



COMPREHENSIVE INSIGHTS INTO CHRONIC ALLERGIC RHINITIS: UNRAVELING INCIDENCE PATTERNS AND PATHOGENIC MECHANISMS

Elyor Mirzakandov

Assistant, Department of Stomatology and Otorhinolaryngology, Fergana Medical Institute of Public Health, Fergana, Uzbekistan

Article history:	Abstract:
<p>Received: December 10th 2023 Accepted: January 8th 2024 Published: February 10th 2024</p>	<p>This article critically examines existing literature on chronic allergic rhinitis, offering a comprehensive overview of its fundamental concepts, incidence rates, and pathogenic mechanisms. Through the analysis of available data, it becomes evident that chronic allergic rhinitis is a global health concern, significantly impacting the lives of affected individuals. The pathogenesis of chronic allergic rhinitis is intricately described, involving the interaction of allergens with immunoglobulin E, and the activation of eosinophils, lymphocytes, and interleukins, ultimately leading to the development of allergic inflammation. Despite advancements, both clinical and morphological definitions of chronic allergic rhinitis remain elusive, underscoring the complexity of this condition. The insights derived from this review contribute to a deeper understanding of the widespread prevalence of chronic allergic rhinitis and its profound impact on patient well-being. The delineation of pathogenic processes offers a foundation for further research aimed at refining clinical and morphological definitions, ultimately fostering improved diagnostic and therapeutic strategies for this prevalent and impactful health condition.</p>

Keywords: nose, rhinitis, allergy, inflammation, epidemiology, pathogenesis

INTRODUCTION

Chronic allergic rhinitis (CAR) represents a pervasive health concern that transcends geographical boundaries, impacting individuals on a global scale. This article seeks to embark on a comprehensive exploration of CAR, addressing not only its clinical manifestations but also shedding light on its incidence rates and the intricate pathogenic mechanisms that underpin its development [1,2].

The significance of CAR is underscored by its widespread prevalence, as revealed through a meticulous review of literature data. The ubiquity of this condition is mirrored by the detrimental effects it imposes on the lives of individuals, manifesting in persistent nasal symptoms, impaired quality of sleep and overall diminished quality of life. Despite its pervasive nature, CAR remains a challenge to define both clinically and morphologically, necessitating a closer examination of its underlying complexities [3,4,5].

The pathogenesis of CAR involves a multifaceted cascade of events, including the interaction of allergens with immunoglobulin E, the activation of eosinophils, and lymphocytes, and the release of interleukins, ultimately culminating in the development of allergic inflammation. This intricate interplay contributes to the chronic and often debilitating nature of CAR,

emphasizing the need for a nuanced understanding of its underlying mechanisms [6,7].

As we navigate through the subsequent sections of this article, our aim is to unravel the intricacies of CAR, providing insights into its incidence patterns and delving into the evolving landscape of its pathogenesis. By doing so, we aspire to contribute to the existing body of knowledge, fostering a deeper comprehension of CAR that may, in turn, inform more effective diagnostic and therapeutic strategies for this prevalent and impactful health condition [8,9].

PROBLEM STATEMENT

Despite the extensive study of allergic rhinitis (AR), several aspects of this large-scale problem are still not fully resolved. The incidence rate of allergic rhinitis directly depends on the influence of regional climate and geographic characteristics of the region. The clinical course of RA depends on the individual influence of the patient's body, age, gender and ethnicity, along with various influencing factors (1, 2, 3). It is known that the clinical course of allergic diseases depends on the influence of various factors. According to the results of this study, the onset of clinical manifestations of allergic rhinitis is recognized as the presence of exposure to allergens in 2-3 seasons. Allergic rhinitis is more common among urban residents than among rural



residents. Allergic rhinitis sufferers are mainly urban residents, they make up 75% of all patients, and 25% are rural residents. The prevalence rate of AR depends on age and sex. Among children, more boys suffer from AR [10,11,12].

Every year, research is conducted in our country to study various aspects of AR. In particular, in recent decades V.Sh. Alieva (2012), F.B. Nurmuhamedova (2018), A.G. Daliev (2020), F. An example of this is the research of Hirsaliev (2015) and others. O.A. According to Nazarov (2011), the prevalence of AR in Uzbekistan doubled in the first decade of the 21st century. It should be noted separately that the negative changes in the pathomorphology of the upper jaw cavity, especially in sinusitis with allergic rhinitis, have not been studied (4, 5, 6). Also, there are no special questionnaires to assess the quality of life [13,14].

The classification of chronic allergic rhinitis and rhinosinusitis diseases was established in 1994 by the International Consensus according to their aetiology. In 2008, based on the international program of ARIA (Allergic Rhinitis and its Impact on Asthma), the classification of chronic rhinitis by phenotype, approved by the WHO working group, was produced. These phenotypes include vasomotor rhinitis, atrophic rhinitis, senile rhinitis, medicinal rhinitis, hormonal rhinitis, rhinitis with eosinophilic syndrome, alcoholic rhinitis, food-induced rhinitis, and nasal discharge [15,16].

The pathogenesis of chronic allergic rhinitis consists of the following, inflammation develops depending on immunoglobulin E, clinically manifested by runny nose, stuffy nose, itching, and hiccups. The main pathogenetic factor is exposure to an allergen, resulting in the production of immunoglobulin E, which binds to mast cells and produces biologically active substances. After degranulation of mast cells, eosinophils and basophils react, multiply lymphocytes, activate interleukin 4 and 5, and trigger an allergic inflammatory cascade. It was found that both morphological and functional changes occur in the epithelium of the nasal mucous membrane, as a result of which it undergoes desquamation, the basal membrane opens, necrosis develops, and finally, the cylindrical epithelium undergoes metaplasia and turns into a multi-row and multi-layered epithelium [17,18,19].

