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PREVALENCE, CLASSIFICATION, MORPHOLOGY AND FEATURES OF ETIOPATHOGENESIS OF VASOMOTOR RHINITIS

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***Resume**: Vasomotor Rhinitis (rhinitis, from the Greek rhinos - nose, suffix -itis, denotes inflammation) is an inflammatory disease of the mucous membrane of the nasal cavity, accompanied by difficulty in nasal breathing and nasal discharge. The concepts of "vasomotor rhinitis", "non-infectious year-round nonallergic rhinitis" (perennial nonallergic rhinitis - PNAR), "idiopathic rhinitis", "neurovegetative form of vasomotor rhinitis" are synonymous and include a group of diseases similar in pathogenesis and clinical manifestations that can be caused by different causes*

***Key words:** Vasomotor rhinitis, paranasal sinuses, paroxysmal sneezing, rhinorrhea, difficulty in nasal breathing.*

РАСПРОСТРАНЕННОСТЬ, КЛАССИФИКАЦИЯ, МОРФОЛОГИЯ И ОСОБЕННОСТИ ЭТИОПАТОГЕНЕЗА ВАЗОМОТОРНОГО РИНИТА

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***Резюме:** Вазомоторный ринит (от греческого rhinos - нос, суффикс -itis - воспаление) - это воспалительное заболевание слизистой оболочки полости носа, сопровождающееся затруднением носового дыхания и выделениями из носа. Понятия "вазомоторный ринит", "неинфекционный круглогодичный неаллергический ринит" (perennial nonallergic rhinitis - PNAR), "идиопатический ринит", "нейровегетативная форма вазомоторного ринита" являются синонимами и включают группу заболеваний, сходных по патогенезу и клиническим проявлениям, которые могут быть вызваны различными причинами.*

***Ключевые слова:** вазомоторный ринит, придаточные пазухи носа, приступообразное чихание, ринорея, затрудненное носовое дыхание.*

ВАЗОМОТОР РИНИТНИНГ ТАРҚАЛИШИ, ТАСНИФИ, МОРФОЛОГИЯСИ ВА ЭТИОПАТОГЕНЕЗИНИНГ ХУСУСИЯТЛАРИ

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***Резюме:** Вазомотор ринит (юнонча rinos - бурун, itis- яллиғланиш) - бурун шиллиқ қаватининг яллиғланиш касаллиги бўлиб, бурун орқали нафас олишнинг қийинлиги ва бурун оқиши билан бирга келади. "Вазомотор ринит", "юқумли бўлмаган аллергик ринит" (кўп йиллик ноналлергик ринит-ПНАР), "идиопатик ринит", "вазомотор ринитнинг нейровегетатив шакли" тушунчалари синоним бўлиб, патогенези ва турли сабабларга кўра келиб чиқиши мумкин бўлган клиник кўринишларига ўхшаш касалликлар гуруҳини ўз ичига олади.*

***Калит сўзлар:** вазомотор ринит, паранасал синуслар, пароксисмал аксириш, ринорея, бурундан нафас олиш қийинлишуви.*

Studies have found that 10-20% of the world's population suffers from chronic forms of rhinitis, and in various studies, 40% of respondents noted symptoms of rhinitis. Among the chronic forms of rhinitis, vasomotor rhinitis occupies a large place along with allergic, infectious, hypertrophic, catarrhal and atrophic rhinitis [2,3].

Rhinitis (rhinitis, from the Greek rhinos - nose, suffix -itis, denotes inflammation) is an inflammatory disease of the mucous membrane of the nasal cavity, accompanied by difficulty in nasal breathing and nasal discharge. The concepts of "vasomotor rhinitis", "non-infectious year-round nonallergic rhinitis" (perennial nonallergic rhinitis - PNAR), "idiopathic rhinitis", "neurovegetative form of vasomotor rhinitis" are synonymous and include a group of diseases similar in pathogenesis and clinical manifestations that can be caused by different causes [2,4,5].

Vasomotor rhinitis is a common disease and in recent years the number of patients with this pathology has been continuously increasing [12]. The deterioration of the environmental situation, environmental pollution, uncontrolled use of medicines, a decrease in the body's defenses - all this caused an increase in the prevalence of vasomotor rhinitis.

This disease is characterized by a pathological condition of the nasal mucosa of a non-inflammatory nature, which is based on a violation of nervous mechanisms that causes a normal physiological state, as a result of which stimuli of exogenous and endogenous origin cause a hyperergic reaction. Vasomotor rhinitis is characterized by the following symptoms: paroxysmal sneezing, rhinorrhea, difficulty in nasal breathing [8]. In vasomotor rhinitis, nasal syndrome caused by dilation of nasal conch vessels and/or nasal hyperreactivity develops under the influence of nonspecific exogenous or endogenous factors, but not as a result of an immunological reaction and is not associated with infection or eosinophilia [5,7].

