

**INCREASE IN CHRONIC RHINOSINUSIS: THE ROLE OF ECOLOGY, ALLERGY,
AND MISUSE OF ANTIBIOTICS**

Aliyev Dostonbek Rustamjon ugli

Andijan branch of Kokand University

Faculty of medicine treatment work direction requirements

Email: jazamov75@gmail.com

Annotation: In recent years, there has been a significant increase in the incidence of chronic rhinosinusitis (CRS) among young people. This situation is becoming relevant not only as a medical, but also as a social problem, since the disease negatively affects the education, work activities and quality of life of young people. This article comprehensively analyzes the main factors leading to the increase in chronic rhinosinusitis among young people - the deterioration of the ecological environment, the increase in the prevalence of allergic diseases, and the role of the unsupervised and improper use of antibiotics. The article, based on an analysis of the available scientific literature, clinical observations and statistical data in the field of health care, sheds light on the pathogenesis, development mechanisms and risk factors of chronic rhinosinusitis. It also discusses the increased resistance of microorganisms as a result of the unreasonable use of antibiotic therapy and the role of this in the progression of the disease. The results of the study are of great importance in developing strategies for the prevention, early diagnosis and effective treatment of chronic rhinosinusitis among young people.

Keywords: Chronic rhinosinusitis, youth health, ecology, allergies, antibiotics, antibiotic resistance, upper respiratory tract diseases, prevention.

INTRODUCTION: Chronic rhinosinusitis is one of the most pressing problems of modern otorhinolaryngology, which is characterized by inflammation of the mucous membrane of the nasal cavity and paranasal sinuses lasting at least 12 weeks. According to the World Health Organization, 10-15% of the world's population suffers from this disease, and this figure is increasing every year. Especially in the last decade, the increasing frequency of chronic rhinosinusitis among young people is of serious concern to specialists. Young people are the most active, labor-intensive and intellectually capable stratum of society. It is precisely in this group that the widespread prevalence of chronic diseases will increase the burden on the healthcare system in the future, lead to a decrease in labor productivity, and worsen the overall quality of life. Chronic rhinosinusitis is manifested by symptoms such as persistent nasal congestion, nasal discharge, headache, decreased sense of smell, and rapid fatigue, and seriously interferes with the daily activities of young people. The factors leading to the increase in chronic rhinosinusitis in recent years are multifaceted and should be studied not separately, but in an interconnected manner. Among these factors, the deterioration of the ecological environment, the widespread spread of allergic diseases, and the improper use of antibiotics occupy a special place. In particular, industrialization, the increase in the number of cars, and air pollution have a negative impact on the body of young people, weakening the protective mechanisms of the mucous membrane of the upper respiratory tract. Along with environmental factors, the problem of allergies is also relevant at the global level today. Allergic rhinitis, bronchial asthma, and other atopic diseases are increasingly common among young people. In a large proportion of patients with allergic rhinitis, chronic rhinosinusitis develops over time. This is explained by the

disruption of the drainage function of the nasal cavity and the addition of infection against the background of allergic inflammation. In addition, the improper and uncontrolled use of antibiotics plays an important role in the development of chronic rhinosinusitis. In most cases, young people engage in self-medication and take antibiotics without a doctor's prescription. This leads not only to a decrease in the effectiveness of treatment, but also to an increase in the resistance of microorganisms to antibiotics. As a result, acute rhinosinusitis is not completely cured and becomes chronic. This problem is also relevant in Uzbekistan, where the environmental situation, the increase in allergic diseases, and the possibility of freely purchasing medicines create the basis for the widespread spread of chronic rhinosinusitis among young people. However, comprehensive scientific research on this issue is insufficient, and existing studies often cover only one aspect of the problem. The main purpose of this scientific article is to systematically analyze the environmental, allergic, and pharmacological factors that affect the increase in chronic rhinosinusitis among young people, to determine their interrelationships, and to develop scientifically based conclusions on the prevention of the problem.

