

## Pharmacopuncture in medical rehabilitation of patients with somatogenic cochleovestibular syndrome

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### SUMMARY

This article is devoted to the issue of therapy of cochleovestibular syndrome, which develops against the background of dysfunction of the temporomandibular joint, pathological occlusion in combination with myofascial disorders. This pathology is an urgent medical problem due to its wide prevalence. It is located at the intersection of several medical specialties: otoneurology, dentistry, medical rehabilitation, manual therapy and physiotherapy. The article presents the data of examination and treatment of 180 patients suffering from cochleovestibular syndrome of "cervico-odontogenic" genesis, using pharmacopuncture in complex therapy. Based on the data presented in the article, it is shown that the use of pharmacopuncture in the complex treatment of cochleovestibular syndrome caused by dysfunction of the temporomandibular joint,

**Keywords:** cochleovestibular syndrome, dysfunction temporo-  
mandibular joint, pathological dental occlusion, dentistry, pharmacopuncture, manual  
therapy, myofascial pain syndrome.

### RESUME

This article is dedicated to the treatment of cochleovestibular syndrome that develops against the backdrop of the temporo-mandibular joint dysfunction and malocclusion combined with myofascial disorder. The broad prevalence makes this pathology an urgent health problem. This problem involves several medical specialties: otoneurology, dentistry, medical rehabilitation, manual therapy and physiotherapy. Our article presents the examination data of 180 patients suffering from cohleovestibular syndrome of "cervico-odontogenic" origin and results of complex treatment, including pharmacopuncture. Analysis, based on these data, shows, that including pharmacopuncture in complex therapy of cochleovestibular syndrome, caused by temporomandibular joint dysfunction, malocclusion and myofascial disorder,

**keywords:** cohleovestibular syndrome, temporomandibular joint dysfunction, pathological dental  
occlusion, dentistry, pharmacopuncture, manual therapy, myofascial pain syndrome.

In recent years, there has been a trend towards a steady increase in the number of patients with complaints of dizziness, balance disorders, hearing changes and tinnitus. This happens due to various reasons: an increased level of psychological stress, constant stressful situations, computer work, intoxication, etc. [1, 2, 3]. This explains the large number of works devoted to this topic. A sufficient number of studies have been devoted to the issue of the relationship between dizziness and cochlear symptoms and vertebrogenic factors [4, 5, 6, 7, 8]. There are data on the impact of dysfunction of the temporomandibular joint (TMJ) and pathological dental occlusion on the clinic of cochleovestibular syndrome (CVS) [9, 10, 11, 12, 13, 14, 15, 16]. The therapeutic methods used for its treatment, mainly medication, do not always bring a positive result [17].

Despite the large number of different drugs and treatments for patients with disorders of auditory and vestibular functions, their effectiveness is low, in addition, they often lead to the development of adverse reactions. Therefore, the issue of wide inclusion of reflex methods of correction in the treatment regimen for HF pathology is becoming increasingly important. There is evidence of the use of manual therapy in the treatment of this pathology [18].

However, data on the use of pharmacopuncture, which, like manual therapy, is one of the brightest representatives of these therapeutic methods, was not found by us in this disease. Pharmacopuncture is the introduction of various drugs into the projection of acupuncture points, and in some cases to the canonical depth of the point. The choice of acupuncture points is carried out according to the general rules of reflexology, taking into account the topic of the pathological process. Often, this method uses complex antihomotoxic drugs [19]. A number of studies have been conducted on the use of pharmacopuncture in various diseases, including those of vertebrogenic origin [20]. However, there have been no works on its use in the treatment of somatogenic CVJ that occurred against the background of pathological occlusion and dysfunction of the TMJ.

Target works: definition efficiency use integrated  
homeopathic preparations administered by the method of pharmacopuncture, with CVD caused by dysfunction of the TMJ and pathological dental occlusion.

