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SCENAR THERAPY APPLICATIONS

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Using the Method of Non-Specific Stress-Resistance Improvement for Treating the Irritable Bowel Syndrome

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The results of the irritable bowel syndrome treatment by a standard method and with additional self-regulation training using biofeedback are compared. The dynamics of clinical signs 1 and 6 months after the treatment initiation was used to make the comparison. The obtained results demonstrated better results of the irritable bowel syndrome treatment in the group that additionally learnt self-regulation.

Key words: irritable bowel syndrome, functional diseases, biofeedback.

Introduction. The method for improving non-specific biofeedback stress-resistance [10] and device thereof [10, 11] are quite effective. However the effect of such training is not limited to better stress-resistance of different etiology in an individual. Self-regulation skills considerably raise the efficiency of standard treatment of psychosomatic diseases [5].

In modern therapy the diseases are classified into two basic categories – somatic, and functional, i.e. without structural or biochemical deviation [16]. Functional diseases are very frequent and in general medical practice they make 30 to 57% [2, 3].

The irritable bowel syndrome (IBS) is holding a particular position among the gastrointestinal diseases. It is a classic example of psychosomatic pathology. Patients with IBS make up to 12% of all patients that come to their district doctor and up to 28% of patients under gastroenterologists' supervision [4]. Standard treatment of IBS allows to bring only 10% of patients into a long clinical remission, to make only 30% of patients feel much better while in 60% there is no treatment effect or it is insufficient [7]. Such results could not be recognized as satisfactory.

According to the theory of functional systems, the affected central component is etiological (causative) agent and shows itself as a peripheral organ dysfunction [1], therefore functional pathologies require treatment with system action, i.e. functional therapy [12]. And biofeedback self-control training methods are the most promising therein.

In direct methods of stimulus/response type the function under control is directly associated with clinical signs, and indirect biofeedback therapies develop skills of the functional system's central component control using some indirect parameter. The indirect methods whose target object is not a single function of the body but an integral behavior act [13, 14, 8], are of particular interest. Step-by-step development of conditioned reflexes in the necessary sequence is their distinctive feature. This simulates the onset and development of a classic functional pathology. Biofeedback therapy provides system control function by creating new behavior patterns that are remembered on the central levels of the functional system. The mentioned method for non-specific stress-resistance improvement relates to this very group of method [10].

The objective of this research was to estimate the effectiveness of combined biofeedback therapy and standard IBS treatment.

Research Materials and Methods. 30 female diagnosed with Irritable Bowel Syndrome without diarrhea (K58.9) aged 18 to 35 participated in the research that was carried out in the Gastrointestinal Department, Outpatient Department of the 2nd Municipal Hospital. The diagnosis was set according to the Roman criteria III and was confirmed with instruments (fibrocolonoscopy and X-ray). The patients were divided into 3 groups, 10 patients in each. The first group included the IBS patients that were given standard treatment [9]. The second group was additionally trained with INTEX complex. The third group included the patients didn't complete the training.

The quality of treatment was assessed based on the dynamics of the disease clinical signs: duration of constipations (measured in days), pain (measured in numbers according to the standard 4–point scale: 0 – no sign, 1 – weal sign, 2 – moderate sign, 3 – strong sign) and stool consistency (according to Bristol fecal mass classification from 1 to 7 points). The assessment was made before the treatment, 1 and 6 months after the treatment was started. The effectiveness of the ***golden standard*** treatment [1)] [9] and that combined with biofeedback therapy were compared and analyzed.

Self-control training consists of 3 stages.

The aim of the first-stage is to make the unconditioned orientated reflex to 2 new stimulants (high and low pitch sounds) fade away. The stage is considered to be completed, if at the beginning of a new session the psychoemotional reaction to BOTH irritants is rather weak. To measure it, the electrodermal resistance (EDR) signal is used.

At the second stage the conditioned defense reflex to a high-pitch sound develops. The patient is exposed to these 2 stimulants at random, and the high pitch sound is accompanied by a discomfort electric stimulation. A conditioned reflex to a high pitch sound **– *danger* –** develops in the patient. This stage is considered to be completed, if at the beginning of a new session the psychoemotional reaction (without discomfort stimulation) to the high pitch sound considerably exceeds the reaction to the low pitch one. Then it is time to go to the third stage.

At the third stage the patient is shown his/her reaction to the stimulants – biofeedback signal as a light-and-color scale, EDR oscillogram and movements of the virtual sound source. The patient is explained that if he suppresses his/her fear of the high pitch sound so that the reaction doesn't exceed, for example, 90% of that initial, then there will be no discomfort electric stimulation. The patient deliberately and actively suppressed the autonomic component if the conditioned reflex due to relaxation and self-control. The session lasts until 8-10 ***dangerous*** stimuli are given. If his/her reaction to another high pitch signal doesn't exceed the specified threshold, the threshold for the next comparison is decreased. If the reaction does exceed the threshold, the discomfort stimulation is given automatically and the threshold is not changed. The stage is considered to be completed when there is no discomfort electric stimulation within the session, i.e. the threshold decreased at every step has never been exceeded.

As the method is based on the patient's will training, motivation, concentration and understanding of what's going on are required from the patient.

To process obtained data, a standard statistical method was used. The groups were compared using the Mann-Whitney criterion, U. $p<0.05$ was considered as a significant difference.

Findings. Initially all groups had no any difference in clinical signs (Table 1).

