

# RHINOSINUSITIS AND OTHER DISEASES OF THE PARANASAL SINUSES

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## Abstract

Worldwide, there is an increase in the prevalence of acute and chronic forms of rhinosinusitis among adults and children. The article reflects the results of modern research on the prevalence of rhinosinusitis, presents classifications, etiological aspects, and outlines the basic tactical principles of management and antibacterial therapy of this disease. Acute catarrhal rhinosinusitis is probably the most common disease in the world, which every person has many times in their lifetime. In addition to the fact that acute rhinosinusitis can be an independent disease, it often accompanies other viral and infectious diseases. The most common causative agents of acute rhinosinusitis are, of course, respiratory viruses (influenza viruses, parainfluenzaviruses, rhinoviruses, adenoviruses, MS viruses, enteroviruses, coronaviruses). It is well known that viruses pave the way for bacterial pathogens by weakening or suppressing local immunity of the mucous membranes of the upper respiratory tract. The most common bacterial pathogens are *Pseudococcus aureus*, *Haemophilus influenzae* and *Moraxella*. Do not forget about atypical pathogens (chlamydia, mycoplasma, pneumocysts and legionella). Due to the lack of immunity, children suffer from acute respiratory infections more often than adults, approximately 3.6 times, which is 69 thousand per 100 thousand children under the age of 14 years [2]. Systemic antibacterial drugs are often prescribed to patients with diseases of the upper respiratory tract rashly. Doctors' reassessment of the reasonableness of prescribing systemic antibiotics for VDD diseases can be explained by the rather frequent spontaneous recovery of patients with these diseases and the incorrect judgment that systemic antibiotics prevent the development of bacterial superinfection in diseases caused by viruses [2, 3].

## Introduction

The problem of choosing etiotropic therapy, as well as the type, method of administration and dose of the drug in the treatment of patients with diseases of the upper respiratory tract remains very important to date. There are a number of important questions for practicing physicians and prescribing certain antimicrobial drugs: 1. How necessary is etiotropic therapy in this particular clinical case, and if so, is it systemic or local? 2. What specific drug should be prescribed and according to what scheme? 3. Another important question is whether the effectiveness of this drug has been proven in controlled clinical trials. It is no secret that over the past 30 years, fundamentally new types of antibiotics have not been developed. For us and our patients, this means that without taking drastic measures, there is a real risk of a post-antibiotic era, when common infections and minor injuries can again lead to serious complications and deaths.





The document states, among other things, the need to change the tactics of prescribing systemic antibacterial drugs – they should be used only in cases of absolute necessity, in compliance with the instructions for specifying optimal dosages and the duration of the course of treatment. Of course, there are cases when we cannot do without prescribing systemic antibacterial drugs. Systemic antibacterial therapy is indicated only in the presence of bacterial complications, such as acute sinusitis of moderate or severe course with pronounced symptoms characteristic of sinusitis, слизистомucopurulent or purulent discharge from the nasal cavity or flowing down the back wall of the pharynx, febrile temperature of more than 37.5 °C, a feeling of fullness, pain and soreness on palpation in the projection of the affected area. sinusitis, which is accompanied by complications from the meninges of the brain or intraorbital complications. At the same time, it should be remembered that most случаев of acute rhinosinusitis are cured spontaneously and do not require topical antibacterial therapy – these data were obtained as a result of a multicenter study conducted by doctors in Canada, the Netherlands, and France [5, 6]. Following the latest recommendations on the reasonable restriction of prescribing systemic antibacterial drugs in acute uncomplicated infectious diseases of the upper respiratory tract, the most urgent is the use of topical antibacterial and anti-inflammatory drugs. This gives us a number of advantages: first, the ability to deliver the drug directly to the focus of infectious inflammation, second, the local use of antibacterial drugs contributes to achieving their maximum concentration in the focus of inflammation, third, minimal systemic exposure and, undoubtedly, the local use of drugs reduces the risk of infection. the risk of developing undesirable and side reactions does not lead to a violation of the normal human biocenosis. Antimicrobial drugs for local treatment are prescribed in the form of insufflations, sprays and inhalations. There are a number of requirements for medicinal products applied to the mucous membranes. 1. Minimal adsorption of the drug substance from the mucous membranes of the nasal cavity and paranasal sinuses and, as a result, minimal systemic effect. 2. No inhibitory effect on the mucociliary clearance system. 3. No local irritant effect on the mucosa of the upper respiratory tract. 4. The widest possible spectrum of bactericidal action against the most common pathogens of acute respiratory infections. 5. Good compliance and the ability of patients to use the drug independently. We are well aware of the topical antibacterial drug Polydex with phenylephrine, which is used in the treatment of patients with diseases of the nasal cavity and paranasal sinuses. The drug includes two antibacterial components – neomycin and polymyxin. In combination, these antibiotics multiply their bactericidal effect. A corticosteroid component – dexamethasone has a pronounced противовоспалительным anti-inflammatory effect. The additional substance phenylephrine is an effective vasoconstrictor that not only improves nasal breathing, but also improves the delivery of the above-mentioned antibacterial components to the inflammatory site. Phenylephrine belongs to the group of alpha-adrenomimetics used mainly in the treatment of patients with ear, throat and nose diseases, including those with a complicated course of rhinosinusitis. In combination with other highly effective components, phenylephrine helps to reduce the release of purulent and viscous secretions against the background of bacterial inflammation of the nose and paranasal sinuses. By reducing the swelling of the mucous membrane of the nasal cavity and paranasal sinuses, it also significantly reduces the feeling of pressure у пациентов in patients in the area of the projection of the paranasal sinuses. Polydex nasal spray with phenylephrine is available on a doctor's prescription





