**COMPLEX CORRECTION OF QUALITY OF LIFE BY DYNAMIC ELECTRONEUROSTIMULATION IN PATIENTS WITH CHRONIC PANCREATITIS**

Y. Y. Kotsaba, L. S. Babinets

*Ternopil State Medical University n. a. I. Y. Horbachevsky, Ukraine*

**Key words:** chronic pancreatitis, quality of life, dynamic electroneurostimulation, DENS-therapy, acupuncture

**Introduction.** Chronic pancreatitis (CP) is an inflammation of the pancreas characterized by destruction of its basic anatomic structures, development of manifestations of functional insufficiency which remain and progress even after termination of influence of causal factors. In the initial stage of the disease the pathological process may be limited and not spread on the entire gland, but in the late stage it becomes diffuse with the involvement of the entire organ. As the disease progresses, the severity of sclerotic changes increases. Sclerosis of pancreas with or without calcification is a final of CP and does not depend on the etiology of this disease. These changes are accompanied by appropriate symptoms: pain, dyspepsia disorders, exocrine and endocrine insufficiency, concomitant lesion of other organs of the digestive system [1, 6].

Correction of clinical symptoms of CP is made by the way of long and often vital compliance with the recommendations of rational nutrition, healthy lifestyle (complete rejection of alcohol and tobacco consumption), also by the prescribing of medicaments, physical exercises and in the case of necessity ― the use of surgical methods of treatment. These changes cause discomfort and force patients with CP to change their lifestyle that often deteriorate its quality. That makes physicians and patients to search others alternative methods of correction of changes, which are caused by CP [1].

DENS (dynamic electroneurostimulation) is a method of non-medical treatment which is based on the influence on the active reflex zones and points of human body by the use of dynamic pulses of electric current. The shape of these pulses constantly changes and depends on the electrical resistance of the skin which is situated under electrode. The positive effect is not only presented by termination of pain, but also by the influence on the reason of disease [4, 5].

**Aim of research** is to execute a comparative analysis of dynamics of the indicators of life quality (LQ), clinical manifestations in patients with CP and with concomitant colon dysbiosis (CD) under the influence of the complex schemes of treatment and rehabilitation with the inclusion of synbiotics and a course of DENS-therapy which influences on biologically active zones and acupuncture points of the body.

**Subject and methods.** 45 patients with CP and concomitant CD in the phase of remission in age of 18 to 75 years old (23 women and 22 men) were the subject of research.

Verification of the diagnosis was carried out in accordance to the working classification of CP which is proposed by Y.S. Zimmerman with additions of N.B. Gubergrits [3]. For estimation of LQ were used two questionnaires: SF-36 ― for studying of all the components of LQ. It consists of 36 questions which are grouped into 8 scales, each of which is estimated from 0 to 100 points. The higher rate of scale evidences the better condition of health. GSRS is used to estimate the LQ of patients who suffer from gastrointestinal diseases. It consists of 15 questions, which are grouped into 5 scales. The lower indicators correspond to weaker symptoms and accordingly higher level of LQ. [2]. Research of coprocultur on CD was performed by the method of R.V. Epshtein-Litvak and Ph.L. Vilshansky (1977). The severity of CD was established according to generally accepted classification (G.I. Kuznetsov, 1975; I.B. Kuvaev, K.S. Lado, 1991) [1, 7].

20 patients (1st group) received a conventional scheme of treatment (CST) of CP, which included such medicaments as the controls of motility of the digestive system ― antispasmodics (no-spa 0,04 ― 2 tabs. 2 t/d) and/or prokinetic (motilium 0,01 ― 1 tab. 3 t/d), antagonists of H2-histamine receptors (kvamatel 0,02 ― 1 tab. 1 t/d) and/or proton pump inhibitors (proksium 0,04 ― 1 tab. 1 t/d), enzymes (kreon 25000 ― 1 caps. 3 t/d). All medicaments were prescribed «on demand» in accordance with the clinical symptoms. Also all patients received a synbiotic laktiale ― 2 capsules a day after the main meal during 4 weeks [6].

In addition to the CST 25 patients received a course of DENS-therapy which was consisted of 12-14 sessions with using Dia-DENS PK device (impact was performed due to two different schemes ― influence on segmental zones and on acupuncture points). In the 2nd group (12 persons) a procedure was held on areas of segmental zones: area of a direct projection of pain (is different for each patient); area of direct projection of the pancreas with the frequency of 77 Hz; area of segmental ring on the level of 6-8 thoracic segments with the frequency of 60 Hz 3-5 times; lumbar zone with the frequency of 20 Hz. The impact was held by the labile method in the regime of «Therapy» and in the comfort energy range of influence – from 2 to 5 minutes on each area.

