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## Hypnotic suggestion for the treatment of tinnitus

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### Abstract

*Aim of study.* Considering the high spreading of tinnitus in population, the purpose of our research was to study the possibility and expediency of using hypnosuggestive therapy in treatment of tinnitus.

*Material and methods.* The study included 55 people with tinnitus complaints. We divided three groups of patients depending on the severity of the manifestations, audiometry results, Tinnitus Handicap Inventory (THI) score according to this scale of severity, results of GAD-7 test and the PHQ-9 (Patient Health Questionnaire -9).

*Results.* In the first group of patients, according to the tinnitus severity scale the score was up to 19 points and was considered as insignificant and mild. The score of the GAD-7 questionnaire was less than 8 points, PHQ-9 - up to 5 points. In the second group the severity of tinnitus was moderate and severe and counted more than 38 points. The GAD-7 questionnaire score was less than 8 points, PHQ-9 - up to 5 points. In the third group, 12 people complained of chronic tinnitus, sleep disturbances, nervousness, and reduced work capacity. The score of tinnitus severity in patients of this group was more than 58 points and was assessed as severe and catastrophic. According to the results of the GAD-7 and PHQ-9 questionnaires, all 12 people were diagnosed with anxiety disorders and depression, two patients even had suicidal thoughts. In the third group of patients with +++ hypnotability, after ten sessions of individual hypno-suggestive therapy, it was possible to reduce the severity of tinnitus to the third moderate degree in 7 people. 4 patients reported about complete regress of tinnitus.

*Conclusions.* Tinnitus is a common problem and can negatively affect work, family and social life. It requires the individual approach and involvement of specialists of various profiles in the diagnostic process. The diagnostic algorithm for patients with tinnitus should include questionnaires to estimate the psychosomatic profile. The use of hypno-suggestive therapy can significantly reduce the severity of tinnitus and improve the quality of lives of patients.

*Keywords:* tinnitus, hypnosis, quality of life, hypnotherapy, hypnotic suggestion, hypno-suggestive therapy.

Introduction. In the practice of otorhinolaryngologist, we are faced with diseases with psychosomatic comorbidity. These can be psychosomatic disorders resulting from ENT pathology, such as tinnitus, nasal breathing, external deformities, as well as symptoms from the ENT organs that do not have a pathogenetic component from the ENT organs - a lump in the throat (globus hystericus), speech disorder, feeling of suffocation. Studies show that at least 45% of the population experiences the feeling of a lump in the throat once in a lifetime [1]. Negative thoughts, anger, frustration can arise in the human mind, leading to depression. Whereas in a healthy body a healthy mind generates noble thoughts [2].

In 1818, the German physician Johann Heinroth introduced the term psychosomatics into medicine [3,4]. Psychosomatic medicine is defined as an interdisciplinary system for assessing psychological factors that affect the individual course of the disease, biopsychosocial management of the patient in clinical practice, as well as the integration of psychological therapy into the prevention, treatment and rehabilitation of somatic diseases [5]. After all, when physician says that he did not find the organic cause of the symptoms, and it must be something psychological, it sounds very insulting to the patient. This implies that person is not actually sick, but imagines or mimics the disease. One of the most important tools in medical arsenal is the ability to listen and ask the "right" questions. The initial contact has great importance for building a trusting relationship between doctor and patient. Therefore, the compilation of the first case history in contact with a psychosomatic patient is an important step towards psychosomatically oriented therapy.

Tinnitus is a common condition that is usually described as buzzing, ringing, or hissing in the ears or head. Prevalence data range from 11.9 to 30.3% of the population [6]. In most cases, tinnitus has no identifiable cause and no corresponding external source, and is therefore described as subjective. Approximately 10% to 15% of the population is thought to experience tinnitus [7]. Analysis of the literature shows that tinnitus is of interest to scientists around the world. However, there is still no standard diagnostic criterion for tinnitus, an algorithm and management tactics for such patients. And among the available studies, there are also large differences in numbers in assessing prevalence by sex and age, as well as the severity of tinnitus, depending on its impact on a person's lifestyle. Gender differences are still a controversial issue, but according to the Systematic Review of Tinnitus Prevalence and Severity [8], most available studies show a higher prevalence of tinnitus in men than in women. Other studies notice that tinnitus is more often reported in men, but women more often note that it gives them discomfort [9], and about 20% of those who complain of tinnitus, report that it is "clinically significant" [10].

Many patients have tinnitus, but it is not disturbing enough to them for seek medical attention. Others may real suffer. The impact of tinnitus on an individual can range from mild to completely debilitating, with significant social and economic consequences. For some, tinnitus goes beyond the phantom sensation of sound. This can cause such problems, accompanied by anxiety, stress; can affect the emotional state, concentration and attention, as well as cause depression and sleep disturbance, which reduces the quality of life of such people [11,12,13].