#### MATERIALS AND METHODS

We examined and treated 180 patients who applied to the Institute of Otorhinolaryngology. Sverzhovsky in the period from 2014 to 2016, with clinical manifestations of cochlear and vestibular disorders. The duration of the disease ranged from 3 months. up to 2 years or more. The age of the patients ranged from 19 to 61 years. In all patients, during the initial examination, the presence of pathological occlusion and dysfunction of the TMJ in the form of a restriction or, conversely, an increase in mouth opening, a violation of the trajectory of the opening of the lower jaw, asymmetry of the movement of the condyles of the joint, pain and clicking in it was revealed. It should be noted that the generally accepted courses of therapy, mainly medication (vascular, metabolic, analgesic, psychocorrective), were carried out by him repeatedly and did not have the desired clinical effect.

The study was approved by the local ethics committee of the Russian Scientific Center for Medical Rehabilitation and Balneology. The study participants completed the questionnaires voluntarily and anonymously. All patients in an individual conversation with a doctor were given explanations about the goals and objectives of the study, as a result of which, with

Upon receipt of the patient's consent to participate, the participants signed the "Patient Information Sheet" in 2 copies, one of which was handed out.

The criteria for exclusion from the study were indications of a history of vascular lesions of the brain, inflammatory diseases of the ENT organs in the acute stage, chronic somatic and neurological diseases in the stage of decompensation, patient refusal of treatment, as well as the presence of oncological diseases, anomalies in the development of the musculoskeletal, nervous and vascular systems, multiple myeloma, mental illness, severe osteoporosis, etc.

In addition, 35 healthy volunteers who made up the control group took part in the study.

All patients were examined according to a single scheme, including palpation examination of the cervical and masticatory muscles, manual muscle testing of the muscles of the neck and shoulder girdle, provocative kinesiological chewing tests, dislocation of the TMJ disc and dysfunction of the pterygo-mandibular and styloid-mandibular ligaments, compression of the TMJ. The functional state of the TMJ was assessed according to the protocol of the Hamburg test [21, 22], in addition, the severity of lesions in it was determined [23]. The examination also included an ENT examination, tone threshold audiometry, and a set of vestibulometric tests. Dental diagnostics included a study on the T-SCAN software and computer system, which made it possible to assess the correctness and balance of occlusion, to determine the exact location of supercontact on natural teeth, restorations and orthopedic structures, chewing load on each tooth. Orthopantomographic examination and MRI of the TMJ, radiography of the cervical spine were performed. The patient's tinnitus was assessed by questioning according to Aksoy S., dizziness - according to Jacobson G., Newman CW. Psychological status was assessed according to the anxiety test (Spielberger-Khanin questionnaire).

These examination methods, with the exception of orthopantography, MRI of the TMJ, radiography of the cervical spine, were performed before and after treatment in all patients.

Received data were subjected to statistical processing. With the help of computer programs Statistica 6.0 (for analysis of variations) and Microsoft Excel (for correlation analysis). To compare variables, the criteria  $\chi^2$  (McNemar's test) and Wilcoxon's T-test (for non-parametric data). The difference in values was considered statistically significant at  $p < 0.05$ .

All patients were divided into 3 statistically comparable groups, 60 people each. Patients of all three groups underwent individual grinding of premature intertubercular contacts. Patients of the first group underwent manual therapy and pharmacopuncture with Traumeel, patients of the second group, together with manual therapy, received Traumeel and Zeel T, administered according to the pharmacopuncture method, patients of the third group underwent only selective grinding of premature contacts.

Occlusal editing of premature contacts was carried out in 4-5 procedures with an interval of 7-10 days. Manual therapy included osteopathic techniques on the TMJ, cranial techniques, ischemic compression of the myofascial trigger point, strain-counter strain, post-isometric relaxation, Mitchel techniques, direct and indirect functional correction, visceral therapy, correction of foot dysfunctions, and in some cases, manipulative trust techniques were performed. All exposures were carried out under the control of manual muscle testing used in applied kinesiology. The number of procedures per course was 5-7, the duration of the course was 4-5 weeks.