In 13 patients (3rd group) the impact was held by the external point therapeutic electrode, by using stable method in the regime of “Therapy” with the frequency of 60 Hz during 2-3 minutes on each point. Impact was performed on the following points: AP 96 ― projection of the pancreas; AP 55 ― gen-shen point (provides analgesic and sedative effects); AP 22 ― point of endocrine glands; AP 39 ― point of the thoracic spine (provides analgesic and anti-inflammatory effects). Also on points of projection of the pancreas on the palm of the hand and on the foot according to the system of Su Jok [2, 3].

**Results and discussion.** During the clinical examination such leading syndromes were observed in the patients with CP: pain in 85,0 % of 1st group and in 83,3 % and 76,9 % of 2nd and 3rd groups, astheno-neurotic ― 80,0 %, 91,7 %, 92,3 %, dyspepsia – 100,0 % of patients of all groups, anemia ― 70,0 %, 58,3 % and 61,5 %, allergic ― 75,0 %, 66,7 % and 61,5 %, hypovitaminosis ― 85,0 %, 66,7 % and 84,6 %, steatorrhea ― 75,0 %, 83,3 % and 76,9%.

The results of the estimation of LQ according to scales of the GSRS questionnaire had rather high values that correspond to the lower LQ. Syndrome of abdominal pain reached 8 points in the 1st group, 10 points in the 2nd and 3rd groups, gastral reflux ― 12, 13, and 12 points, dyspepsia ― 15, 18 and 16 points, diarrhea ― 9, 13 and 10 points, constipation ― 7, 10 and 8 points. Also was revealed a decreasing of LQ indicators mainly for the components of the physical health according to the SF-36 questionnaire (scale of role functioning in average reached by 37 points in 1st group, 33 points in the 2nd group and 30 points in the 3rd group, physical functioning ― 28, 21 and 24 points, pain intensity ― 30, 29 and 33 points and general health ― 40, 38 and 42 points).

The initial indicators were approximately the same in all groups, which allowed to compare them.

The intensity of the clinical symptoms in patients with CP and with concomitant CD after using a complex of therapeutic measures is shown on figure 1.

The results of the indicators of LQ according to the GSRS questionnaire after treatment are shown on Fig. 2. They show that the levels of the LQ of the patients of the 3rd group significantly improved in average by 5,8 points, in 2nd group ― by 7,2 points against 2,8 points in the 1st group.

According to the estimation of scales of the SF-36 questionnaire (Fig. 3), improvement of LQ in patients with CP increased to 64.2 % in the patients of 3rd group, to 63.8 % in 2nd group and to 24.6 % in the patients of the 1st group, who received a conventional treatment.

**Conclusions.** After a complex of therapeutic measures it was found that the condition of patients, who received a conventional treatment, have been improved according to the indicators of the clinical symptoms in average by 46 %, indicators of LQ ― by 31 %, the results of the patients of the 2nd group have improved by 53 % and 60 % and the indicators of the 3rd group ― 55 % and 56 %. Results of treatment prove that the use of course the hardware reflexotherapy (12-14 sessions of dynamic electroneurostimulation) in complex treatment and rehabilitation of patients with CP significantly improve the condition of these patients in comparison to conventional scheme of treatment of CP (p<0.05).

In the **prospect** of further research it is planned to increase the number of patients and to examine the impact of DENS-therapy on the other parameters of trophological status in patients with CP.

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Number of patients with acute and chronic pancreatitis (CP) in the world has been doubled for the last 30 years (A. I. Khazanov et al., 1999). Disability of such patients reaches 15% (M. Jaakkola et al., 1998). Low efficiency, high cost and often long duration of medication upon CP makes patients seek for new non-pharmacological means to overcome the disease. Article justifies the reasonability of including a dynamic electroneurostimulation according to proposed methods for the improvement of clinical symptoms (pain, asthenoneurotic, dyspeptic, allergic syndromes, anemia, hypovitaminosis and steatorrhea) into a complex treatment and rehabilitation of patients with CP as compared with a conventional treatment. It is proved after the complex therapeutic measures that state of patients, receiving conventional treatment, improved by an average of 46% , results of patients of group 2 improved by 53%, and rates of group 3 ― by 55% (p<0.05). Having compared the results of groups 2 and 3, it was determined that indices in terms of dyspeptic, allergic syndromes and steatorrhea were significantly better upon the exposure on segmental zones. Significant advantage was identified in indices of pain and asthenoneurotic syndromes upon the exposure on acupuncture points.

Fig.1 Dynamics of clinical symptoms under the influence of various schemes of correction.

Fig. 2 Indicators of LQ (in points) after the treatment according to scales of the GSRS.

Fig. 3. Indicators of LQ (in points) after treatment according to scales of the SF-36 questionnaire.