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Improvement of Conservative Treatment of Chronic Rhinosinusitis

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Abstract: *The results of the use of endonasal intradermal administration of the antibacterial drug cefamed (cephalosporin) allowed the use of this method as an alternative to parenteral (systemic) and local use of the antibiotic in the complex treatment of mild to moderate sinusitis.*

The method of regional (endonasal) antibiotic therapy is highly effective, safe, without side effects and complications inherent in systemic antibiotic therapy; can be used in the treatment of chronic rhinosinusitis not only in a hospital, but also on an outpatient basis.

Key words: *regional (endonasal) antibiotic therapy, chronic rhinosinusitis, cefamed,*

Relevance: The percentage of recurrence of the bacterial inflammatory process in the SNP remains high, it ranges from 15 to 40% [1,12].

Chronic rhinosinusitis (RS) is the most common disease in both inpatient and outpatient practice, it occurs with the same frequency in all age categories [2,9]. In this regard, the treatment of MS is one of the urgent problems of otorhinolaryngology. Along with the puncture method of treatment, systemic or local antibiotic therapy is carried out. Recently, due to the emergence of a large number of different antibacterial drugs and the variety of their forms of release, the practitioner faces the difficult task of choosing the optimal drug and the method of its administration [3,10].

In the treatment of inflammatory diseases of the paranasal sinuses, along with systemic antibiotic therapy, local antibiotic therapy is widely used for irrigation of the nasal mucosa or direct injection into the sinuses during punctures [4,11].

One of the known methods of treatment of rhinosinusitis is endolymphatic drug administration [5].

The most common pathogens in acute MS are Str. pneumoniae, H. influenzae , Moraxella catarrhalis [6,7]. During exacerbations of chronic sinusitis, aerobes are isolated in 27% (Str . pneumoniae, Enterobacteriaceae and Staphylococcus aureus), anaerobes - 37% (subspecies Peptostreptococcus and Fusobacterum , anaerobic gram-negative rods), mixed flora - 37% [8,13]. Cefamed has a wide spectrum of antimicrobial activity, which includes various aerobic and anaerobic gram-positive and gram-negative microorganisms.

Cefamed is a third-generation semi-synthetic cephalosporin antibiotic that has a bactericidal effect by inhibiting the synthesis of transpeptidase and disrupting the synthesis of the mucopeptide of the bacterial cell wall. Cefamed is highly resistant to the action of beta-lactamases (penicillinases and cephalosporinases) and acts on strains resistant to other cephalosporins.

Along with a wide spectrum of action of Cefamed, the drug has a long half-life (5.8 - 8.7 hours) and is administered once. Cefamed also has a good penetrating ability in all body fluids and tissues; well tolerated by patients.

Purpose of the study: To study the clinical efficacy of the local antibacterial drug cefamed in the treatment of chronic rhinosinusitis.

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Materials and research methods. In the ENT department of the Samarkand Regional Children's Multidisciplinary Center, we examined and treated 22 patients aged 5 to 18 years with chronic rhinosinusitis. The diagnosis of rhinosinusitis was confirmed by the patients' complaints of headaches, purulent discharge from the nasal cavity, X-ray data of the paranasal sinuses in the nose-chin and lateral projections.

All patients were divided into two groups - the main group (11 people) and the control group (11 people).

All patients underwent a standard examination of the ENT organs, a bacteriological examination of pathological discharge from the paranasal sinuses and nasal cavity, an assessment of the olfactory function using a set of aromatic substances, radiography or computed tomography of the paranasal sinuses, an assessment of the general condition and course of the disease, and a clinical blood test. The main group received an antibacterial drug (cefamed; 200 mg for the entire course of treatment) by endonasal intradermal administration in combination with punctures of the maxillary sinuses in the presence of maxillary sinusitis or sinus evacuation in the presence of frontal sinusitis, as well as daily anemization of the nasal mucosa, physiotherapy and oral administration. 2nd generation antihistamines.

The control group received a standard treatment regimen: parenteral use of an antibacterial drug (cefamed; at a dosage of 1 g 1 time per day) in combination with punctures or sinus evacuation, physiotherapy, daily anemization of the nasal mucosa and oral administration of 2nd generation antihistamines.

In the control group, Cefamed was administered intramuscularly at a dosage of 1 g once a day. The drug was diluted in 3.5 ml of 1% lidocaine solution. Cefamed was administered for 5 days, depending on the clinical picture, the dynamics of the symptoms of the disease.

In patients of the main group, Cefamed was injected endonasally intradermally into the area of the ala of the nose from the side of the vestibule. To prepare an antibiotic solution, a 1% solution of novocaine was used, which caused the absence of pain. For injection, an insulin syringe with a thin needle was used, which made the method atraumatic. The drug was administered at a dosage of 200 mg once for the entire course of treatment at the first visit to the doctor (outpatient treatment) or on the first day of hospitalization (inpatient treatment).

Since we performed endonasal intradermal administration of the antibiotic in close proximity to the diseased organ, the drug was delivered to the ED, bypassing the systemic circulation, in a shorter time. At the same time, a depot of the drug was created, which, in a therapeutic dose, had a long-term effect on the diseased organ.