Many researchers emphasize that vasomotor rhinitis is a widespread disease. Every third person on the planet suffers from this pathology, and in recent decades there has been an increase in the proportion of vasomotor rhinitis in the structure of diseases of the mucous membrane of the nasal cavity and paranasal sinuses [10,11].

The term "vasomotor rhinitis" has been criticized in recent years because a violation of vasomotor innervation, which underlies the pathogenesis of vasomotor rhinitis, occurs in all forms of rhinitis except atrophic. Currently, there is no generally accepted definition and classification of the disease. Moreover, the very existence of this form of rhinitis is questioned in the latest versions of international recommendation documents [12,14]. Foreign researchers classify vasomotor rhinitis as a form of non-allergic rhinitis (idiopathic rhinitis), in their opinion, vasomotor symptoms are inherent in all forms of rhinitis. In many countries (Russia, Ukraine and others), vasomotor rhinitis retains the status of an independent nosological disease [14].

Studies conducted in different populations of a number of countries have shown that over the past 10 years, the incidence rate of this pathology has increased by an av-

erage of 11%, and currently its incidence among the population of certain regions has increased to 16%, even to 50%. There are 19 million patients with vasomotor rhinitis in the United States alone, and another 26 million. they suffer from mixed forms, in which allergies are not the only cause of the disease. The cost of treating this disease in the United States amounts to 2-3 billion dollars annually [14,15].

In the Russian Federation, this pathology affects from 10% to 20% of the population in various regions, and the tendency to increase the number of patients with vasomotor rhinitis persists. The prevalence of this pathology among children is 3.6 per 100 people [16].

According to Gadzhimirzaev G.A. et al. [2004] currently, vasomotor rhinitis in the structure of chronic rhinitis is 21%, and its frequency is increasing mainly among the most able-bodied people of young and mature age [15,16].

In ICD-10, vasomotor rhinitis and allergic rhinitis are included in the same group (J30), followed by the isolation of vasomotor rhinitis into a separate subgroup (J30.0): J30.0 Vasomotor rhinitis; J30.1 Allergic rhinitis caused by plant pollen - allergy without additional clarifications caused by plant pollen, hay fever, pollinosis; J30.2 Other seasonal allergic rhinitis; J30.3 Other allergic rhinitis - year-round allergic rhinitis; J30.4 Allergic rhinitis, unspecified [ICD-10, 2007].

The following forms of vasomotor rhinitis are distinguished: caused by physical, chemical and toxic factors; psychogenic (the development of vascular imbalance is associated with the lability of the autonomic nervous system); idiopathic (it is not possible to identify the cause of rhinitis); mixed forms [17,18].

The ciliated epithelium, which filters, cleanses, and moisturizes the air, is of leading importance in maintaining the homeostasis of the respiratory organs. The ciliated epithelium of the nasal cavity provides mucociliary clearance, which is recognized as the first barrier to the penetration of infectious agents, mechanical and chemical substances. It is known that in order to ensure normal functioning, about 17,000 liters of air must pass through the respiratory tract and lungs per day, sometimes not clean and fresh enough. The nasal cavity, being the first filtration barrier for inhaled air containing chemicals formed during production or used in everyday life, serves as a kind of target for them [18].

Anatomical and clinical and functional studies of the condition of the nasal mucosa in normal and in some forms of pathology have revealed an intensive level of microcirculation and high hemodynamic load of the vascular bed, the presence of a regulatory apparatus with a wide mediator profile, the complexity and variability of the mucociliary apparatus of endonasal structures, indicating the subtle adaptability of the nasal cavity to respiratory conditions in the modern environment [15,17,19].

In newborns and infants, 2-3 rows of epithelial cells with rounded nuclei were present in the intermediate layer of the nasal mucosa. In periods 1 and 2 of childhood, the number of rows of cells of the intermediate layer does not change, but polymorphism of

nuclear forms is traced. In the adolescent and adolescent periods of ontogenesis, the rows of cells increase to 4-5 [17,19].

The capillary network of the nasal mucosa provides a higher level of microcirculation than in the muscles, brain and liver. The presence of closure arteries, intimate valve-sphincter-like structures in venous vessels ensures the adaptation of the nasal cavity to respiratory conditions. When external conditions change, the adaptive reactions of the vascular system are expressed in changes in color, thickness of the mucous membrane, lumen of the nasal passages, depending mainly on the volume and speed of blood flow. Therefore, assessing the state of microcirculation in the mucous membrane of the nasal cavity, it is possible to assess its functional state [19,20].

Microcirculation of the nasal mucosa is important in maintaining tissue homeostasis, tissue water balance and local temperature. One of the complex adaptive reactions of the vascular system is the formation of closure arteries, which regulate peripheral blood circulation, have vasomotor activity and sensitivity to temperature, mechanical and chemical agents. The vascular reaction is one of the early changes that occur in response to damage, and occupies a significant place in the pathogenesis of diseases of the nasal cavity [20].

