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DIFFERENTIATED APPROACH TO THE TREATMENT OF NASAL OBSTRUCTION SYNDROME

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Abstract
Nasal breathing is an important physiological process that causes air to enter the body. The air flow вдыхае inhaled through the nasal cavity experiences resistance from its structures: approximately 1/3 of the resistance ходитсяis applied to the movable part of the septum, the remaining 2/3 - to the area of the nasal valve. The resistance of the nose to air flow is due to various factors. First of all, the degree of nasal resistance depends on the vessels of the lower nasal concha. When blood stagnates in the cavernous venous plexuses, the shells swell and increase in size, which leads to narrowing of the nasal valve passage, sometimes to complete obstruction of the nasal cavity.

Introduction

Nasal resistance can also be affected by various external influences and pathological processes in the nasal mucosa, such as cold air inhalation, hyperventilation, allergens, воспа лительныйан inflammatory process, and alcohol consumption. In the supine position, resistance increases, while in the case of atrophic processes in the nasal cavity, the use of живающихvasoconstrictors, physical exertion, and oxygen inhalation, it decreases [1, 2]. The regulation of nasal resistance is provided by its own vegetative innervation of the anatomical structures of the nasal cavity. Depending on the parameters of the inhaled air (temperature, humidity), vegetative mechanisms regulate blood filling of the vessels of the nasal mucosa and cavernous bodies of the nasal concha, as well as the amount and physico-chemical properties of secreted mucus. Thus, it is known that парасимпа parasympathetic stimulation causes vasodilation and увеличе an increase in blood supply to the mucosa, with увеличениан increase in the amount and a decrease in the viscosity of mucus. And, on the other hand, with sympathetic stimulation, vasoconstriction develops, and thereis a decrease in blood filling of the mucous membrane. The air flow passing through both halves of the nose is uneven in most cases. Usually, there are cyclical changes in the resistance to air flow passing through the left and right halves of the nose, but the total resistance remains constant. The passage of air flow through the nasal cavity is regulated by the state of the cavernous venous tissue: with an increase in its size, the lumen of the nasal passages narrows, as a result of which the resistance to air flow increases. This physiological process is called the nasal cycle. The functional significance of the nasal cycle is still a subject of debate. Most исследова researchers believe that it is designed to intensively warm the inhaled air in the narrowed part of the nose and moisten the air in the more passable part of the nose [1, 2]. Nasal resistance is necessary to create positive and negative pressure in the thoracic and abdominal cavities and for optimal functioning ния cardiovascular system.

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Due to the existence of negative pressure in the pleural cavity, the suction function of the chest ensures the flow of blood from the peripheral veins to the thoracic ones. During inspiration, the negative pressure of the pleural region decreases even more, which leads to an acceleration of blood flow in the veins, and during exhalation, on the contrary, the pressure increases relative to the initial one, and blood замедля етсяflow slows down. When breathing through the mouth, thereis less resistance to air flow, which leads to suppression of the mechanism of development of negative and positive pressure in the chest and abdominal cavities, and lung ventilation decreases by 25-30%. The transition from nasal to oral respiration especially worsens respiratory function against the background of low barometric pressure, for example, in high-altitude conditions, when playing sports [1, 2]. Subjective sensations that occur when прохож денииan air jet passes through the nasal cavity are very important for human comfort, since it is the effect of air flow on the mucous membrane receptors the nose creates a sense of physiological well-being [1]. Another important function of nasal breathing is to moisten the air. The nasal cavity acts as a kind of air conditioner, preparing the inhaled air to enter the lungs and bringing its indicators in line with optimal gas exchange conditions. This becomes possible due to the peculiarities of blood воснабжениясupply to the nasal mucosa. Full nasal breathing also provides the necessary protection against potential allergens, bacteria, viruses and fungi inhaled вме together with the air. Mucociliary transport (MCT) – one of the components of the first line of defense of the mucous membrane, provided by the cilia of the ciliated epithelium and the formation of mucus containing secretory antibodies (sIgA, SIG, sIG), as well as lysozyme, lactoferrin and other protection factors. Approximately 60% of the microorga settles on the surface of the mucous membrane низмовHowever, due to the work of the MCT, their adhesion and subsequent colonization with the development of an infection focus do not occur [1-3].

A decrease in the physiological functions of the nose leads to the development of a local and then widespread inflammatory process: mucosal edema and increased mucus secretion occur. Rhinitis develops, one of the most unpleasant manifestations of which is a violation of nasal breathing.

* infectious (acute-viral, бактериаль ныйbacterial, traumatic; chronic-specific, неспеци non-specific);

■ allergic (seasonal, year-round, professional);

* non-allergic rhinitis with an eosinophilic symptom;

* vasomotor (medical, hormonal, idiopathic);

■ hypertrophic;

■ atrophic.

