Translation from Russian into English language

Publication: **Нелекарственная медицина: научно-практический журнал. – 2007. – №1. – С. 37-41.**
(Nondrug medicine: theoretical and practical journal, No1, 2007, pp. 37-41)

Authors: **Тараканов А. В.,Кутовая Е. В.**
(Tarakanov A., Kutovaia E.)
RITM OKB ZAO, Rostov-on-Don, Taganrog

Article name: **СКЭНАР при лечении хронической инсомнии и нейроциркуляторой астении у врачей скорой помощи**

Keywords: **SCENAR, neurology, insomnia, neurocirculatory asthenia**

Summary: Authors propose nondrug method of chronic insomnia and neuricirculatory asthenia treatment by SCENAR 97.4 device. 342 emergency doctors took part in the research. State of sleep was estimated by modified Schpiegel questionnaire. All doctors were devoted in two groups: one took a soporific medicine Zopiklon (Imovan), other got SCENAR-therapy. Analysis of records showed that SCENAR-therapy for treating chronic insomnia is as good as Zopiclon, but also aids decreasing of neurocirculatory asthenia and improve quality of life.

SCENAR Therapy of Chronic Insomnia and Neurocirculatory Asthenia in Emergency Doctors

Sleep has significant influence on personal health status. Sleep disorders – dyssomnia, are regarded as one of the leading medical and social problems [2]. Balance between duration of sleep and wakefulness is one of the indicators of health and working efficiency, and sufficiency of sleep defines personal ability to realize personal life programs [1]. Nowadays about 30-45% of the population have sleep disorders in many developed countries [5], and only 30% of patients having insomnia resort to doctor's aid.

Inadequate sleep is always accompanied by a sensation of weakness, tiredness, decrease of working efficiency, daytime sleepiness. According to WHO evaluations direct economic losses connected with treatment of insomnia amounted to about 15 billion dollars in USA in 1995. Economic losses connected with sleep disorder consequences, car accidents, injuries, loss of working efficiency amount to about 150 billion dollars [7].

Influence of forcible sleep deprivation (for example, conditioned by work in shifts or night-time work) on somatic health is still poorly explored.

Emergency doctors who work in conditions of permanent emotional tension and are forced to perform responsible job in condition of time shortage, are a special professional group. Their professional activities are characterized by sleep deprivation, work in shifts, night shifts. Their continuous work is performed in a 24-hour period with a fragmentary sleep or possibility of 3-4-hour sleep. Highly effective final results of doctors' work can be expected only in case of full health. Regardless of undoubted applicability, health state and problem of full sleep, its influence on doctor's life quality is insufficiently explored. In publications over the past years we can only see sporadic works dedicated to their health [8].

Chronic stresses, changing the structure of sleep form disposition to various diseases. Under the effect of the stress factor separate structures of nervous system excite, which leads to hypophyseal-hypothalamic functional incoordination with subsequent disorder of neuroendocrinal mechanisms of regulation of cardiovascular system. As a result, functional disorders of vegetative nervous system in patients with high-risk jobs are extremely frequent.

The combination of permanent sleep deprivation and stressful job, prepares the most probable basis for development or progressing a neurocirculatory asthenia. Its basis is genetically determined low adaptation to stressful situations, with multiple homeostatic disorders and disorders of other organs and systems [4]. There are many methods of treatment of such disorders which emphasizes their unsoundness. We suggested a non-pharmaceutical method of treatment of chronic dyssomnia, combined with neurocirculatory asthenia, with the aid of SCENAR device (ZAO "OKB RITM" ,Taganrog).

Materials and methods of the research. 342 doctors of emergency mobile teams from Rotov-on-Don and district of Rostov were examined during the period of their training. A screening evaluation of the condition of their sleep was performed using Spiegel inquirer adapted in somnology centre of Moscow medical academy "I.M.Sechenov" [3]. The parameters of sleep were evaluated according to 5-grade system with the following categories: Time of dormition, duration of sleep, number of night-time awakenings, quality of the sleep, number of night dreams, quality of the morning awakening. If the total sum of points was 22 and more – it was regarded as normal sleep; 19-21 points – borderline state; less than 19 points – sleep is impaired and a therapy is necessary. Patients with acute inflammatory diseases and with recrudescence of chronic pathologies were excluded from the research, as well as doctors having night shifts at the moment of the questioning.

A part from personal subjective evaluation of the sleep, hemodynamic parameters were examined (systolic, diastolic arterial blood pressure, pulse pressure and mean hemodynamic pressure). According to test results 3 arms of patients were distinguished. Arm 1 (n = 81) – patients with chronic insomnia; arm 2 (n = 96) – patients with borderline sleep disorders; arm 3 (n = 165) – people without sleep disorders.

