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MAIN ASPECTS OF ALLERGIC RHINITIS IN THE PATHOGENESIS OF SINUSITIS DEVELOPMENT

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Abstract:

Currently, the level of acute and chronic rhinosinusitis remains high, since the prevention of them and their complications has not been fully developed. The occurrence and course of acute sinusitis is significantly influenced by various endogenous and exogenous factors, such as allergens, environmental irritants, and it can also have an infectious, viral, bacterial or fungal etiology. One of the common diseases among children is acute sinusitis, the largest number of patients are between the ages of 4 and 15 years, and over the past 10 years the disease has accounted for 35–37% of all diseases of the upper respiratory tract (1,2,4,5,7)

Keywords: Allergic rhinitis (AR), chronic rhinosinusitis, sinusitis, etiology, respiratory tract, endoscopic examination, International Classification of Diseases (ICD-10) , World Health Organization (WHO) classification, Acute rhinosinusitis (ARS), radiography. European position paper on rhinosinusitis and nasal polyps (EPOS – 2020), Erythrocyte Sedimentation Rate (ESR), Outreach, screening, assessment, and referral (OSAR), intranasal corticosteroids (ICS).

Introduction

The relevance of research: Acute rhinosinusitis in 2–10% of cases has a viral etiology, and in 10–12% it is allergic and in 80–88% of cases it is caused by bacteria. Allergic rhinitis (AR) is one of the first predisposing factors in the development of acute sinusitis. According to a number of authors, 94%-97% of children with AR experience inflammation of the paranasal sinuses (3.7).

In recent years, AR as a problem has become increasingly important due to its high prevalence among the population (from 10% to 40%), especially in the pediatric population. According to official statistics, AR occurs in 9%–25% of children aged 5–8 years.

Inflammation and swelling of the nasal mucosa in children with allergic rhinitis can lead to obstruction of the drainage tract of the sinuses and the subsequent addition of bacterial flora. Against the background of allergies, infectious and purulent-inflammatory processes occur rapidly and often lead to severe complications. Currently, for the treatment of children with acute sinusitis against the background of AR, there are various effective methods of therapy

(1,3,6), however, despite the success achieved, the frequency of transition to the chronic form does not decrease; severe complications often arise, which ultimately lead to disability.

Thus, the problem of studying the formation, clinical course, and treatment of acute sinusitis in children with AR is one of the significant aspects in otorhinolaryngology.

Purpose of the study: To study the features of the course and develop new approaches to complex treatment and prognosis of acute sinusitis in children with allergic rhinitis.

Material and Research Methods:

We observed 46 patients with acute sinusitis due to AR aged 5 to 18 years. When diagnosing AR and determining its form, ICD-10 and WHO classification were followed.

Among the examined patients, 29 (63%) were diagnosed with acute sinusitis, 14 (30.4%) with maxillary ethmoiditis and 3 (6.6%) with hemisinusitis. The complex of examination of patients included anamnesis, endoscopic examination of the ENT organs, endoscopy of the nasal cavity and radiography of the paranasal sinuses. In order to clarify AR, a clinical and allergological examination was carried out in accordance with medical standards (protocols) for the diagnosis and treatment of patients with allergic diseases and immune system disorders.

Acute rhinosinusitis (ARS) against the background of AR is an acute inflammation of the mucous membrane of the nasal cavity and paranasal sinuses, for which the presence of two or more symptoms is required, such as nasal congestion, the presence of discharge from the nose and along the back wall of the pharynx, and additional signs are pain or facial pressure and hyposmia or anosmia. Endoscopically: the nasal mucosa is swollen, mucopurulent discharge in the area of the middle and common nasal passage. In children, in addition to difficulty in nasal breathing, sinusitis may be indicated by a cough, which occurs when the posterior wall of the pharynx is irritated by mucopurulent discharge.

The clinical course of acute sinusitis has a number of features: in older children the disease proceeds as in adults, and in younger children it is often asymptomatic; they are bothered by periodic difficulty in nasal breathing without bouts of sneezing and profuse nasal discharge.

To assess the clinical manifestations of the disease, we used the European recommendations on rhinosinusitis (European position paper on rhinosinusitis and nasal polyps) EPOS - 2020. In this case, it is proposed to use a visual tax 10-point scale. A mild degree of disease corresponds to a scale value from 0 to 3 points, a moderate degree of severity - from 4-7 points, a severe course - more than 7 points.

In the first group, 29 (63%) patients with a mild course (up to 3 points on the scale) complained of mild headache, weakness, hyposmia, nasal congestion, mucopurulent discharge from the nose and nasopharynx, body temperature within 37 C. Radiographs show parietal thickening of the sinus mucosa.

Moderate course in 14 (30.4%) patients (average 5 points), headaches were more intense, and pain was noted on palpation in the projection of the affected sinus. Constant nasal congestion, purulent nasal discharge, weakness, hyposmia and body temperature in the aisles of 37-38 C. On radiographs, complete darkening of the sinus, and some of them even noted a fluid level in the projection of the affected sinus.