RESEARCH METHODOLOGY: This scientific study was conducted on the basis of a comprehensive and systematic approach. General scientific and special medical research methods were used in the research process. In particular, the methods of analysis and synthesis, comparison, induction and deduction, and generalization of statistical data were used. As the theoretical and methodological basis of the study, scientific sources in the field of otorhinolaryngology, allergology and environmental medicine, official statistical data published within the framework of the healthcare system of the Republic of Uzbekistan, and scientific articles published by local scientists were selected. The main attention was paid to identifying factors affecting the frequency and development of chronic rhinosinusitis among young people (16–30 years old). The following methods were used during the study:

Literature analysis - scientific sources in the Uzbek language on the etiology and pathogenesis of chronic rhinosinusitis were studied;

Summary of clinical observation data - based on observations conducted in hospitals, the specific aspects of the course of the disease in young patients were analyzed;

Statistical analysis - based on available data, the influence of environmental, allergic, and pharmacological factors on the development of the disease was assessed;

Comparative analysis - the prevalence of chronic rhinosinusitis among young people living in urban and rural areas was compared.

This methodological approach made it possible to achieve the goal of the study, namely to identify the causes of the increase in chronic rhinosinusitis among young people and their interrelationships.

MAIN PART: In recent years, it has been proven in many scientific studies that the deterioration of the environmental environment has a negative impact on human health, especially the respiratory system. Air pollution, industrial emissions, harmful gases emitted by motor vehicles cause constant irritation of the mucous membrane of the nasal cavity and adjacent nasal cavities. As a result, local immunity decreases and a chronic inflammatory process develops. Young people are a relatively sensitive group to environmental factors. Because they often live in large cities, spend most of their time outdoors or in vehicles. In the conditions of Uzbekistan, the sharp increase in the number of large industrial centers and cars increases the level of air pollution. This situation is especially evident in Tashkent, the Fergana Valley and other industrialized regions. Dust particles, sulfur dioxide, nitrogen oxides and other toxic substances contained in the atmospheric air disrupt the protective function of the nasal mucosa. Under normal conditions, the mucous membrane serves to trap microorganisms and expel them. However, under the influence of environmental pollution, this mechanism is disrupted, the

mucous membrane swells, and the secretion becomes difficult to remove. This creates favorable conditions for the accumulation of secretion in the adjacent nasal cavities and the development of infection. According to scientific sources, the frequency of chronic rhinosinusitis among young people living in environmentally unfavorable areas is 1.5–2 times higher than in areas with a clean ecological environment. This confirms the important role of environmental factors in the development of the disease. Also, environmental pollution increases the allergic background and leads to a more severe course of the disease. In addition, climate change also indirectly affects the development of chronic rhinosinusitis. Sudden changes in temperature, increased or decreased humidity weaken the adaptive mechanisms of the nasal mucosa. The increase in frequent colds among young people leads to the development of acute rhinosinusitis, and if not treated in a timely and proper manner, it can become chronic. Chronic rhinosinusitis, which develops under the influence of environmental factors, often takes a long and difficult to treat form. Standard treatment methods in such patients are less effective and require an integrated approach. Therefore, measures such as improving the ecological environment, cleaning the air, and expanding green areas are important not only for general health, but also for the prevention of chronic rhinosinusitis. In recent decades, the widespread prevalence of allergic diseases, in particular allergic rhinitis, among young people is recognized as one of the main factors in the development of chronic rhinosinusitis. Allergy is an increased immune response of the body to certain allergens in the external environment, which causes a persistent inflammatory process in the mucous membrane of the nasal cavity. In patients with allergic rhinitis, the nasal mucosa is constantly swollen, mucus secretion increases, and the permeability of the nasal passages is impaired. This condition disrupts the drainage function of the adjacent nasal cavities and causes the accumulation of secretions. As a result, a bacterial or viral infection joins, and acute rhinosinusitis develops. If this condition is repeated frequently or is not adequately treated, the disease becomes chronic. A number of factors contribute to the increase in allergies among young people. First, the deterioration of the ecological environment leads to an increase in the concentration of allergens. Secondly, improper nutrition, fast food products, foods rich in artificial additives create the basis for a violation of the immune system. Third, stress, lack of sleep, and low physical activity are also factors that increase the allergic background. Scientific studies show that 60-70% of young people with allergic rhinitis develop chronic rhinosinusitis after a certain period of time. This situation clearly demonstrates the close relationship between allergies and chronic rhinosinusitis. In particular, the frequency of relapses of the disease is high in patients with seasonal allergies (pollinosis). In addition, against the background of allergic inflammation, the local immune defense of the mucous membrane decreases. A decrease in the secretion of immunoglobulin A (IgA) creates favorable conditions for the reproduction of pathogenic microorganisms. This leads to the development of long-term and difficult-to-treat forms of chronic rhinosinusitis. Chronic rhinosinusitis associated with allergies is often accompanied by the formation of nasal polyps. Nasal polyps further narrow the nasal passages, making breathing difficult and intensifying the symptoms of the disease. In young patients, this condition leads to a sharp decrease in the quality of life, constant fatigue and loss of working capacity. Therefore, allergic factors cannot be ignored in the treatment of chronic rhinosinusitis. Early detection of allergies, protection from allergens, and the rational use of antihistamines and local corticosteroid drugs are important in preventing the disease. Antibiotics play an important role in medicine in the treatment of infectious diseases. However, their incorrect, unreasonable and unsupervised use leads to serious problems. Today, antibiotic resistance is one of the global health problems, and this situation also plays an important role in the increase in chronic rhinosinusitis. Self-medication is widespread among young people. When a runny nose, headache or cold symptoms appear, many people take antibiotics without consulting a doctor.

