

## Tactics of Administration of Patients with Chronic Atrophic Rhinitis

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**Abstract:** A new method of treatment for atrophic rhinitis with phonophoresis was used in 25 patients. The treatment was carried out with an ultrasound device UTP-1 with a modified emitter (head size - 1 cm<sup>2</sup>). The area of the back and the slopes of the external nose, previously lubricated with vaseline oil, was subjected to sonication, while the preparation Olyfrin was injected into the nose. Ultrasound with an intensity of 0,15-0,2 W/cm<sup>2</sup> was used in a continuous mode. The duration of exposure is 5 minutes. The procedures were carried out every other day. The course is 10-15 procedures. A directly positive effect was observed in all patients; in 8 patients all symptoms of the disease disappeared, in 12 patients the most painful symptoms (difficulty in nasal breathing, crusts formation), in 5 patients a weakening of symptoms was observed. In 15 patients, only ultrasound and the introduction of tampons with olive oil into the nasal cavity were used.

Disappearance of symptoms of the disease was noted in 5 patients, in 10 patients dryness in the nose did not disappear. The results of the treatment were followed up in terms of 3 to 6 months. Recurrence of the disease with a significant weakening of symptoms was observed in 5 patients who received ultrasound and in 3 patients treated with phonophoresis.

**Key words:** atrophy, phonophoresis, ultrasound, rhinopneumometry

Modern methods of treatment of atrophic rhinitis are mostly ineffective, so the search for new effective ways to treat this disease remains an urgent problem and deserves much attention. Recently, ultrasound has been successfully used in medical practice for the treatment and diagnosis of various diseases [1,3]. Numerous studies and observations have proved that under the influence of ultrasound exposure, a complex of biophysical and biochemical changes occurs in the tissues and cells of the body. In medical practice, antiseptic, moisturizing and anti-inflammatory effects of ultrasound have been established. According to many authors, the significant effectiveness of ultrasound therapy in diseases of the musculoskeletal system, neuralgia, neuritis, trophic ulcers, and some inflammatory diseases has been shown. In otorhinolaryngology, ultrasound is used in the treatment of various forms of hearing loss, Meniere's disease, chronic tonsillitis, scleroma, and chronic rhinitis [2,4]. Taking into account the good results of ultrasound therapy in the treatment of a number of diseases, including those based on atrophic and neuro-reflex disorders, ultrasound was used by us to treat patients suffering from atrophic rhinitis. In recent years a number of experimental studies proved the possibility of introduction of medicinal substances by means of ultrasound. According to many authors, ultrasound accelerates diffusion processes, normalizes the permeability of cell membranes, enhances tissue metabolism, and changes the water environment [1,3,5]. The nasal mucosa is a powerful protective barrier, provides conditioning of the inhaled air, and also detains and neutralizes substances that can enter the body with air.

Introduction of a medicinal substance by ultrasound has a number of advantages over phonophoresis. In a comparative assessment of the results of treatment of patients with peripheral nervous system disease by ultrasound of medicinal substances, the great effectiveness of this method was noted. We have not found any information about the use of phonophoresis in otorhinolaryngological practice in the literature available to us. As is known, among the currently existing methods of treating atrophic rhinitis, the introduction of drugs has been widely used [2,4]. Clinical observations and experimental studies have

confirmed the positive therapeutic effect of topical application of olive oil. However, along with the undoubted positive aspects of this method of treatment, some side effects were noted, manifested by headache, allergic reaction to olive oil, dizziness, general weakness[1,3,4]. The occurrence of such complications seems to be explained not by the action of the drug itself, but by the high emotional vegetative-vascular lability of patients with atrophic rhinitis reacting to the nasal mucosa, which is a reflexogenic zone with extensive and diverse organ connections. The above has prompted us to replace olive oil with the medicinal substance Olifrin, while we proceeded from the fact that the simultaneous use of two therapeutic factors - ultrasound and the medicinal substance will allow you to get the best therapeutic effect. We examined 40 patients (31 women and 9 men) with a chronic form of atrophic rhinitis. The age of patients is from 23 to 59 years. The diagnosis of atrophic rhinitis was made on the basis of a characteristic clinical picture, differentiation of its forms was made after a purposeful anamnesis, a general clinical examination and a number of special laboratory tests of blood, a bacteriological study of the discharge from the nose.