Table 1

Inquiry for evaluation of clinical manifestation of neurocirculatory asthenia

Cardiovascular disorders	**Before the treatment**	**After the treatment**
1. Dull, lancinating in cardiac area, with various localization and intensity, connected with emotional tension, cannot be reduced with nitroglycerin. 2. Fluctuations of arterial blood pressure and pulse (more than 20 mm of mercury and 10 beats per minute in the beginning and end of examination) 3. Heartquakes 4. Discomfort in cardiac area 5. Sensation of insufficient inspiration		
Cerebral disorders		
1. Headache 2. Dizziness 3. Disorders in concentration and memorizing 4. Sleeping disorders		
Emotional disorders		
1. Decrease of working efficiency 2. Fatigability 3. Irritability 4. Anxiety 5. Bad general condition		
Final evaluation		

The patients with insomnia were divided into 2 arms with the method of random selection, as the arms were comparable in terms of age, sex, distinctiveness of clinical manifestations of the

disease. The patients of arm 1 (53 people) took a soporific medicine Zopiklon (Imovan) dose size 7,5 mg for 10 days 30 minutes before supposed sleep. The patients of arm 2 (20 people) had a course of SCENAR-therapy with SCENAR 97.4 device. 10 procedures were performed every other day, during the day between 10 and 12 o'clock. In the examined groups patients with somatomorphic vegetative dysfunction of nervous system with neurocirculatory asthenia type were distinguished, which were tested according to the mentioned enquirer (table 1). The suggested enquirer allows to perform qualitative evaluation of clinical symptoms of the disease depending on the extent of their manifestation: 1 point – the symptom is sharply distinct, 2 points – the symptom is significantly distinct, 3 points – the symptom is moderately distinct, 4 points – the symptom is slightly distinct, 5 points – lack of symptom.

The method of SCENAR-therapy consisted in the following. The therapy was performed in a comfortable pose, lying or seated as clothes were previously removed from the treated parts of the body. Two methods of general impact alternated: "three paths six points" and "collar area, forehead, adrenals". The use of the first method was grounded on the fact that during the treatment of paths 2 and 3, SHU points of the back (points of consent), which are located on the canal of urinary bladder, are included in the area of SCENAR impact. The route of path 1 is an unpaired posteromedian meridian.

The method "collar area, forehead, adrenals" also refers to areas of general impact. It is performed the following way. The movement of the electrode in vertical position starts from the hairy part of the head downwards according to the pattern, without skipping cutaneous surface (tegularly). In the beginning left area is treated, then the right one. Treatment can be performed for 5 to 15 minutes.

When passing through the mentioned routes, sticking of the appliance is possible, just as during the treatment of "three paths, six points". In this case the electrode should not be pulled away from the skin, but held on it until its further movement becomes possible. If the appliance does not stick, then other asymmetries can form. These places are processed additionally until the initial characteristics of the asymmetry change.

Further the forehead is processed using the application method for one or two minutes for positioning the electrode. The electrode should be put as closer to the hairy part of the forehead as possible. The third location of treatment under this method is the projection of adrenals. Period of processing – one to three minutes.

Symptoms which presently disturb the patients are important for SCENAR-therapy. For this reason, after processing the general area, areas which disturb the patient are processed. So-called asymmetries are a typical characteristic of SCENAR-therapy – local changes in the processed area: "sticking" (the electrode seems to stop "moving along the skin" or a sensation of sticky skin occurs) change of the colour of the cutaneous covering (hyperemia or paleness) or changes in patient's sensations (painful or indolent area); change of the device's sound when moving the electrode along the skin (increase or lack of sound), small asymmetry; asymmetry with limited surface of manifested differences. These are the symptoms to which special attention should be paid when performing additional treatment on places of their manifestation.

Table 2

Influence of Zopiklon and SCENAR-therapy on personal evaluation of the quality of sleep