Pharmacopuncture was carried out 3 times a week, in the amount of 10 procedures, and consisted of subcutaneous and intradermal administration of the drug into the projection zone of acupuncture points. In this case, the localization of the points was chosen taking into account the topic of clinical manifestations (VB 2, 3, 4-21; E 5, 6, 7, 8; TR 21, 22; IG 17, 18, 19, etc.). To enhance the effect, points of general action were used: P7; E36; Gi 4, 11, 14; RP6, 7; VB 36, 35, etc.

#### RESULTS AND DISCUSSION Evaluation of clinical effectiveness by groups.

The criteria for assigning patients to the "significant improvement" subgroup were: complete regression of dizziness, tinnitus, and auditory perception disorders, or a significant decrease in the incidence of these syndromes; significant regression of the severity of myofascial syndrome. With complete or significant regression of objective symptoms.

The criteria for assigning patients to the "improvement" subgroup were: a decrease in the severity of dizziness and tinnitus or a decrease in the frequency of their occurrence, a moderate regression in the severity of myofascial syndrome. With a slight regression of objective symptoms.

The criteria for assigning patients to the "no effect" subgroup were: the preservation of subjective sensations and complaints in the absence of dynamics from the side of objective symptoms of the disease.

The "deterioration" subgroup included patients who, during the course of treatment, experienced an increase in subjective sensations of the manifestation of the disease with a parallel increase in objective symptoms.

From the data given in table. 1, it follows that in the first two groups, patients with significant improvement prevailed, and in the 3rd group - with improvement. The number of patients with no effect of the treatment in the 3rd group was almost 3 times more than in the 2nd group and twice as much as in the first. Leading 3 gr. and the number of patients with worsening condition. It should also be noted that in patients in the 2nd and 3rd groups, the indicators of clinical efficacy were generally comparable. However, in patients with severe changes in the joint and disc, the effect of the combined use of Traumeel and Zeel T was 22% higher than in the second group, where only Traumeel was used. Therefore, in patients with severe and moderate TMJ dysfunction and pronounced involvement of articular structures (capsules, ligaments,

Table 1  
Overall assessment of clinical efficacy in the analyzed groups of patients

Groups sick	Significant improvement		Improvement		no effect		Deterioration	
	abs.	%	abs.	%	abs.	%	abs.	%
II (n=60)	33	55.0	eighteen	thirty	7	11.7	2	3.3
III (n=60)	36	60.0	17	28.3	5	8.3	2	3.3
V(n=60)	14	23.3	24	40.0	14	23.3	eight	13.3

Differences in the groups were also observed in the rate of onset of a stable clinical effect. The rate of onset of the therapeutic effect in the 2nd and 1st groups was noted by the end of the 2nd and the beginning of the 3rd week, respectively. The time of onset of the clinical result in patients in the 3rd group was significantly distant, because grinding procedures for premature

contacts were made with an interval of 10-12 days, with a frequency of 3 to 6 procedures, and improvement according to T-SCAN data and clinical manifestations of the disease occurred on average after  $2.5 \pm 0.5$  months. from the start of therapy.

At the end of the course of treatment, all patients showed an improvement in the parameters of the Hamburg test.

Comparing the regression of the Hamburg test indicators in patients of the 1st and 2nd groups, with their comparability, it should be noted that in patients with severe and moderate severity of TMJ lesions, TMJ dysfunction responded faster to correction in patients of the 2nd group (Table 2).

