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**TO INVESTIGATE THE EFFECT OF LOW-FREQUENCY
ULTRASOUND ON CHRONIC RHINOSINUSITIS IN SCHOOL-AGED
CHILDREN**

*Nurov U.I., Shodieva M.B.
Bukhara State Medical Institute*

Relevance In Uzbekistan, an important problem is the spread of chronic inflammatory processes in the nasal mucosa. Research shows that difficult climatic conditions and dietary habits of the population negatively affect the immune system and increase the incidence of respiratory tract inflammation. The incidence of ENT diseases is higher than average, and rhinosinusitis among children was registered in 23.7% [Pishenichnov S.I., 2021]. Research by Russian specialists, such as A. O. Gusan [2014], emphasizes the importance of timely diagnosis and treatment of pathologies of the paranasal sinuses, especially in children. The main aspects of the treatment and prevention of chronic rhinosinusitis have not been sufficiently studied [Abaturov A.E., Agafonova E.A., Petrenko L.L., 2018]. Timely and accurate diagnosis of chronic rhinosinusitis is of particular importance from the point of view of medical problems facing Uzbekistan. To prevent the progression of the disease, comprehensive therapeutic and rehabilitation measures are of great importance [Tulebaev R.K. et al., 2020]. Research continues to optimize diagnostic and therapeutic approaches, confirming their importance to the nation's health.

The relevance of timely diagnosis and treatment of these diseases reduces the risk of complications and the degree of transition of the disease to the chronic stage [Tulebaev R.K., 2015]. Classifications of rhinosinusitis

According to domestic methodological recommendations, there are:

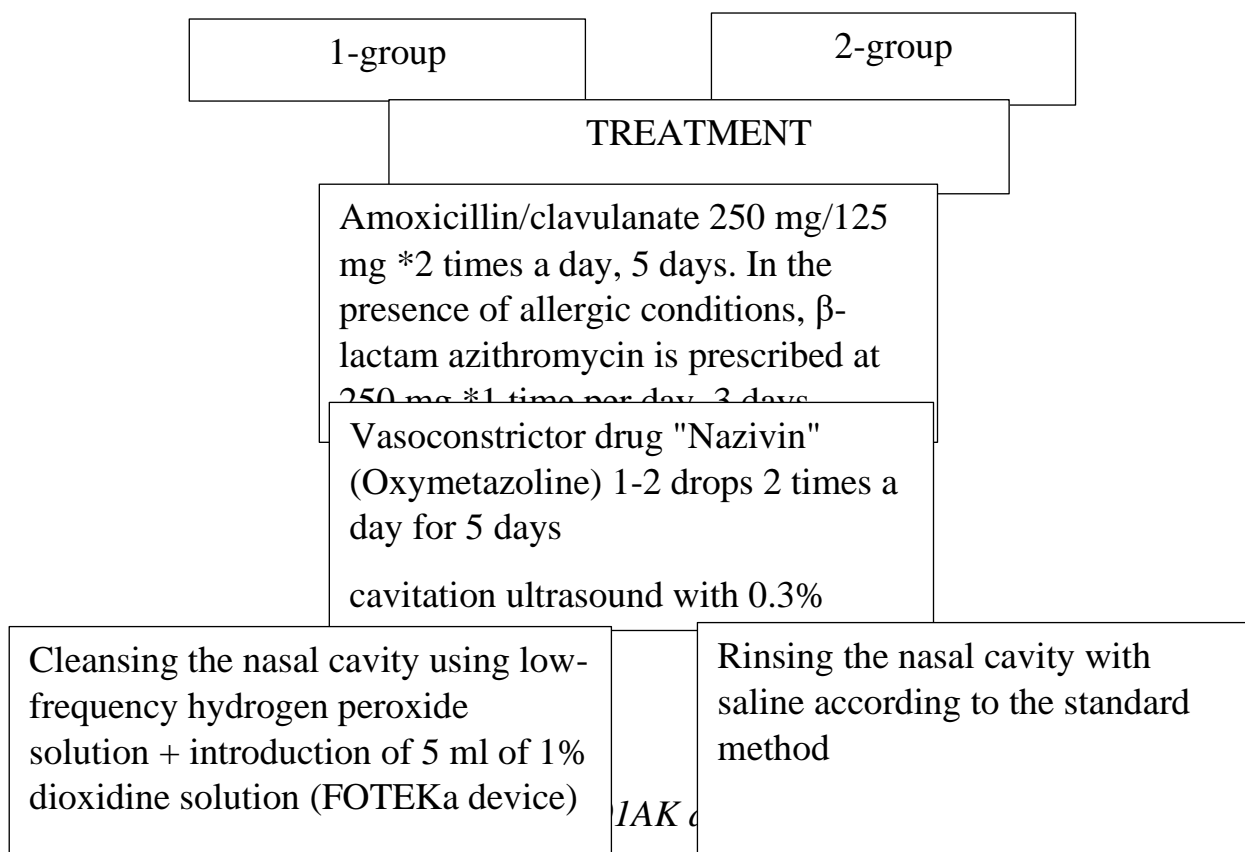
- acute MS (<3 months);
- relapsing acute MS (2-4 episodes of acute sinusitis per year);
- chronic rhinosinusitis (CRS) (>3 months);
- exacerbation of chronic MS (intensification of existing and/or appearance of new symptoms).