The morphological organization of the nasal mucosa in the early age periods of postnatal development determines the functional features of the mucociliary apparatus, glandular complexes and endonasal blood flow. In the early age periods of postnatal ontogenesis in some forms of pathology of the nasal cavity (hypertrophic rhinitis, vasomotor rhinopathy, atrophic rhinitis) Specific compensatory and adaptive changes in the functional state of the mucous membrane and its vascular bed were identified, requiring pathogenetic correction [20,21,22].

Compensatory and adaptive changes in the structures of the nasal mucosa and its changes in chronic hypertrophic and vasomotor rhinitis are most specifically manifested in shifts in morphometric parameters, restructuring of the circulatory microvascular bed [22,23].

Of particular interest are the features of the occurrence and clinic of vasomotor rhinitis in pregnant women, which is a common pathology and is associated with a change in the hormonal status of pregnant women, develops in 5-32% of pregnant women. The authors conducted studies in Tashkent in 2015-2016 and found that the main clinical symptoms of vasomotor rhinitis in pregnant women are nasal congestion and paroxysmal sneezing (77.5%), the use of aromatherapy with harmola and basil has a beneficial effect on the course of the disease and gives a clinical effect in up to 95% of cases [15,20].

The incidence of rhinitis symptoms in pregnant women was 52%. Infectious (32%) and allergic (24%) forms of rhinitis were often noted, in addition, a combination of several forms of rhinitis was characteristic of the pregnancy period (25%). The authors emphasize that the distinctive features of rhinitis in pregnant women are the pre-

dominance of the edematous component, an increase in the severity of rhinitis with the development of pregnancy, the lack of effect from decongestants, and a rapid return of symptoms after the withdrawal of topical corticosteroids. A safe and effective drug Tafen-nasal has been proposed.

The conducted studies have established that the etiology of the cause of vasomotor rhinitis is general and local disorders of the autonomic nervous system, leading to changes in blood circulation in the vessels of the nasal mucosa. It is noted that the trigger factor in the development of vasomotor rhinitis is often a respiratory viral infection. Non-specific triggers leading to the occurrence of autonomic dysfunction may be tobacco smoke, pungent odors, ozone, pollutants contained in urban air and in production, alcohol intake, a sharp change in the temperature of the inhaled air [19,20].

Cold air is the main nonspecific trigger factor in idiopathic vasomotor rhinitis. It has been shown that an increased ozone content in inhaled air leads to damage to the epithelium, increased vascular permeability, migration of leukocytes and mast cells into the nasal mucosa, stimulation of the production of neuropeptides capable of participating in the formation of nasal hyperreactivity, and thus in the pathogenesis of vasomotor rhinitis [20,21].

In allergic rhinitis, the regional mechanisms of regulation, endothelium-dependent and endothelium-independent vasodilation are disrupted, and in patients with vasomotor rhinitis, the regional mechanisms of endothelium-dependent vasodilation in the nasal mucosa are disrupted [22,23].

Nasal congestion and difficulty in nasal breathing in vasomotor rhinitis are due to lability, increased blood filling of the vessels of the nasal concha. This phenomenon is based on dysfunction of the autonomic nervous system, which is not limited to the autonomic nervous system of the nasal cavity, but is accompanied by manifestations of general vegetative vascular dystonia.

In children with vasomotor rhinitis, changes in vegetative homeostasis were revealed, which are of a different nature and depend on the type of initial vegetative tone, vegetative reactivity and vegetative support for the child's activity. To achieve optimal treatment results for this group of patients, it is necessary to use complex therapy with appropriate correction of autonomic disorders [20,23].

The authors found that the morphotypes of the solid phases of nasal secretions differ significantly from the morphotype of normal secretions. The features of the morphotypes of fascia objectively reflect the degree of functional disorders in the mucous membrane of the nasal cavity. A new morphological approach to the study of nasal secretions is an informative, non-invasive, objective method for diagnosing the functional state of the nasal cavity.

Conclusion. Analyzing, evaluating and systematizing all the studied options, we found it advisable to provide generalized data on the prevention of vasomotor rhinitis: the adequacy and timeliness of treatment of all forms of rhinitis; avoiding being in

smoky or dusty rooms, inhaling evaporation of chemicals; the use of drugs for vasoconstriction for no more than 3-5 days; prevention of contact with allergens and substances of irritating properties; the use of antiallergic drugs if necessary; maintaining humidity in the living and working premises corresponding to the normal level; disinfection of the nasal cavity with water with salt (sea) upon returning home from the street and public places; control of one's own psycho-emotional state; maintaining a healthy lifestyle.

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