The most common form is инфек ционныйinfectious rhinitis in acute respiratory viral infections. Influenza viruses, parainfluenzaviruses, adenoviruses, coronaviruses, enteroviruses, and respiratorysyncytial virus can act as pathogens ный, but most often the cause of acute rhinitis (AR) is rhinoviruses, which cause up to half of all acute respiratory infections in adults. As for bacterial OR, it is more often associated with Streptococcus pneumoniae, Streptococcus pyogenes, and Haemophilus influenzae [1, 2]. Several stages of OR are conventionally distinguished. The first stage дия(dry irritation) develops quickly and lasts from several hours to 2 days. The mucous membrane turns sharply pale due to vasoconstriction, dryness, burning in the nasal cavity, and repeated sneezing are noted. This is followed by the second stage – serous discharge, which is characterized by the release of transudate, rich in inflammatory mediators, which on average етсялasts from 2 to 3 days. This increases the permeability of capillaries, there is a sharp expansion

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of blood vessels, redness of the mucous membrane and swelling of the nasal concha. Initially, in the early stages of inflammation, the exudate is serous, and then-mucosal-serous. There is difficulty in nasal breathing, nasal discharge, decreased sense жениеof smell, lacrimation, stuffy ears, and a nasal tinge in the voice. The nasal mucosa has a bright red color.

In addition to infectious diseases, a significant part of the population currently suffers from allergic diseases. The nasal mucosa is the area that is exposed to a wide variety of foreign particles. Allergen molecules very quickly cause an allergic reaction, as a result of which sneezing, itching in the nasal cavity, and a profuse discharge of mucus occur within a minute after the penetration of allergens ние– allergic rhinitis (AR). According to WHO, more than 40% of the population in developed countries has signs of so-called allergic readinessности, and experts predict a further increase in the level of allergic diseases in the population. The prevalence of AR in Russia and the world ranges from 10 to 40%, which is a global health problem [1, 4]. In 2001, the following classification of AR was adopted according to the recommendations of the ARIA (Allergic Rhinitis and its Impact on Asthma): intermittent-symptoms present less than 4 days per week or less than 4 weeks. persistent-symptoms are present >4 days per week and >4 weeks. per year; professional; by severity: light, medium heavy, heavy. However, with the clear seasonality of blooming plants that produce aeroallergens in Russia, national AR programs consider the division into seasonal and year-round forms more familiar, convenient, and consistentwith the international classification of diseases [1, 4]. The seasonal form is usually associated with pollen from flowering plants (ragweed, artemisia, cypress, walnuts, birch, poplar fluff, cereals, etc.), so it is often also called hay fever or hay fever. This condition is repeated in patients every year, at the same time during the flowering period of plants. By clarifying the medical history of the disease in detail and conducting спе a special allergological study, it is usually етсяpossible to determine which plant is the direct cause of the disease. Prolonged and repeated exacerbations of rhinitis with a violation of vasomotor mechanisms of the nasal mucosa can contribute to the transition of the seasonal form of the disease to a permanent one. The year-round (permanent) form of AR is caused by constant contact with the allergen: house and boomage dust, mites contained in them, animal hair containing epidermal allergens, food for aquarium fish, lowerгри -grade allergens, food and medicines, etc. [5]. Among the main allergens that cause the year-round form of AR, we should mention household allergens, in particular mites of the genus Dermatophagoides, the most significant allergenic components of household dust. Another of the most potent household выхallergens is pet hair. In AR, the resulting pathological отно condition refers to reactions of the so-called immediate type. Their mechanism consists of successive stages. The reaction is triggered by the interaction of the allergen with Class E immunoglobulins (IgE). The nasal mucosa has an aller-gene recognition mechanism due to the fixation of allergen -specific IgE at its high – affinity receptors (Fce type I receptors-Fce RI) in mast cells. Interaction of the allergen with IgE It occurs on mast cells of connective tissue and basophils, which causes the release of biochemical mediators from mast cells and basophils ческих, the most significant of which is histamine.

Histamine is the main mediator of immediate- type allergic reactions, responsible for approximately half of the clinical manifestations of AR. Mast cells release histamine during the early phase of the allergic reaction, and basophils-during the late phase (after 4-6 hours). Histamine is also known to bind to H1 receptors located on the surface of type C nerve fibers (responsible for pain sensitivity), which are very abundant in the mucosa and submucosal layer. Mast cells under physiological conditions are always present in the submucosal layer of the mucosa. The

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binding of an allergen to allergen -specific IgE is a trigger щимfor mast cell activation. Degranulation of these cells leads to the release of inflammatory media (histamine, tryptases, prostaglandin D2, leukotrienes B4 and C4, kinins) into the intercellular substance, which, acting on клecell structures, cause the well-known symptoms of AR. It is the effect of mediators on neuroreceptors and vascular receptors that can explain the occurrence of symptoms of rhinitis in the early phase of an allergic response [1, 5].

Solution-drops are instilled in each half of the nose 3-4 times a day. For children under 1 year of age, a single dose is 1 drop. For children aged 1 to 6 years, a single dose is 1-2 drops. For children over the age of 6 years and adults, a single dose is 3-4 drops. Solution-drops are instilled in the nose, throwing back the head. This position of the head is maintained for several minutes. Thus, in the case of nasal obstruction syndrome due to AR and AR, in the case of copious rhinorrhea, Otrivin®may be the preferred choiceОтривин Complex; in a situationwhere rhinorrhea is combined with nasal congestion, Vibrocil®is used.

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