Table 1

Clinical dynamics in IBS patients during the standard and additional biofeedback treatment

Check Time / SYMPTOM	On coming	1 month later	6 months later
Group 1. Standard Therapy (n=10)			
Constipation (days)	4.8	0.8∗	2.6∗ #
Pain (points)	2.2	0.6∗	1.2
Stool consistency (points)	1.0	3.4∗	1.6 #
Group 2. Standard Therapy + Biofeedback Therapy (n=10)			
Constipation (days)	3.8	0.0∗°	0.4∗°
Pain (points)	2.2	0.0∗°	0.6∗°
Stool consistency (points)	1.4	4.0∗	4.0∗°
Group3. Those who didn't complete the training (excluded patients) (n=10)			
Constipation (days)	4.2	0.6∗•	2.8 •
Pain (points)	2.1	0.6∗•	1.0∗•
Stool consistency (points)	1.0	3.8∗	1.8 #•

Note:

∗ - significant differences of indices 1 or 6 months later from the indices on coming are marked with ∗;

- significant differences of indices 6 months later from the indices 1 month later are marked with #;

° - significant differences of the 2nd and 3rd groups indices from those of the 1st group are marked with °;

• - significant differences of the indices of the 3rd group patients from those of the 2nd group •.

Immediately after the treatment, the dynamics of all symptoms in all groups was reliably positive. It was the most prominent in the 2nd group. The indices of constipation duration and pain intensity in this group were also significantly better than those in other groups.

The symptom dynamics in the standard treatment group was the same as in the 3rd group.

6 months after the treatment, the differences of clinical signs in the groups became even more significant. The same regression in the standard treatment group and in the 3rd group was observed, their constipation duration and pain intensity indices didn't differ significantly before the treatment while right after the treatment they became significantly different. The indices in the 2nd group remained improved as compared to their initial ones and were the same as right after the treatment. All indices in the 2nd group after 6 months were significantly different from those of other groups.

The rates of IBS clinical signs recurrence after 6 months were also significantly different in the groups mentioned above. The indices of the patients in whom the recurrence of the symptoms considered didn't exceed 25% of initial values and at the same time didn't overstep the limits of the physiological norm, were taken as remission. The recurrence of less than 50% of symptom intensity was considered to be as a significant improvement. And the recurrence of 50%-75% and 75%-100% clinical signs were considered to be as insignificant improvement and no effect respectively. The recurrence distribution in the groups under study is given in the Table 2.

Table 2

The recurrence rates of IBS clinical signs in the patients 6 months after the treatment initiation.

Improvement degree	Group 1. Standard Therapy (n=10)	Group 2. Standard Therapy + Biofeedback Therapy (n=10)	Group 3. Excluded group (n=10)
Remission, %	20	80	0
Significant improvement, %	0	20	40
Insignificant improvement, %	40	0	20
No improvement, %	40	0	40

Satisfactory results didn't exceed 20% in the group that was given standard treatment, 40% – in the 3rd group, while the 2nd group had no unsatisfactory results and had much more frequent remission.

Discussing research results. The data we obtained correspond to [7]: IBS has a chronic recurrent course, and long-term effect of standard treatment is unsatisfactory. To treat IBS psychotropic agents are used [4, 6, 2] but their afterhistory is not studied.

At the same time, IBS as a psychosomatic disease is to be treated functionally. The IBS functional treatment has a pronounced positive effect and develops the skills of autonomic function regulation that are long-lasting and available in everyday life. In our research the biofeedback therapy turned out to be inefficient in 50% of cases which agrees with the literature [12]. The authors believe that the inefficiency is due to personal features such as CNS activity characteristics. They are the following: barrier between the subject's consciousness and central control mechanisms, individual perceived control abilities [17], level of subjective control of somatic sensations [19, 13].

Conclusions. The findings demonstrate better effect of IBS treatment in the short-term, and especially in the long-term periods in the group that was additionally given biofeedback therapy. The indices of the patients that didn't complete biofeedback therapy approximate to the characteristics of the ***golden standard*** group. To specify the level of efficiency of additional biofeedback IBS treatment, further research is needed.

1) Note: diet rich in dietary fibers; anticonvulsive (spasmolytic) drugs - Pinaverium bromide (Dicetel) 50 mg 3 times a day or Mebeverine hydrochloride (Duspatalin) 200 mg twice in 24 hours for 2-4 weeks; mild cathartics - polyphenyle glycol (Forlax) 1-2 bags 1-2 times a day or lactulose (Duphalac, Normaze) 15-30 ml in the morning for 2-4 weeks.

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SCENAR TECHNOLOGY OVERVIEW

The name SCENAR derives from: **Self-Controlled Energo-Neuro-Adaptive Regulation.**

The SCENAR is an electronic-therapy device invented by a team of Russian Scientists (Alexander Karasev and Prof. Revenko) and developed further by RITM OKB ZAO in the 1980's for use in space, where cosmonauts would have a means of treating themselves in orbit, without the need to take drugs.

RITM OKB ZAO in the only manufacturer of the original SCENAR technology.

RITM OKB ZAO now has set up a branch in Australia - RITM Australia to provide local support for their products - SCENAR devices for Professionals and Home user and Healing Blankets.

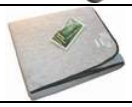
RITM SCENAR devices are CE Mark certified (the highest standard for manufacturing medical devices in the world), ISO 9001, ISO 13845.

RITM SCENAR devices are also included in the Australian Register for Therapeutic Goods Administration under TGA # 140659.

At present the SCENAR medical devices have been recognized in 60 countries all over the world: the United Kingdom, Australia, New Zealand, the Netherlands, Austria, Germany, Italy, Israel, Hungary, Czech Republic, Turkey, South Korea, the US, etc.

Over 6,000 doctors are now using the Scenar as an integral part of their medical practice.

The product range includes professional devices and devices for home users and sportsman, Healing Blankets and accesories.

	**Professional series SCENAR** devices – for medical practitioners and therapists
	**Home SCENAR device series** – sportsmen and personal home use
	**OLM** Healing Blankets and their modifications