The first control group included 15 patients who used phonophoresis with olive oil, and 25 patients of the main group used only ultrasound with Olifrin. In cases where the nasal mucosa is dry, itching and burning may occur, the formation of crusts, as well as the appearance of nosebleeds and headaches is not excluded. When the nasal mucosa is dry, a person experiences discomfort, difficulty breathing through the nose. A person can't sleep well at night. It is also important that when the nasal mucosa is dry, the main function of the nose ceases to be performed: filtering the air that enters the lungs when breathing. Does not contain harmful substances Olefin safe during pregnancy and breastfeeding. It moisturizes the mucous membrane, creates a protective film on its surface, thereby helping it to perform its function. In addition, a well-moistened mucosa is easier to resist bacterial infection. It is available in the form of a spray of 15 ml, used 1-3 times a day, there are no restrictions on the duration of use. The treatment was carried out by a domestic ultrasound device UTP-I (oscillation frequency 830 kHz) with a modified emitter (head size reduced to 1 cm). The area of the back and ramps of the external nose was voiced. The contact medium is vaseline oil. The ultrasonic head was slowly moved over the surface to be voiced, producing circular and linear movements. Ultrasound with an intensity of 0.15-0.4 w / cm<sup>2</sup> was used in continuous mode. Duration of action 5 min. The skin of the back and side slopes of the nose was lubricated with vaseline oil, the drug Olifrin was injected into the nasal passages. Treatment was carried out every other day. The course of 10-15 procedures. When using ultrasound with Olifrin, a positive therapeutic effect was observed in all 25 patients. The disappearance of all symptoms of atrophic rhinitis was observed in 8 patients, in 12 there was a significant improvement (the most painful symptoms of the disease disappeared, other symptoms became less pronounced), in 5 patients the results of treatment were regarded as satisfactory (there was a marked weakening of the symptoms of rhinitis). All patients underwent the procedure well. Improvement in the course of treatment in 6 patients occurred on the 1st-2nd day, in 15 cases - on the 3rd and in 4-on the 7th-10th day of treatment. Patients of the control group (15 people) were treated by inserting gauze swabs soaked in olive oil into the nasal passages without exposure to ultrasound. In no case was there a positive therapeutic effect at the end of the course. After treatment with phonophoresis, 9 patients showed a significant weakening of the symptoms of the disease, 4-their complete disappearance, in 2 patients the treatment was ineffective. The following tests were used to judge the effectiveness of the ultrasound therapy and the olive oil phonophoresismethod: study of the clinical manifestations of the disease in dynamics, rhinopneumometry, cytological examination of prints from the surface of the nasal mucosa, study of the function of the atrial epithelium of the nasal mucosa, olfactometry, bacteriological examination of nasal discharge. These tests were applied in 33 patients (in

15 patients of group 1 treated with phonophoresis, and in 25 patients of group 2 treated with ultrasound). The study was conducted before treatment (in the inter-access period) and after treatment. In order to determine the protective function of the nasal mucosa, we studied the motor activity of the ciliated epithelium. Charcoal was used as an indicator powder. According to I. S. Vasilenko, the average time of movement of the indicator powder from the anterior parts of the nose to the nasopharynx in healthy people is from 5 to 35 minutes.

**Table 1. Indicators of protective and respiratory function in patients with atrophic rhinitis.**

Indicators	1 <sup>st</sup> group before treatment	1 <sup>st</sup> group after treatment	2 <sup>nd</sup> group before treatment	2 <sup>nd</sup> group after treatment
Respiratory system	15	12	25	25
Motor	15	10	25	22

Among the examined patients with atrophic rhinitis, inhibition of motor activity of the ciliated epithelium was found in the first group of 15 patients after treatment with phonophoresis, improvement occurred in 10. In the main group of 14 of them, the appearance of powder in the nasopharynx was noted only after 60 minutes. After treatment, normalization of the function of the ciliated epithelium occurred in 22 patients ( $P > 0.01$ ). We judged the respiratory function of the nasal cavity by the indicators of the rhinopneumometer proposed by L. B. Dainyak and N. S. Melnikova. Before treatment, the patency of the air jet was sharply reduced in 14 patients (patency of I degree - in 9 people, III y 3, IV-y 2). After treatment in patients of the control group, patency was restored in 12 patients, and in 3 patients remained unchanged. In patients of the main group, patency was restored in 25 patients. The microflora of the nasal cavity under the influence of the treatment has not changed. In the study of olfactory function before and after treatment, there were also no changes. The general condition of patients, weight, blood pressure, urine and blood remained unchanged. As can be seen from the above data, after the applied treatment, the function of the atrial fibrillation was normalized in many patients, and nasal breathing improved. These changes were noted predominantly in patients treated with Aliminum. The results of treatment in terms of 3 to 6 months were followed in 29 patients (9 treated with phonophoresis, and 20 treated with ultrasound). Relapses of diseases with a significant reduction in symptoms were observed in 2 patients treated with ultrasound, and in 5 treated with phonophoresis with olive oil (2-3 months after the end of treatment). Based on our observations, we consider the ultrasound method to be very effective in the treatment of patients with atrophic rhinitis and recommend it for wide application.

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