The above data allow us to conclude that pharmacopuncture with Traumeel is effective in the case of predominance of myofascial disorders in the clinical picture of peripheral FAC; in the presence of pronounced intra-articular dysfunctions of the TMJ, the addition of Zeel T to therapy increases the clinical effectiveness of pharmacopuncture.

table 2

## Regression of Hamburg test scores

Sign of TMJ dysfunction	1st group	2nd group	3rd group
Deviation n. jaws and asymmetry of condylar movements	48 (80%)	50 (83.3%)	41(68.3%)
Restriction or excessive opening of the mouth	51(85%)	53(88.3%)	43(71.7%)
Pain on palpation of the masticatory muscles	52(86.6%)	54 (90%)	40(66.7%)
Click when moving n. jaws	36 (60%)	38(63.3%)	31(51.7%)
General dynamics of indicators	55(91.7%)	58 (96.7%)	38(63.3%)

When comparing the dynamics of regression of functional muscle tests, it was noted that the greatest improvement was also achieved in the 1st and 2nd groups. The data of manual muscle testing on the example of positive dynamics of the walking pattern test, as well as in the case of regression of functional hypotension of the muscles of the cervical region and shoulder girdle also showed the greatest positive dynamics in patients of the first two groups (Table 3).

Table 3

## Regression of functional muscle tests

Functional tests (regression symptoms)	1st group, people %	2nd group, people %	3rd group, people %
Walking pattern disorder	51 (85%)	55(91.7%)	42(68.3%)
Chewing test	52 (86.7%)	53(88.3%)	48 (80%)
Functional hypotension of the muscles of the neck and shoulder girdle	54 (90%)	54 (90%)	41(68.3%)

As a result of the treatment, the average indicators of maladaptation associated with dizziness and tinnitus intensity significantly decreased, the number of patients with registered cervical positional nystagmus in the 1st and 2nd groups decreased. The exception was the 3rd group of patients, in which the improvement in performance had no significant values. It should be noted that there was no significant increase in hearing acuity in all the patients we observed, however, in 2 (3.35%) patients from the 2nd group, the audiometric parameters returned to normal (Table 4).

Table 4

Dynamics of indicators of vestibular and auditory dysfunctions during treatment

Survey data	Before treatment	After treatment		
		1st group	2nd group	3rd group
Hearing loss (dB)	13.00 - 4.87	7.86 - 3.81	7.64 - 2.83	12.23 - 2.39
Tinnitus intensity (Aksoy S. scale)	24.73 - 3.93	8.4 - 2.16*	8.1 - 2.11*	17.8 - 2.25
Nystagmus (cervical positional) people (%)	300(100)	18(30)*	16(26.7)*	35(58.3)
The degree of functional maladaptation associated with dizziness (Jacobson GP scale, Newman CW)	12.47 - 2.62	3.01 - 1.25*	2.84 - 1.15*	5.29 - 2.15*

\* -  $p < 0.05$  - significant difference from the initial indicators. The data are presented in the form mean and standard deviation (M - SD).

Expressed positive dynamics pathobiomechanical vertebrogenic dysfunctions (Table 5) and posturological tests, as well as stabilometry data after therapy, confirms the significant effect of the TMJ on the posturological mechanisms of muscle tone regulation. The most pronounced dynamics in vertebrogenic and posturological tests in patients of the 1st and 2nd groups, with its predominance in the 2nd group, testifies in favor of a combined approach to therapy.

The indicators of masticatory load asymmetry after treatment in all groups did not significantly differ from the control indicators, while the opening time in the 3rd group had significant differences from the same indicator in the control group, which indicated persistent hypertonicity in the masticatory muscles and also testified in favor of the use of a complex approach in the treatment of this pathology (Table 6).

The results of psychological testing according to Spielberger revealed a positive dynamics in the psychological state of patients in all the studied groups, while in patients of the 2nd group, positive dynamics was observed in 53 (88.3%), in the 1st - in 50 (83.3%), in 3rd - in 41 (68.3%) patients (Diagram 1).