In severe cases, in 3 (6.5%) patients (10 points on the scale), constant headache and pain in the projection of the affected sinus, purulent discharge from the nose and nasopharynx were constant, body temperature was 38 C and above, general weakness, anosmia. Radiographs show total darkening of more than two sinuses. At the same time, these patients experienced orbital complications in the form of reactive orbital edema. Blood tests show leukocytosis, accelerated ESR.

Treatment of acute OSAR was carried out according to the severity of the disease. Currently, one of the effective methods of treating acute sinusitis is rinsing the nasal cavity with saline solution, and it has become part of the treatment standards of the European and American otolaryngology communities. Based on this, in order to eliminate viruses and bacteria from the nasal cavity and paranasal sinuses when treating patients, the nasal cavity was irrigated with "Dolphin" saline solution. To do this, a "Dolphin" saline solution was injected into one half of the nose, and the other half was sucked out using an electric suction. The manipulation was carried out 2 times a day, the course of treatment required 6-8 procedures.

According to the recommendations of EPOS-2012 (European position paper on rhinosinusitis and nasal polyps), the main direction in the treatment of sinusitis remains topical endonasal corticosteroid therapy, especially in patients with a history of allergic rhinitis. The pronounced anti-inflammatory and antiallergic effect of these drugs leads to a reduction in swelling of the nasal mucosa and restores the patency of the lumen of the anastomosis of the paranasal sinuses. Due to its high effectiveness in reducing severe inflammation and pain in severe cases of sinusitis, the EPOS guidelines (2012) recommend the use of short-course oral corticosteroids. A number of drugs are recommended as topical intranasal corticosteroids (ICS). One of them is Forinex nasal spray. Unlike other ICS, we did not observe any undesirable manifestations when using Forinex (headache, dry nose, nosebleeds) during treatment. During treatment, Forinex spray was injected into each nostril once a day for 4-6 days.

Recently, the literature () has repeatedly discussed the issues of systemic and especially local use of antibiotics for acute sinusitis. It is strictly not recommended to introduce antibiotic solutions into the paranasal sinuses after puncture, since they are intended for intramuscular or intravenous administration.

For local use, special forms of antibiotics are recommended, endonasal administration in the form of a spray. Intranasal administration of the drug promotes its penetration into hard-to-reach areas of the sinus and the antibiotic directly contacts the microflora at the site of inflammation. In our practice, in order to influence pathogenic microflora, we used the nasal antibacterial topical spray "Sinulor". The drug belongs to the aminoglycoside group of antibiotics and has a bactericidal effect against bacteria that cause inflammation of the upper respiratory tract.

After rinsing the nasal cavity, Sinulor spray was injected into each nasal passage 3 times a day for 4-6 days.

In the group of sick children with severe disease (3 patients), in addition to the above treatment, an oral suspension of amoclan, 10 ml, was additionally administered. 2 times a day for 5 days.

Amoclan is a combined antibacterial drug consisting of amoxicillin and clavulanic acid, which has a wide spectrum of antibacterial action. The drug is well absorbed from the gastrointestinal tract and is recommended for use in children of any age.

To assess the effectiveness of the therapy, we used indicators on a scale of subjective sensations: first of all, the dynamics of the main symptoms of sinusitis (headache and pain in the projection of the affected sinus, nasal discharge, difficulty in nasal breathing, body temperature), objective data (swelling and hyperemia of the nasal mucosa , the presence of purulent discharge from the nose) and the general condition of the patient over time.

Results of the therapy. On the 4th day of therapy, nasal congestion and discharge disappeared in all patients with mild to moderate severity. Only 2 sick children with a severe course also had periodic nasal congestion and mucous discharge. At the end of the course of treatment (6th day of treatment), clear positive dynamics were noted in objective data, hyperemia and swelling of the nasal mucosa, and the nature of nasal discharge decreased. Only 3 patients of moderate severity and 3 patients with severe cases still had minor swelling of the mucous membrane and periodic mucous discharge from the nose, although they had purulent discharge before treatment. After treatment in 44 patients, the general condition improved significantly: headaches completely disappeared, weakness and hyposmia, breathing through the nose was restored, discharge from the nose and nasopharynx stopped, and body temperature returned to normal. During rhinoscopy: the nasal mucosa is pink, the nasal passages are clean. Improvement in condition was achieved in 2 patients; the above symptoms also disappeared, but mucous discharge from the nose was periodically observed, and nasal congestion was at times bothersome.

Conclusions:

1. Allergic manifestations in the nasal cavity in children have a significant impact on the occurrence of acute sinusitis and the course of the disease. Against the background of allergies, swelling of the mucous membrane of the nasal cavity occurs, while ventilation and mucociliary function of the mucous membrane are disrupted, which leads to the accumulation of secretions in the sinuses, which contributes to secondary infection.
2. The main direction of treatment of acute sinusitis against the background of AR is to eliminate the phenomenon of allergy, achieve a stable bactericidal concentration in the nose and paranasal sinuses, improve the drainage and ventilation function of the paranasal sinuses.
3.Achieving a good and lasting effect in severe diseases can be achieved by using amoclan in the form of a suspension. The drug is well tolerated even by young children, which can be recommended. as a drug of choice in children with acute purulent sinusitis due to allergies.

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