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Modern view on chronic fatigue syndrome and approaches to physical rehabilitation

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Abstract

Chronic fatigue syndrome is a disease with insufficiently studied hitherto etiology and pathogenesis. **Purpose:** based on the analysis of literature to form a modern understanding of the syndrome of chronic fatigue and approaches to physical rehabilitation. **Methods of the research:** analysis of scientific literature, synthesis and generalization. **Results:** A perspective on the evaluation of the pathogenesis of the disease and the development of new treatments is the view on chronic fatigue syndrome as a pronounced disadapted syndrome, against which the effects of viral infection and immune system disorders are manifested. In the study of predisposing to the development of chronic fatigue syndrome factors, along with high stress, social and economic instability, pollution of the environment, very important are the low standard of living, poor quality and expensive (not available) medical assistance. For patients with chronic fatigue syndrome, compulsory daily walks, therapeutic gymnastics courses, massage, hydrotherapy and autogenous training are recommended. Essential role belongs to complex sanatorium treatment (sparing-training regime of motor activity, diet, internal use of drinking mineral water, mineral baths) and physiotherapy methods. **Conclusions:** The provision of medical care for patients with chronic fatigue syndrome should begin with early detection of the symptom complex and further readaptation and rehabilitation. The main principle of treatment and rehabilitation of chronic fatigue syndrome is its complexity.

Keywords: chronic fatigue syndrome, etiology, exercise, massage, recovery, physical activity.

Современный взгляд на синдром хронической усталости и подходы к физической реабилитации

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Синдром хронической усталости – заболевание, с недостаточно изученной до настоящего времени этиологией и патогенезом. **Цель:** на основе анализа литературы сформировать современное представление о синдроме хронической усталости и подходах к физической реабилитации. **Методы исследования:** анализ научной литературы, синтез и обобщение. **Результаты.** Перспективной в отношении оценки патогенеза заболевания и разработки новых методов лечения является точка зрения на синдром хронической усталости, как на выраженный дизадаптационный синдром, на фоне которого проявляются влияние вирусной инфекции и нарушения иммунной системы. При изучении предрасполагающих к развитию синдрома хронической усталости факторов, наряду с высоким значением стрессов, общественной и экономической нестабильности, загрязненности внешней среды, очень большое значение имеет низкий уровень жизни, некачественная и дорогая (недоступная) медицинская помощь. Для пациентов с синдромом хронической усталости рекомендуются обязательные ежедневные пешие прогулки, курсы лечебной гимнастики, массаж, гидротерапия и аутогенная тренировка. Существенная роль принадлежит комплексному санаторно-курортному лечению (щадяще-тренирующий режим двигательной активности, диета, внутреннее применение питьевой минеральной воды, минеральные ванны) и методам физиотерапии. **Выводы.** Оказание медицинской помощи больным с синдромом хронической усталости должно начинаться ранним выявлением симптомокомплекса и дальнейшими реадaptацией и реабилитацией. Главным принципом лечения и реабилитации синдрома хронической усталости является комплексность.

Ключевые слова: синдром хронической усталости, этиология, физические упражнения, массаж, восстановление, физические нагрузки.

Statement of scientific problem and analysis of scientific researches and publications. Chronic fatigue syndrome (CFS) is characterized by insufficiently studied etiology and pathogenesis to date. WHO considers CFS as a neurological disorder, combined with dysfunction of the immune system and classifies it as a post-viral fatigue syndrome (ICD-10, ICD G93.3). In 1988, it was first highlighted as an independent disease by The Centers for Disease Control (CDC, Atlanta, USA) and since that time it attracted the interest of many clinicians around the world [6].

The possible social damage that this illness can inflict is not fully understood at the moment. The patients are faced with the main consequence of CFS which is loss of ability to work. Therefore, one of the priority tasks is restorative therapy of patients with CFS [1].