and is used for inflammatory diseases of the upper respiratory tract (up to 5 times a day for a single injection in each half of the nose). Our clinic has previously conducted a study of the effectiveness of Polydex with phenylethrin in patients after surgical treatment on the structures of the nasal cavity and paranasal sinuses [7]. It is well known that the inflammation that occurs as a result of surgical trauma is an absolutely normal physiological protective reaction aimed at activating the regeneration processes of damaged tissues. Surgical interventions performed against the background of chronic inflammation of the nasal mucosa and paranasal sinuses largely lead to the suppression of the already disturbed local protective barrier inherent in the mucous membrane of the upper respiratory tract. As a result of damage to the mucous membrane of the nasal cavity and paranasal sinuses against the background of surgical trauma, a large number of active biological substances are released – inflammatory mediators, the most important of which are the so-called eicosanoids – leukotrienes and prostaglandins. The consequence of this is edema of the mucosal and submucosal layers of the multi-row cylindrical ciliated epithelium, impaired microcirculation, increased secretion of the viscous component of the nasal mucus due to changes in the ratio of cellular composition. All this leads to increased bleeding, formation of hemorrhagic clots (a good nutrient medium), activation of saprophytic microbial flora, which, in turn, increases inflammation in the early postoperative stage and leads to a slowdown in regeneration processes. Consequently, postoperative inflammation occurring in the mucosa of the nasal cavity and paranasal sinuses almost always requires regulation. The medical effect on the course of the postoperative inflammatory process is necessary to reduce. It is important to reduce the risk of early complications and, importantly, improve the quality of life of patients during recovery. It is necessary to reduce the risk of early complications and, importantly, improve the quality of life of patients during recovery. It is necessary to reduce the risk of early complications and, importantly, improve the quality of life of patients during recovery. Features of the course of the postoperative period in patients after surgical interventions on the structures of the nasal cavity and paranasal sinuses dictate the need to prescribe drugs for local treatment. In this situation, the role of local treatment is once again emphasized due to the direct effect on the postoperative zone, the possibility of creating the optimal concentration of the drug in the focus of inflammation, and the lack of systemic action due to very low bioavailability.

Studies conducted in our clinic convincingly proved that patients who received Polydex with phenylephrine after various surgical interventions on the structures of the nasal cavity and paranasal sinuses noted a rapid reduction in nasal breathing difficulties, headache, and olfactory disorders. During anterior rhinoscopy, these patients showed a more pronounced decrease in rhinorrhea and mucosal edema compared to patients who did not receive the above therapy. Thus, in the treatment of patients with acute and chronic diseases of the nasal cavity and paranasal sinuses of bacterial nature, in the vast majority of cases, it is highly advisable to prescribe topical antibacterial therapy as a reasonable alternative to systemic antibacterial drugs. Polydexa with phenylephrine is characterized by a high safety profile for use in all age groups of patients. The above-mentioned drug can also be recommended for use in cases of postoperative treatment in order to prevent complications and shorten rehabilitation periods.





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