When analyzing the data obtained during the examination of two groups of patients, it was found that the main complaint is nasal congestion (73.3% in the main and 75% in the control group). In second place in terms of frequency of complaints was headache (51.7% and 50%, respectively); in third place - nasal discharge (48.3% and 46.6%, respectively). None of the patients, when asked about complaints, indicated a violation of smell, however, during active questioning, 16 patients of the main (26.7%) and 13 patients of the control group (21.6%) indicated a decrease in smell.

Results and its discussion. When analyzing the causal factors of acute and exacerbation of chronic MS, it was found that the most common cause, both in the main and in the control group, were acute respiratory diseases (75% in the main and 66.6% in the control group). A significantly smaller number of patients noted "hypothermia" as a causative factor - 9 patients of the main group (15%) and 16 patients of the control group (26.7%).

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In all patients of the main and control groups, previous treatment had a slight positive effect or was ineffective.

On examination, reactive phenomena in the area of the projection of the maxillary sinuses were observed in 3 patients of the main group and in 1 patient of the control group. Soreness in the projection area of the frontal sinuses was observed in 7 patients (11.6%), the main one in 6 patients (10%) of the control group; soreness in the area of the projection of the maxillary sinuses was in 5 patients (8.3%) of the main and in 3 patients of the control group.

When assessing nasal breathing, 98.3% of patients in the main and 95% of the control groups had difficulty in nasal breathing (on inhalation and exhalation). With anterior rhinoscopy and endoscopy, in most patients, discharge in the middle (or common) nasal passages was not determined, which indicates a block of the fistulas of the paranasal sinuses. When assessing the nature of the discharge, purulent discharge was detected in 18 patients (30%) of the main and 20 patients (33.3%) of the control groups; mucous discharge was determined in 18.4% of the main and 8.3% of the control groups. Hyperemia of the nasal mucosa was determined in 85% of patients in the main group and in 86.7% of the control group. Edema of the nasal mucosa was observed in most patients (90 and 78.3% in the main and control groups, respectively).

When analyzing the composition of the microflora of the nasal secretion obtained during punctures of the maxillary sinuses or sinus evacuations (if punctures or sinus evacuations were not performed, then a swab was taken from the middle nasal passage), the following results were obtained. Among the groups of pathogens, Str. pneumonia and H. _ influenza (23.5% each), Staph were slightly less common. epidermidis, St. _ Aureus, Str . pyogenes - in 12.8, 11.8 and 8.8%, respectively. The data obtained in the course of our study are consistent with the literature data: the most common causative agents of sinusitis are Str. pneumonia, H. _ influenza, St. _ epidermidis , St. _ Aureus , Str . pyogenes, Str . viridans , M. _ catharalis .

Based on the complaints of patients, anamnesis, clinical examination data, as well as data from instrumental, laboratory and radiation (X-ray, computed tomography) research methods, patients were diagnosed.

For a comparative assessment of the effectiveness of the treatment in the main and control groups, the following methods were used: olfactometry (at the beginning and at the end of treatment), a score scale for assessing the severity of symptoms (at the beginning of treatment, on the 3rd, 5th days from the start of treatment, at the end treatment), scoring the effectiveness of treatment (at the end of treatment). Along with this, the duration of the patient's stay in the hospital (outpatient treatment), as well as the number of punctures or sinus evacuations performed, were compared. When scoring the severity of symptoms in dynamics (at the start of treatment, on the 3rd day, on the 5th day, after the end of treatment), the patients of the main and control groups had the following results. In patients of the main group, there is a more pronounced improvement in accordance with the scoring of the severity of symptoms both on the 3rd and 5th days of the disease and at the end of treatment.

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The number of punctures of the maxillary sinuses performed in patients of two groups was analyzed. The analysis performed showed statistically significant differences ($p<0.001$) in patients of

the main group compared to the control group (median 2 in the main group and 4 in the control group), i.e. in patients in the control group receiving standard treatment, a significantly greater number of punctures were performed, in contrast to patients in the main group.

Olfactory function was analyzed in patients of the main and control groups at the beginning and at the end of treatment. At admission (beginning of outpatient treatment), none of the patients could distinguish the smell of valerian, a quarter of patients (25% of patients in the main and 27% of patients in the control group) indicated that they smelled acetic acid; the majority of patients in the main group (95%) and all patients in the control group could distinguish the smell of ethyl alcohol. At the end of treatment, both in the main and in the control group, there was a positive trend in the ability to recognize odors.

Evaluation of the effectiveness of treatment was carried out at the end of the patient's stay in inpatient or outpatient treatment. The scoring was carried out by a doctor, where 1 point - no effect, 2 points - satisfactory effect, 3 points - positive effect. It was found that 72.7 % of patients in the main group (8 patients) and only 45.5% of patients in the control group (5 patients) rated the effect of treatment as positive. A satisfactory effect of the treatment was noted by 18.2% of the main group (2 patients) and 36.4% (4 patients) of the control group. Treatment failure was observed in 9.1% in the main group. When evaluating the effectiveness at the end of the treatment, statistically significant differences were obtained between the main and control groups ($p<0.035$). Thus, in the main group there were statistically significantly more patients (56 patients) with a positive effect ($p<0.035$) from the treatment compared to the control group (42 patients).

Conclusions. Thus, a comparative analysis showed the safety and efficacy of regional (endonasal) antibiotic therapy, as well as advantages over parenteral (systemic) and local use of antibacterial drugs.

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