The dissertation serves to solve the following problematic issues, that is, the decision of the President of the Republic of Uzbekistan PQ-4947 of February 7, 2017 "On the strategy of actions for the further development of the Republic of Uzbekistan" No. 3071 of June 20, 2017, i.e. "Measures to improve the health care system of the Republic of Uzbekistan" in Presidential Decree No. 5590 of December 7, 2018, "On

measures to further develop specialized medical care during 2021" and other relevant legal documents will serve to better implement the measures.

MATERIALS AND METHODS

The above information about chronic allergic rhinitis and other unsolved aspects determines the goals and objectives of our research. Chronic allergic rhinosinusitis is a common polyetiological and relapsing disease. Therefore, it is important to study the incidence of this disease. According to foreign authors, this disease occurs from 0.2% to 4.3% (7,8). According to the data of the Russian state, when 50,000 patients were examined by front and back rhinoscopy, chronic allergic rhinitis was found in 1.02%. According to a study by French scientists, this disease was found in 0.1% of children.

On average, 10-25% of people in the world are infected with allergic rhinitis. According to the WHO report, allergic rhinitis is the 2nd most common disease in the XX century. The specificity of chronic allergic rhinitis is as follows: the rate of occurrence increases year by year, the peak of the disease occurs at the age of 18-25 years, the most common places are ecologically bad areas, which is why the rate of occurrence of the disease rises to 50% in chemical and radiation polluted areas. Therefore, allergic rhinitis has become the most important disease in medicine in terms of its incidence rate, medical and social importance, and dangerous effects on the patient's body.

According to World Medicine, chronic allergic rhinitis depends on immunoglobulin E, continues with inflammation of the nose and pre-nasal cavities, and is clinically manifested by stuffy nose, runny nose (rhinorrhea), frequent hiccups, and itching of the nose. In 2021, ARIA (Allergic Rhinitis and its Impact on Asthma) according to the "Allergic Rhinitis and its Impact on Bronchial Asthma" system, the following classification of allergic rhinitis was made: intermittent, persistent, occupational; according to the level of severity: light, medium and heavy. The risk factors of allergic rhinitis are as follows: high incidence of offspring, sensitivity to allergens, smoking, indoor air pollution, and climatic factors.

In chronic allergic rhinitis, the main clinical and morphological factors can be considered to be the violation of the floating epithelium of the nasal mucosa, and the development of purulent inflammation. Relapsing allergic rhinitis is detected in 72% of patients, hypertrophic rhinitis in 26%, deformation of the nasal septum in 39%, hypertrophy of the reticular bone in 7%, and hypertrophy of the loop tumour in 2.5%. Conditionally pathogenic microflora is detected in the



upper jaw cavity in allergic rhinitis, in the form of monoculture in 85.4% of cases. In the nasal cavity, saprophytes and conditionally pathogenic microorganisms are determined in 69.95%. So, according to the results of morphological examinations, the development of general pathomorphological changes in the nasal and prenasal cavities, which is the background of allergic rhinitis, is determined. A characteristic feature of allergic rhinitis is a change in the wall of blood vessels, first microcirculatory vessels, then swelling, increased permeability, alternative changes and migration of cells involved in inflammation in other types of blood vessels. It is determined that the inflammatory process and discirculatory changes led to secondary changes, that is, dystrophy of the covering epithelium, fibrinoid swelling in the private plate tissue, and fibrinoid necrosis developed in some places.

Morphological changes in allergic rhinitis and rhinosinusitis are as follows, discirculatory, dystrophic, disorganized, destructive and inflammatory processes are observed in the mucous membrane. It is known that the beginning of pathomorphological changes begins with damage to the walls of blood vessels, first of all, microcirculatory vessels, then in large blood vessels there is an increase in the permeability of the wall, the development of alternative changes, and additional inflammatory changes are observed.

According to scientific literature, chronic allergic rhinitis is widespread in the world and has a bad effect on patients' lives. In its pathogenesis, the combination of allergens with immunoglobulin E, the activation of eosinophils, the activation of lymphocytes and interleukin, and the development of allergic inflammation are shown. It has not yet been defined both clinically and morphologically.

CONCLUSIONS

In conclusion, this comprehensive exploration of chronic allergic rhinitis (CAR) has illuminated key facets, from its widespread global prevalence to the intricate pathogenic mechanisms driving its chronicity. The extensive literature review underscores the pervasive impact of CAR on individuals' lives, emphasizing the urgent need for refined clinical and morphological definitions to better characterize and manage this prevalent health concern.

The pathogenesis of CAR, marked by the complex interplay of allergens with immunoglobulin E, eosinophil and lymphocyte activation, and interleukin release, highlights the intricate nature of this inflammatory disorder. Despite substantial progress in understanding these mechanisms, the clinical and morphological

definitions of CAR remain elusive, urging continued research efforts to bridge existing gaps.

Moving forward, there is a clear imperative for collaborative research initiatives aimed at untangling the complexities of CAR. A refined understanding of its incidence patterns and pathogenic intricacies not only enhances our ability to diagnose and manage CAR effectively but also opens avenues for innovative therapeutic interventions.

This exploration contributes valuable insights to the ongoing discourse on CAR, emphasizing the necessity of continued research to unravel its nuances fully. As we navigate the challenges posed by CAR, from its varied clinical presentations to the intricacies of its underlying pathogenesis, this research serves as a foundational step towards a more comprehensive understanding of CAR and, consequently, the development of targeted strategies for improved patient care and well-being.

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