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CRITERIA FOR THE TREATMENT OF ACUTE RHINOSINUSITIS

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Abstract: Acute rhinosinusitis is one of the most common diseases in the world, characterized by acute inflammatory processes in the nasal cavity and paranasal sinuses, lasting less than 4 weeks. According to statistics, in Uzbekistan, this disease is recorded in 6–15% of the population annually, in European countries in every seventh person, while there is a tendency to an increase in the incidence. Acute viral rhinosinusitis has the highest incidence among all rhi nosinusitis and occurs in most patients in a mild form, however, untimely treatment of inflammation of the nasal mucosa can lead to obstruction of the natural anastomoses, impaired physiological ventilation and drainage of the paranasal sinuses, stagnation of secretions with further development acute bacterial rhinosinusitis. The overuse of local vasoconstrictor drugs (intranasal decongestants) leads to the development of drug-induced rhinitis,long-term imbalance of autonomic innervation of the nasal mucosa and edema, called "rebound syndrome". In the article we consider the issues of etiology, pathogenesis, features of the course of rhinosinusitis. The principles of differential diagnosis of viral and bacterial rhinosinusitis are stated,taking into account the latest recommendations and research in this area. The features of the use of the most frequently used topical preparations in acute rhinosinusitis in the practice of an ENT doctor have been analyzed.

Keywords:acute rhinosinusitis, herbal medicine, turmeric,respiratory tract.

Introduction

One of the most common acute diseases upper respiratory tract infections among adults is acute rhinosinusitis (ARS), which is diagnosed in in European countries from 1 to 5%, in the United States of America ricks – in 16% of the population[1]. In Russia, this disease is registered from 6 to 15% and amounts to about 10 million cases.

teas per year [2]. In Moscow, the incidence of acute respiratory infections is

1420 cases per 100 thousand adult population [3]. For ORS seasonality is typical: the incidence of the disease increases in autumn,in winter and early spring and decreases significantly in warm weather time of year. There is a tendency towards an increase in the volume of growth of patients with acute and chronic rhinosinusitis volume in outpatient practice, and the costs of treatment are borne a heavy burden on the health care system [4].

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ARS is defined as an acute inflammatory disease mucous membranes of the nose and paranasal sinuses, caused by my viruses or bacteria, the duration of which does not exceed 4 weeks [5]. ORS, as a rule, arises is caused by a viral infection that occurs into the paranasal sinuses from the nasal cavity through natural fistulas, i.e. it cannot occur in isolation [6].The development of the inflammatory process is accompanied by activation release of proinflammatory mediators, destructive

tion of the ciliated epithelium, the development of edema, which leads to inactivation of mucociliary transport and disruption of sinus aeration [7]. Acute viral rhinosir Nusitis (AVRS) occurs in 90–98% of cases and in 0.5–2%passes into a bacterial form [8].Increase in antibiotic-resistant strains of bacteria riy , an increase in the number of viral and allergic diseases increase the incidence of rhinosinusitis, and not adequate treatment of inflammatory diseases of the oral cavity of the nose and paranasal sinuses leads to an increase in chronic ical processes [9].

In this review we present the most relevant information about viral and bacterial sinusitis, crtheories of differential diagnosis of rhinosinusitis, and also the principles of local therapy in the treatment of patients with this pathology[10].

Analytical review

Rhinoviruses are most often involved in the development of ardsruses, adenoviruses, coronaviruses, respiratory syncytial virusesial viruses and parainfluenza viruses.The level of digital antibodies in the mucous membrane is extremely low due to the penetration of the virus into the epithelial cells, where its reproduction occurs, immune cascades are launched response and the recruitment of immune cells with the development of inflammation focus [11]. ARDS in most cases is flows easily , lasting up to 10 days, and does not requires the appointment of etiotropic therapy, however, for improving the quality of life and accelerating recovery of patients[12].

The patient is recommended to prescribe therapy aimed at to reduce the severity of inflammation symptoms in the nasal cavity [13]. In moderate and severe cases of ARS,

to eliminate the bacterial component of the disease and to avoid prevention of possible complications is the main method treatment of patients is systemic antibiotic therapy [14].