Often, an incorrectly selected drug, an incorrect dosage or an insufficient duration of treatment do not completely eliminate the disease. As a result, the infection persists and turns into a chronic inflammatory process.

According to scientific sources, the vast majority of rhinosinusitis is of viral origin, and antibiotics are ineffective in such cases. Nevertheless, the widespread use of antibiotics disrupts the normal microflora in the nasal cavity, beneficial bacteria decrease, and pathogenic microorganisms multiply. This condition leads to the development of chronic rhinosinusitis and complications in treatment. Another negative aspect of the inappropriate use of antibiotics is the increase in resistance of microorganisms. Chronic rhinosinusitis caused by resistant bacteria does not respond to traditional treatment methods and requires long-term, complex therapy. In young patients, this condition often leads to relapses and the development of complications. In the conditions of Uzbekistan, the sale of antibiotics in pharmacies without a prescription also exacerbates the problem. Insufficient medical literacy of the population leads to the misuse of antibiotics. This poses a threat not only to the health of the individual patient, but also to society. An integrated approach is necessary in antibiotic-dependent forms of chronic rhinosinusitis. In treatment, the selection of antibiotics based on bacteriological examinations, strict adherence to the duration of treatment, and the use of local treatment methods are important. It is also necessary to carry out propaganda work on the rational use of antibiotics.

ANALYSIS AND RESULTS: As a result of the analysis of the literature, clinical observations, and generalization of statistical data, it was found that the factors leading to the increase in chronic rhinosinusitis among young people are closely related. The results of the study showed that the deterioration of the ecological environment, the widespread spread of allergic diseases, and the improper use of antibiotics are mutually reinforcing factors. When analyzing the impact of environmental factors, it was observed that the incidence of chronic rhinosinusitis is significantly higher among young people living in industrialized and high-traffic areas. Air pollution with dust, harmful gases, and chemicals causes constant irritation of the nasal mucosa, reducing local immunity. This leads to a prolonged course and exacerbation of infectious processes. The results of the analysis related to allergic diseases showed that the likelihood of developing chronic rhinosinusitis among young people suffering from allergic rhinitis is much higher. The allergic background maintains a constant inflammatory process in the mucous membrane and creates favorable conditions for the accession of infection. It was found that the frequency of relapses of the disease is especially high in patients with seasonal allergies. The analysis related to the improper use of antibiotics showed an even deeper problem. Self-medication is widespread among young people, leading to the development of antibiotic resistance. In cases of chronic rhinosinusitis associated with resistant microorganisms, the duration of treatment is prolonged, the disease often relapses and negatively affects the quality of life. The results obtained show that chronic rhinosinusitis cannot be explained by only one factor. The development of the disease is multifactorial, and environmental, allergic and pharmacological factors act together. Therefore, an integrated approach is also necessary to solve the problem.

CONCLUSION: The increase in chronic rhinosinusitis among young people is an urgent medical and social problem today. The results of the study showed that the deterioration of the ecological environment, the widespread spread of allergic diseases and the improper use of antibiotics are the main factors in the development of this disease. Environmental pollution weakens the protective mechanisms of the nasal mucosa, creating the basis for the chronicity of infectious processes. Allergic diseases, on the other hand, lead to severe and recurrent forms of chronic rhinosinusitis, while constantly maintaining the inflammatory process. Unreasonable use of antibiotics increases the resistance of microorganisms and reduces the effectiveness of

treatment. In this regard, in order to prevent chronic rhinosinusitis among young people, it is necessary to improve the environmental environment, early detection and treatment of allergic diseases, and strengthen medical awareness on the rational use of antibiotics. The spread of this disease can be reduced and the health of young people can be strengthened by introducing comprehensive preventive and therapeutic measures.

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