There are various questionnaires to help assess the severity of tinnitus - Tinnitus Handicap Inventory THI, Tinnitus Severity Index TSI, Tinnitus Reaction Questionnaire TRQ, Tinnitus Handicap Questionnaire THQ, and the Tinnitus Questionnaire/Tinnitus Effects Questionnaire TQ/TEQ). Often it is necessary to use of a combination of such questionnaires.

There is a relationship between the presence of tinnitus and its intensity depending on lifestyle and nutrition. Existing studies have noted an increase in noise in individuals who consume a lot of caffeine [14]. Since the beginning of the Covid-19 pandemic, there has been an increase in the number of people complaining of tinnitus [15].

Therefore, most treatment methods include an individual therapeutic complex in various configurations: autogenic training, muscle relaxation, hypnosis, yoga, acupuncture, talking therapy, cognitive behavioral therapy, although there are no long-term results to this day [16]. Chronic tinnitus is a psychophysiological disorder in which psychological and social aspects must be taken into account. After all, the harm done to the quality of life can be significant, and tinnitus is often accompanied by anxiety disorders, depression, as well as problems with concentration and sleep [17].

Patients with chronic noise and neurotic component do not get better from organic therapy, which confirms the feasibility of early psychosomatic intervention. Success depends not only on the physician, but also on the positive orientation of the patient and other personal resources that affect the perceived irritation in the ears [18]. Aim of the work is study the possibility and effectiveness of using hypnosuggestive therapy in the correction of tinnitus.

Materials and methods. We examined 55 patients with tinnitus (29 women and 26 men). The average age was 37.8 years. Inclusion criteria: age up to 50 years, presence of short-term work factors, normal results of objective impedance audiometry, sensorineural hearing loss.

We divided three groups of patients. The first group consisted of 19 people with acute tinnitus, who were treated in an ENT department. In the second group, we examined 24 people with chronic tinnitus. Patients of this group underwent complex treatment by a neurologist in collaboration with an ENT specialist. In the third group of patients there were 12 people with chronic tinnitus who underwent repeated course of treatment in ENT department, neurological clinics without any dynamics. All patients underwent tonal audiometry, tympanometry and acoustic reflexometry. All patients were asked to complete the Tinnitus Handicap Inventory (THI) questionnaire for assessing the psychosomatic status, and the GAD-7 and PHQ-9 questionnaires to assess the psychosomatic status. Pure tone audiometry was performed with audiometer AD629 (Interacoustics, Denmark) and HDA 300 headphones. Hearing thresholds were determined for the following frequencies: 125, 250, 500, 750, 1000, 2000, 3000, 4000, 6000, 8000 Hz. Normal hearing was defined as thresholds  $\leq 15$  dB hearing level. And we also used a highfrequency audiometry – in the diaposone from 9000, 10000, 11500, 12000, 14000, 16000, 20000 Hz. Tympanometry was performed with Titan (Interacoustics, Denmark).

Results. In the first group of patients, 10 of 19 cases showed positive dynamics and regression to noise on control audiometry. On a scale of severity of tinnitus, the score was less than 19 points and was rated as insignificant and slight. Following the results of the GAD-7, the score was less than 8 points, PHQ-9 - up to 5 points. In patients of the second group, according to the results of the THI questionnaire, the severity of the tinnitus increased by over 38 points – moderate and severe. Results of the GAD-7 test were less than 8 points, PHQ-9 - up to 5 points. Patients of this group had comorbid neurological diseases, such as hypertension, degenerative diseases of the spine, benign paroxysmal positional vertigo etc. This group of patients underwent a comprehensive neurological examination, which included medication and physiotherapeutic methods. 13 of 24 people reported significant subjective improvement and rated the severity of tinnitus as mild. 11 people noted a slight change.

The third group included 12 people who complained of chronic tinnitus, sleep disturbance and reduced work capacity. All of them were treated in ENT department and neuropathological clinics without any dynamics. According to the results of the THI questionnaire, the severity of tinnitus in patients in this group was over 58 points and was assessed as severe and catastrophic. The results of GAD-7 and PHQ-9 tests revealed anxiety disorders and manifestations of depression in all 12 patients, and two people (3.6% of the total number of patients) had suicidal thoughts (Tab. 1).

Grade	Score	Description	Q-ty	%
1	0-16	Slight: Only heard in quiet environment, very easily masked. No interference with sleep or daily activities.	9	16
2	18-36	Mild: Easily masked by environmental sounds and easily forgotten with activities. May occasionally interfere with sleep but not daily activities	10	18
3	38-56	Moderate: May be noticed, even in the presence of background or environmental noise, although daily activities may still be performed	13	23
4	58-76	Severe: Almost always heard, rarely, if ever, masked. Leads to disturbed sleep pattern and can interfere with ability to carry out normal daily activities. Quiet activities affected adversely.	11	20
5	78-100	Catastrophic: Always heard, disturbed sleep patterns, difficulty with any activity.	12	21

Tab. 1. Tinnitus Severity according to Tinnitus Handicap Inventory Scale (THI).