According to the European guidelines on rhinosinusitis (European position paper on rhinosinusitis and nasal polyps –EPOS) 2020, a clinical diagnosis is made in the presence of 2 or more symptoms, of which the most important are difficulty in nasal breathing and the presence of discharge from the nasal cavity or along the back wall of the pharynx, and additionally negative - a feeling of pressure or pain in the facial

areas, as well as a decrease in the sense of smell . Acute bacterial nal rhinosinusitis (ARS) is characterized by at least 3 out of 5 symptoms [15]:

1) fever above 38ºC;

2) the second wave of symptoms;

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3) severe pain;

4) one-sided process;

5) increase in erythrocyte sedimentation rate/C-reaction active protein, while the nature of nasal discharge has less significance.

The main place in the differential diagnosis of viruses of bacterial and ARS is involved in the analysis of clinical data. One of the important criteria in this case is duration of the disease, depending on which.

According to EPOS 2020, a distinction is made between:

1) acute sinusitis in adults - characterized by suddenwith the onset of 2 or more symptoms: congestion nose, nasal discharge, pressure and pain in the places of paranasal sinusectomy, reduction or loss olfactory impairment, as well as the presence of symptoms for less than 12 weeks;

2) recurrent sinusitis – more than 4 episodes of acute sinusitis per year, with periods of no symptoms pain;

3) chronic sinusitis - presence of the indicated symptoms lasting more than 12 weeks[16].

If the listed symptoms of ABRS are present, it is necessary possible causes of the disease must be taken into account. The most more common pathogens of ABRS includeStreptococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis,Streptococcus pyogenes and Staphylococcus aureus[17]. The risk factors for ARS include: smoking, allergic rhinitis,munodeficiency states . In the chronicity of the disease,anatomical features play a leading role:deviated nasal septum, bulla of the middle nasal cavity covins, infraorbital cell, structural anomalies uncinate process, additional anastomosis of the upper maxillary sinus, etc. [18].

Diagnosis of ARS includes an analysis of the patient's medical history.patient, standard otolaryngological examination,clinical manifestations, laboratory and ininstrumental methods, and, if necessary,X-ray and computed tomography of the paranasal sinuses. The latter is widely recommended by European standards for the diagnosis of rhinosinusitis [19]. Microbiological examination of smears from the middle nasal passage or punctate the inflamed sinus in normal cases ORS is not necessary - this method is used,as a rule, for scientific purposes . The optimal one is conducting an endoscopic examination of the nasal cavity and nasopharynx, allowing to assess the state of the intranasal structures and identify involvement in pathological process of the nearest anatomical formations [20].

The differential sign of ABRS caused by type-typical pathogens (S. pneumoniaeAndH. influenzae), I'm in the effectiveness of empirical antimicrobial therapy is pii. Initial empirical therapy for ABRS includes amoxicillin orally 500-1000 mg 3 times a day. When absence of a noticeable clinical effect aftercillin/clavulanate orally 625 mg 3 times a day or 1000 mg 2 times a day .It is recommended to replace amoxicillin with amoxicillin for 3 days.

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Another option for systemic antibacterial therapy includes oral cephalosporins.III generation anti-pneumococcal agents with high anti-pneumococcal activity dosage: cefuroxime axetil 250–500 mg 2 times a day,cefixime 400 mg once daily, cefditoren orally 400 mg 2 times a day [21].

Topical treatment of rhinosinusitis should be prescribed immediately after diagnosis. According to EPOS 2020, for local treatment of ARS, it is recommended to use intranasal glucocorticosteroids (InGCS),decongestants, nasal lavage turmeric

solution [22].

Irrigation with turmeric solutions

As a result of exposure to various pathogens in the cavity inflammation of the mucus occurs in the nose and paranasal sinuses thick membranes, an increase in the viscosity and amount of nasal mucus – due to an increase in the concentration of mucin .One of the first things patients can start using even on your own, - irrigation of the nasal cavity with turmeric solutions. This allows you to remove mucus from the surface [23].

Elimination therapy helps to relieve congestion.Nasal congestion, improving the rheological properties of mucus,restoration of mucociliary clearance (increase increasing the activity of cilia - thanks to microelements Ca, Fe, K, Mg, Zn, etc.), reducing swelling and inflammation,increasing the tone of capillaries . This procedure also allows for improved penetration of subsequent topical medications: inhaled GCS or decongestants stants [24].