Characteristics of sleep	Personal evaluation of the sleep, points			
	Arm 1 - Zopiklon		Arm 2 - SCENAR	
	Before treatment	After treatment	Before treatment	After treatment
1. Time of falling asleep	2.7 ± 0.3	3.8 ± 0.2*	3.3 ± 0.2	4.1 ± 0.1*
2. Duration of the sleep	2.8 ± 0.3	3.4 ± 0.2	2.8 ± 0.2	3.4 ± 0.2
3. Number of night-time awakenings	2.6 ± 0.4	3.9 ± 0.4*	2.5 ± 0.3	3.9 ± 0.2*
4. Quality of sleep	2.6 ± 0.2	3.9 ± 0.2*	2.7 ± 0.2	3.8 ± 0.3*
5. Quantity of night dreams	2.9 ± 0.3	3.9 ± 0.3*	3.1 ± 0.3	4.2 ± 0.2*
6.Quality of morning awakening	2.8 ± 0.4	3.9 ± 0.3*	2.3 ± 0.4	3.6 ± 0.3*
Total evaluation	16.3 ± 0.9	22.7 ± 0.6*	16.6 ± 0.8	23.1 ± 0.5*

p<0.05 compared to values in the same arm

Table 3

Clinical manifestation of neurocirculatory asthenia in patients before and after the treatment

Symptoms, points	Arm 1 - Zopiklon		Arm 2 - SCENAR	
	Before treatment	After treatment	Before treatment	After treatment
Cardiovascular disorders				
1.Cardialgia	2.0 ± 0.3	2.1 ± 0.2	2.1 ± 0.4	4.5 ± 0.2*
2. Fluctuations in blood pressure	2.6 ± 0.3	2.5 ± 0.3	2.5 ± 0.3	4.2 ± 0.4*
3. Heartbeats	3.4 ± 0.4	3.4 ± 0.4	3.3 ± 0.4	4.3 ± 0.3*
4. Discomfort, pains in cardiac area	2.1 ± 0.3	2.3 ± 0.3	2.2 ± 0.4	4.8 ± 0.4*
5. Sense of insufficient inspiration	2.9 ± 0.3	3.1 ± 0.3	2.8 ± 0.2	3.6 ± 0.3*
Cerebral disorders				
1. Headache	3.2 ± 0.3	3.5 ± 0.3	3.1 ± 0.3	4.7 ± 0.4*
2. Dizziness	4.1 ± 0.2	3.9 ± 0.2	3.9 ± 0.3	4.8 ± 0.3*
3. Concentration and memorizing disorders	3.5 ± 0.4	3.2 ± 0.3	3.7 ± 0.4	4.0 ± 0.3*
4. Sleep disorders	2.1 ± 0.3	4.6 ± 0.3*	2.0 ± 0.3	4.9 ± 0.4*
Emotional disorders				
1. Decrease of work efficiency	2.2 ± 0.3	4.2 ± 0.4*	2.4 ± 0.3	4.3 ± 0.3*
2. Fatigability	2.3 ± 0.2	4.1 ± 0.3*	2.6 ± 0.3	4.1 ± 0.4*
3. Irritability	2.5 ± 0.2	4.6 ± 0.5*	2.6 ± 0.4	4.8 ± 0.4*
4. Anxiety	2.4 ± 0.3	3.7 ± 0.3*	2.5 ± 0.3	4.1 ± 0.3*
5. Bad general condition	2.4 ± 0.4	3.7 ± 0.3*	2.3 ± 0.3	4.2 ± 0.4*
Total evaluation	37.6 ± 3.4	49.1 ± 3.8*	38.0 ± 3.1	61.3 ± 4.3*

Note P<0.05 compared to values in the same group*

Statistical processing of the results was performed on a personal computer using packages of statistic programs ARCADA, Microsoft EXCEL XP and STATISTICA for Windows 6.0. The

research of quantitative indications was performed using the comparative method between mean values of 2 randomly selected combinations defining the criteria of Student and the significance point (p). Differences whose significance points were $p<0.05$ were recognized statistically reliable.

Results of the research. As can be seen in Table 2 use of soporific medicine and SCENAR-therapy for treatment of chronic insomnia reliably improved almost all the subjective characteristics of sleep (excluding its duration). The comparative analysis of the results showed that SCENAR-therapy influences mostly intra- and postsomnic disorders. The number of night-time awakenings in patients which were treated with dynamic electrostimulation decreased with 56% and the perception of the morning awakening improved with 56.5%. These values changed to a smaller extent in the arm of the patients who took Zopiklon – 49 and 39.3% ($p<0.05$) respectively.

The dynamics of complaints in patients with neurocirculatory asthenia after the treatment is shown in Table 3. Analysing the obtained data we can note that the soporific medicine Zopiklon normalizes the sleep and contributes to decrease of asthenoneurotic manifestations in patients of this group. However, Zopiklon has very little influence on somatic complaints and the cerebral and cardinal symptoms do not change. Significant regress can be seen only in emotional disorders.

Improvement of the parameters reflecting the clinical picture of neurocirculatory asthenia can be seen in all the patients who had been treated with SCENAR. The systemic condition improves, pain sense in cardiac area disappears as well as the headaches and heartquakes, arterial blood pressure stabilizes. Full sleep also leads to decrease of asthenoneurotic manifestations and emotional disorders. These changes are reliable.