Patients of the third group received pharmacotherapy, including antidepressants, vasodilators, and vitamins. Although various medications are currently used in the treatment of tinnitus, none has yet been approved for its treatment [19]. According to A Scoping Review of Treatment Components for People with Tinnitus there are twenty-four different types of Psychological Therapies for tinnitus [20]. The most frequently reported type of Psychological Therapies is tinnitus education. But all the components of their treatment did not make a significant effect. Therefore, we guided the third group in collaboration with a psychotherapist.

There were provided several types of psychotherapy: 1. Group and individual, 2. Rational; 3. Hypno-suggestive psychotherapy (Fig.1). All the patients in advance reached the next stage of navigation after Coué-Baudouin [21,22] and hypnosis after Rozhkovsky G.V [23]. In patients with hypnotic ability +++ after ten sessions of individual hypno-suggestive therapy, which started from the first session of group rational therapy, the degree of severity of tinnitus decreased from the 4th and 5th degrees to the third moderate (7 people). Tinnitus regressed completely in 4 people. And only one person with hypnopability 0+ did not notice positive dynamics.

Scheme of a session of therapeutic hypnosis for the correction of tinnitus

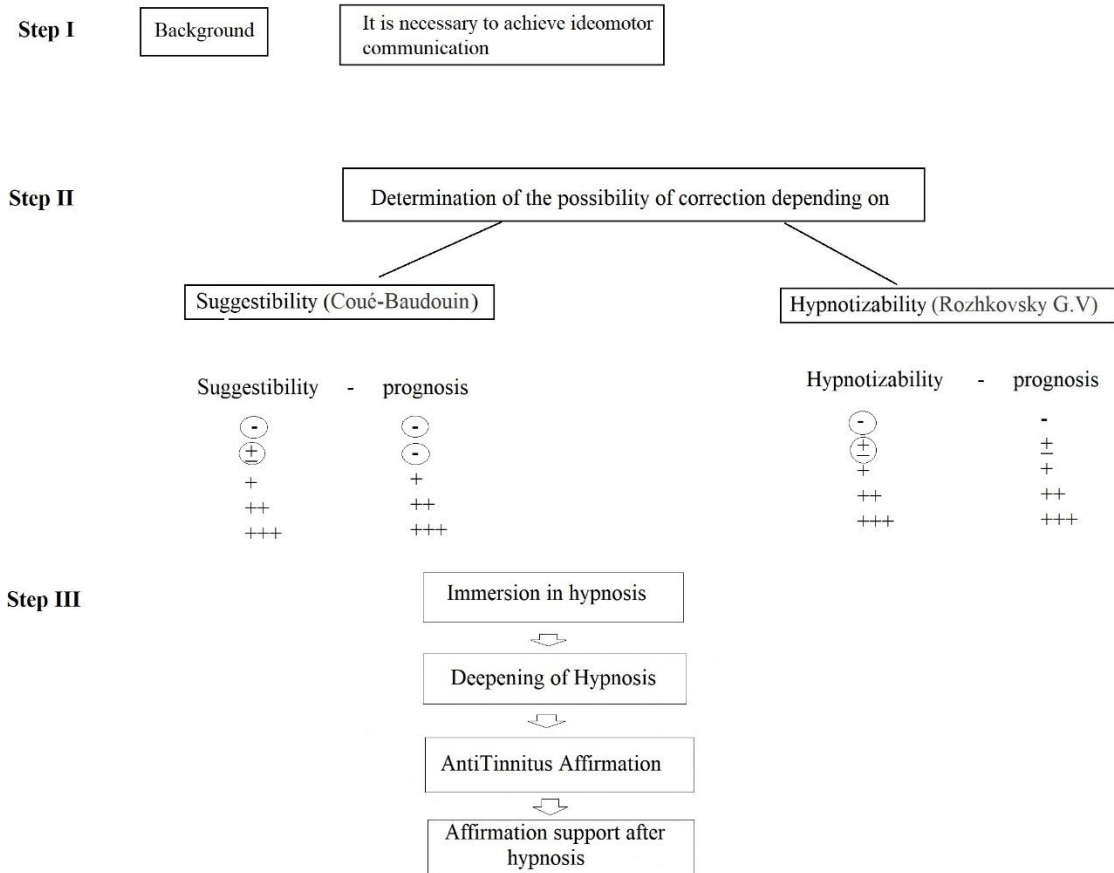


Fig. 1. Scheme of a session of therapeutic hypnosis for the correction of tinnitus.

Conclusions. Tinnitus can cause anxiety, stress, affect the emotional state, as well as cause depression and sleep disturbances, which leads to significant social and economic consequences. Therefore, in such patients, an initial examination, medical history, use of tinnitus severity questionnaires are an important step towards psychosomatically oriented therapy. The success in treatment of tinnitus can be achieved by using combined therapeutic modules. In patients with a high hypnotizability, it is possible to use hypno-suggestive therapy in the correction of tinnitus and achieve its significant regression, which improves the quality of life of such people.

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