tobacco smoker develops chronic obstructive pulmonary disease throughout their lives, especially those who start smoking in childhood or adolescence, since tobacco smoke significantly slows down the growth and development of the lungs[4,7].

Smoking leads to inflammation and disruption of the walls of air bags called alveoli and disrupts the lung's ability to breathe oxygen and release carbon dioxide. It also leads to the accumulation of purulent mucus, which causes a painful cough and difficult breathing [1,6,8].

However, the long-term effects of using e-cigarettes and HQD have not yet been studied, as it is a new product on the market. It can be assumed that, like smoking regular cigarettes, smoking vapes can cause stroke, coronary artery disease, chronic bronchitis, emphysema and lung cancer, pneumonia, heartburn, ulcers, stomach and pancreatic cancer, impaired potency, decreased reproductive function, miscarriages, infertility, neoplasms in the uterus and ovaries, osteoporosis, atherosclerosis, arthritis and arthrosis [5].

**Results.** In the main group, innovative therapy showed:1.Reduction of the palate lesion area by 45% after 3 months of treatment 2.Improved immune status (increased IgA levels by 25%)3.Reduction of symptoms of inflammation and discomfort in 85% of patients.470% of participants stopped vaping, which reduced the risk of relapse.5In the control group, the improvements were less pronounced (-20% reduction in the affected area, -40% rejection of vaping).Discussion of the results. The first sign is increased salivation and dry mouth, which is a reaction to heavy metals. Often, "vapers" complain of headaches, dizziness, memory loss, decreased concentration, emotional and other disorders – irritability, aggression, depression, nausea, diarrhea, abdominal pain. The use of vapes significantly increases the risk of heart attacks, strokes, and cancer [4].

The results indicate that nicotine leukoceratosis caused by electronic cigarettes has specific pathogenetic features associated with the influence of chemical components of steam and local immunodeficiency. A comparative analysis showed a high incidence in the United States and Russia, which correlates with the popularity of vaping in these regions.Innovative therapeutic and preventive strategies, including complex effects on inflammation and immunity, as well as active work to stop vaping, are much more effective than traditional therapy. This is confirmed by statistically significant improvements in the clinical picture and a reduction in the risk of disease progression.Further research is needed to improve early diagnosis and therapy, as well as the development of international treatment standards.

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