The presented results of the results showed that electroneurostimulation with SCENAR 97.4 device for treatment of chronic insomnia is not let less efficient than the modern soporific medicine Zopiklon.

Neurocirculatory asthenia is a disease which has always been regarded as a disease of anima, not a disease of body because its morphological substrate still remains unknown. So far, a unified terminology has not been developed for this functional pathology. In Russia, G.F.Lang was the first who mentioned this disease in 1950, and it was called prehypertonic neurocirculatory syndrome. The term of “neurocirculatory dystonia” and its division into hypertonic hypotonic and cardinal types was proposed by N.N.Savitsky (1963).

According to modern definitions, neurocirculatory asthenia is a pluricasual disease. Numerous aetiological factors cause disintegration of neurohormonal metabolic regulation of cardiovascular and other systems, first of all on the level of cortex, hypothalamus and limbic area. Disorder of functional condition of hypothalamic and limbic reticular area leads to disorders in functions of vegetative nervous systems and their sympathetic and parasympathetic parts, which conditions development of basic clinical symptoms, distinct for neurocirculatory asthenia.

In this connection the therapeutic program for neurocirculatory asthenia is represented by a range of pharmaceutical and non-pharmaceutical methods of treatment. This includes etiotropic therapy, rational psychotherapy, and auto-training. Normalization of

impaired functional relations of the cerebral limbic area, hypothalamus and visceral organs is achieved with the contribution of anxiolytics, tranquilizers, neuroleptics and nootropics. Decrease of hyperactive sympathoadrenal system is recommended to be performed with the aid of beta-adrenoblockers. Phytotherapy, physiotherapy, balneotherapy, massage, and acupuncture are widely applied. Systemic activities are recommended: healthy diet, healthy lifestyle, climatotherapy, and tempering. Biological feedback is adopted [6].

Over the past years magnetic laser therapy has been actively used. Nowadays new, little known by the community of doctors, physiotherapeutical methods of treatment are developed for therapy of neuricirculatory dystonia, such as “infitatherapy”, nasosympathicotherapy, transcranial analgesia, device methods of psychological correction. This list creates the impression that everything helps in therapy of neurocircular asthenia and this fact emphasizes that most important are the methods starting mechanisms of sanogenesis. In our opinion, SCENAR is a universal tool to start these mechanisms which can be seen in its efficiency at monotherapy of the listed group of patients.

Conclusion. Use of Zopiklon and SCENAR-therapy has similar positive therapeutic effect on insomnia in emergency doctors. However, the effect of elimination of symptoms of neurocirculatory asthenia is complex. The change of patients' condition after the treatment proves that SCENAR-therapy has general regulating influence on organism's physiological systems. Treatment of reflexogenic areas and biologically active points contributes to decrease of clinical manifestations of neurocirculatory asthenia and improvement of quality of life. Good acceptability of SCENAR-therapy should be noted: during the research none of the patients cancelled the treatment or treatment was not cancelled due to side effects. The effect of SCENAR-therapy lasts for 1-4 months, which requires permanent supporting therapy. This is also connected with the fact that doctors start their usual jobs.

References

1. 1.Агаджанян Н.А., Петров В.И., Краюшкин С.И., Радыш И.В. Временные характеристики интенсивности перекисного окисления липидов у женщин// Экология человека – 2000 – No. 2 – С. 12 – 13.
2. Власов Н.А., Вейн А.М., Александровский Ю.А. Регуляция сна – М.: Наука, 1983 – 231 с.
3. Ковров Г.В., Посохов С.И. Типология объективных нарушемий ночного сна при инсомнии// Общие вопросы неврологии и психиатрии – 1997 – No. 4 – С. 7- 10.
4. Куликов А.М. От „невроза сердца" к соматофомной вегетатичной дисфункции: Эволюция представлений// Российский семейный врач – 1999 – No. 4 – с. 23 – 28.
5. Левин Я.И., Вейн А.М. Проблемы инсомнии в общемедицинской практике// Рос.Мед.Журн. – 1996 – No. 3 – с. 16 – 19.
6. Маколкин В.И., Аббакумов С.А. Диагностические критерии нейроциркуляторной дистонии// Клин.Мед. – 1996 – No. 3 – с. 22 – 24.
7. Маниковский Т.Б., Бурчинский С.Г. Ивадал – препарат выбора терапии ситуационной инсомнии – Киев, 2002.
8. Низамов И.Г., Прокопьев В.П. О состоянии здоровья врачей. 1991.