A more concise classification is formulated in the EP3OS recommendations (2007):

- acute MS (less than 12 weeks until complete resolution of symptoms);
- CRS (symptoms persisting for more than 12 weeks).

The aim of the study. Analysis of existing methods for diagnosing chronic rhinosinusitis in school-age children and development of new, more effective methods.

Results and their discussion. Complex local therapy of 150 patients in the main group included washing the paranasal sinuses with cavitation low-frequency ultrasound (PCHUT) and 0.3% hydrogen peroxide solution, followed by the use of 1% dioxidine solution. Examinations were conducted on the 1st, 3rd, 6th, 14th day and one month after the start of treatment. Details of the treatment scheme are given in the diagram:



-Cavitation: Ultrasonic vibrations create microbubbles in the liquid, which create shock waves when atomized. It leads to the mechanical removal of impurities from the surface of tissues and has a micromassage effect that promotes cleansing and restoration of tissues.

-Thermal effect: The conversion of ultrasound energy into heat upon contact with tissues promotes the expansion of microcirculation vessels.

-Disintegration of water molecules: Ultrasonic waves affect water molecules, converting them into H and OH ions, and these ions have the ability to penetrate deep into tissues.

Biological effects of the Fotek 101AK device:

1. Bactericidal effect of ultrasound: Ultrasound technology is capable of destroying the cell membranes of microorganisms, thereby reducing their viability. This feature of ultrasound also increases the sensitivity of microorganisms to disinfectants.

2. Microtissue massage: a moderate level of ultrasound influence improves microcirculation in tissues, stimulates biosynthetic processes inside cells and accelerates regenerative mechanisms.

3. Increasing the permeability of blood vessel walls: Ultrasound energy increases the permeability of blood vessel walls, which facilitates the delivery of blood and nutrients to tissues.

ANALYSIS OF COMPLAINTS IN PATIENTS IN ALL TESTED GROUPS BEFORE THE START OF TREATMENT

In group 1, the desire to wipe the nose was 4.2%, sneezing 3.07%, difficulty concentrating 0.94%, difficulty breathing through the nose 2.96%, waking up at night 0.611%, coughing 3.01%, headache 1.44%, feeling discharge on the back wall of the larynx 3.04%, discharge from the nose 2.944%.

In group 2, the desire to wipe the nose 4.04%, sneezing 3.01%, difficulty concentrating 0.43%, difficulty breathing through the nose 2.96%, waking up at night 0.727%, cough 3.02%, headache 1.2%, feeling discharge on the back wall of the larynx 2.963%, discharge from the nose 2.04%.

ANALYSIS OF COMPLAINTS IN PATIENTS IN ALL TESTED GROUPS DURING TREATMENT

On the first day, "wiping the nose" was the highest at 4.17. Sneezing 2.96, difficulty breathing through the nose 2.44, cough 2.87, sensation of discharge in the back wall of the larynx 2.94, nasal discharge 1.44, headache/pressure 0.77, falling asleep difficulties was 0.61, night waking 0.21, and difficulty concentrating 0.81. On the third day, the indicator "want to clear the nose" decreased by 2.59, sneezing by 1.76, difficulty in breathing through the nose by 0.41, cough by 0.87, feeling of secretions on the back wall of the throat decreased by 1.54. Nasal discharge was 0.15, headache/pressure 0.04, difficulty falling asleep 0.06, night awakening 0, and difficulty concentrating 0.2. On

the sixth day, all indicators were almost zero, except for difficulty concentrating, which was 0.07. These results show the improvement of the patient's condition and the increase of the effectiveness of the treatment

Conclusion. An analysis of patient complaints before and during treatment showed a significant improvement in their condition after the start of therapy. Rates of all complaints, including urge to blow nose, sneezing, difficulty breathing through the nose, cough, sensation of discharge in the back of the throat, nasal discharge, headache and difficulty concentrating, decreased significantly within three days of treatment. By the sixth day, almost all complaints had resolved, with the exception of minor difficulties with concentration in some patients.

These results indicate that the treatment was effective in relieving the symptoms of chronic rhinosinusitis in patients.

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