Table 5

Positive dynamics of indicators of vertebrogenic dysfunctions and posturological tests

Positive dynamics of indicators	1st group, people %	2nd group, people %	3rd group, people %
Patobiomechanical vertebrogenic dysfunction	51(86.7%)	53(88.3%)	32(53.3%)
Posturological tests	46(76.7%)	49(81.7%)	38(63.3%)

Table 6

Indicators of chewing load asymmetry according to T-SCAN

Indicators	Control	Groups		
		First	Second	Third
Average pressure difference (%)	8.4 - 3.2	11.6 - 3.9	11.0 - 2.5	13.3 - 3.5
Opening time (s)	0.05 - 0.015	0.11 - 0.001	0.10 - 0.013	0.67 - 0.06*

\* -  $p < 0.05$  - significant difference from control indicators. The data are presented in the form mean and standard deviation (M - SD).

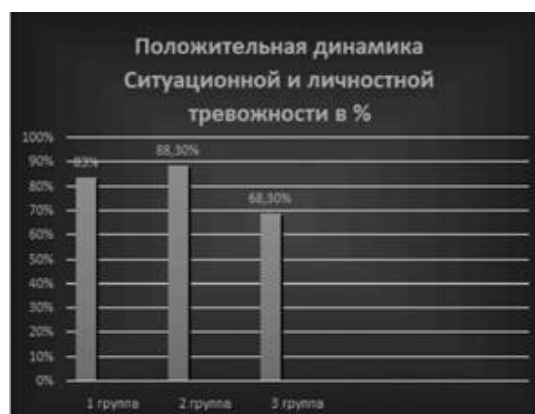


Diagram 1

To determine the stability of the obtained results, we examined the treated patients 12 months after the end of the course of therapy. In the 1st group, repeated attacks of dizziness were observed in 18% of patients, in the 2nd group they were observed in 12% of patients, in the 3rd group, repeated attacks of dizziness were observed in 30% of patients (diagram 2).

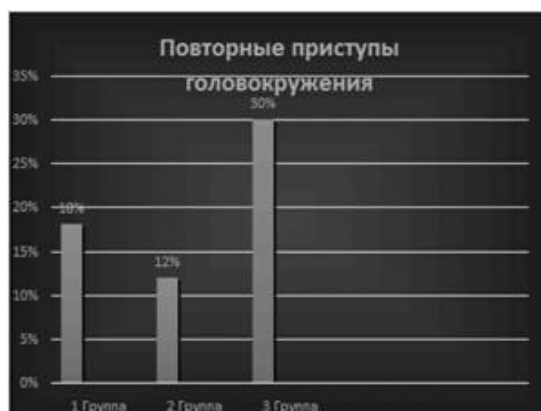


Diagram 2

Walking pattern disorders in the 1st and 2nd groups of patients were detected in 17% and 16% of cases, respectively, while in the 3rd group this test was impaired in 43% of patients.

The achieved positive dynamics according to functional muscle tests, manual muscle testing, posturological tests, stabilometry, vestibulometry in patients of the first two groups persisted after 12 months, with the greatest resistance in patients of the 2nd group. It should be noted that, according to T-SCAN, in patients of the third group, normalization of the opening time occurred on average 6 months after the end of treatment, which indicated a long adaptation period necessary to restore the normal tone of the masticatory muscles when using only the dental approach in treatment.

Thus, based on the above data, we can make the following conclusions:

1. Pharmacopuncture with Traumeel has a distinct analgesic effect in the case of the predominance of myofascial pain syndrome in the clinical picture of the disease with a significant decrease ( $p < 0.05$ ) in pain intensity after the 2nd-3rd procedure.

2. The use of a combination of drugs Traumeel and Zeel T, administered according to the method pharmacopuncture, increases the effectiveness of the treatment of patients with cochleovestibular

syndrome, combined with moderate and severe temporomandibular joint dysfunction, by 22%.

3. A follow-up study, reliably indicating a greater than in other groups, the stability of the therapeutic effect in the complex use of drugs administered by the method of pharmacopuncture ( $p < 0.05$ ) in the event of cochleovestibular symptoms combined with moderate and severe temporomandibular joint dysfunction indicates the advisability of their combined use in this pathology.

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