Topical GCS

Long-term disruption of nasal breathing is negative affects cognitive processes, nervous and servascular system. InGCS are reliably effective for acute respiratory infections and chronic rhinosinusitis, chronic rhinosinusitis with nasal polyps, as well as with allergic riniti(level of evidence 1b) . InGCS have powerful anti-inflammatory effect due to suppression inhibition of the expression of numerous genes involved in inflammation (IL1β, IL2–IL5, IL8, IL13, IL16, IFNγ, GMCSF, CSF and TNF), molecules of the major histocompatibility complex on dendritic cells, monocytes and macrophages, as well as modadhesion molecules and chemokines, while they do not affect the mechanisms of innate immunity and do not change the immun response to bacterial infection, reduce the duration life of eosinophils and inhibit the production of immunoglobulins. . In addition, when gene expression is suppressed,MUC-2 and MUC-5a decrease mucus formation, somewhat swelling in the nasal cavity is reduced as a result of vasoconstriction ability of InGCS . The latter have low systemic bioavailability compared to oral and inhaled corticosteroids and show excellent safety profile [25].

Intranasal the route of administration delivers the drug directly to target organ, which creates a high therapeutic conconcentration. Approximately 30% of the administered dose settles in nose, the remaining 70% is metabolized in the liver . When assessing the nasal mucosa that has undergone long-term exposure to InGCS, no significant effect is observed.Possible side effects are usually limited to non pleasant local reactions such as irritation,burning in the nose, sneezing, dryness in the frontal parts of the nasal cavities,

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bleeding or sore throat, but often the incidence of these side effects is comparable to those of taking placebo [26] .

A large number of randomized trials showed that InGCS can be used as a monotherapy for mild and moderate forms and as an adjuvant juvant agent for systemic antibacterial treatment treatment of ARS in moderate and severe forms [27].

Decongestants

In case of severe swelling and disruption of the natural passsoot from the paranasal sinuses is used locally as a sympathomimetics (decongestants) – xylometazoline, oxymetazolinelin, naphazoline, tetryzoline and phenylephrine. Most vasoconstrictor drugs by the mechanism of action are is an α-adrenergic agonist: can act on both α1- and α2 -receptors in the walls of blood vessels, b-due to which there is an increase in tone, a reduction in kavernal tissue of the nasal conchae. The latter leads to increasing the space in the nasal passages, improving nobreathing and the removal of pathological secretions one of the paranasal sinuses [28].

In randomized, placebo-controlled studies,statistically significant in comparison with the results with placebo reduction of subjective symptoms of nasal obstruction after just one dose of decongestants, which was confirmed by a significant decrease in resistancena sal cavity.

When choosing a decongestant, it is recommended to prescribe paraty in the form of a metered aerosol of long action action - xylometazoline or oxymetazoline, since pro the duration of their therapeutic effect reaches 8–12 hours, resulting in the need for too frequent use [29] .

It should be noted that the use of decongestants is more 10 days can lead to the development of drug-induced rhinitis. There is a decrease in the number of α-adrenergic receptors tors on the surface of cell membranes, inhibition of endogenous

production of norepinephrine, decreased sensitivity smooth muscle tissue of the vessels of the nasal cavity to endogenous norepinephrine, which leads to long-term imbalance of autonomic innervation of the mucous membrane nose and, as a consequence, swelling of these structures. This phenomenon the nomenclature was called "rebound syndrome". It also arose changes in the histological structure of the mucosa are possible nasal membranes towards squamous cell metaplasia and

glandular hyperplasia [30].

In most cases, the recommended duration of treatment is changes in vasoconstrictor drugs up to 5–7 days during the development of tachyphylaxis and addiction [31].

Conclusion

A timely and rational approach to local therapy PII ORS allows at the earliest stages of the disease significantly improve the patient's quality of life, speed up his recovery, as well as avoiding the chronicity of the disease and its complications. In case of severe obstruction of the no.The rapid and long-lasting effect of the sovkhods is ensured The use of turmeric is beneficial.

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