The purpose – on the basis of literature analysis, to form a modern understanding of the syndrome of chronic fatigue and approaches to physical rehabilitation.

The methods of the study: scientific literature analysis synthesis and generalization.

Presentation of the main material and the substantiation of the results of the study. The insufficient period of the study of chronic fatigue syndrome, the lack of complete understanding about the ethnology and pathogenesis of it as well as the limited ability to objectively evaluate some of the laboratory and instrumental changes recorded in the body, the polymorphism of clinical manifestations, the difficulty of differentiation with early manifestations of other somatic and neuro-psychological disorders do not allow to provide an early diagnosis and prevention of this disease, as well as in the early stages of the process to resolve the issue of professional unsuitability to work, to plan and carry out effective treatment and rehabilitation [6].

Results of Komarov S.G on the study of factors that lead to the development of chronic fatigue syndrome, are presented in Table 1 [3].

A perspective on the evaluation of the pathogenesis of the disease and the development of new treatment methods is the point of view on the CFS, as a pronounced dysadaptation syndrome, against which the effects of viral infection and the violation of the immune system [1].

There are some opinions that for many years this disease was called "syndrome of chronic fatigue", due to lack of knowledge about its etiological factors in pathogenesis. However, given the current scientific findings and clinical data that clearly indicate a common

inflammatory process and the presence of multi-system neurological disorders, the term "myalgic encephalomyelitis" (ME) is more appropriate and right at this time, as it indicates the pathophysiological basis of the disease [2, 6].

Table 1

The leading environmental and organizational factors influencing the prevalence of chronic fatigue syndrome and the increased risk of its development [2]

Factors	Risk of CFS development, %	CFS, %
Living conditions	16,9	20,0
Working conditions	14,0	5,7
Instability	38,4	40,0
Stress	65,1	40,0
Low quality of life	32,6	45,7
Pollution of the environment	29.1	40,0
Poor quality of medical aid	25,0	48,6
Expensive (inaccessible) medical aid	19,2	37,1

However, despite these differences, the use of physical rehabilitation means is an important factor in restorative treatment of patients.

For all patients with CFS, mandatory daily walking is recommended for 2-3 hours, courses of therapeutic exercises, massage, hydrotherapy and autogenous training, as it, as well as other active methods of normalizing the psychoemotional background, based on the pathogenesis of CFS, are the most important pathogenetic elements of therapy appropriate category of patients [5, 7].

Significant role belongs to sanatorium treatment.

Thus, in the work of Vagaytseva E.A. [1] it is indicated that patients with CFS received comprehensive spa treatment, including a sparing-training regime of motor activity, diet 5, drinking mineral water, and mineral baths.

It should be noted that for drinking treatment Vagaytseva E.A. used mineral water from the source of Slavyanovsky (low-carbon sulfate-hydrocarbonate calcium-sodium water of low mineralization, high thermally). Mineral water was prescribed from the calculation – 3-3,5 ml / kg body weight, 3 times a day, 45 minutes before meals. Mineral water of identical

composition was used for mineral baths with a temperature of 36-37° C, duration of 15 minutes, for the course of treatment of 8 procedures.

The results of complex resort treatment for patients with chronic fatigue syndrome with the use of internal intake of mineral water of the Zheleznovodsk type (source of Slavyanovsky), mineral baths and dietary nutrition appeared in the form of favorable influence on clinical manifestations of the disease (the disappearance and reduction of symptoms of CFS in 75,0-96,4 % of patients on different grounds), indicators of psycho-functional condition of patients (a significant increase in the number of patients with a harmonic personality profile, decrease in the level of neuroticism).

Improvement of the immune status of the organism was noted (increase of absolute and relative level of C08-lymphocytes by 7.1% and 14.5% respectively, decrease of immunoregulatory index by 10.9%, increase of reduced level of immunoglobulin A and decrease of the raised level of immunoglobulin G, decrease of level the TNF- α cytokine at 4.8 pg / ml, a significant increase in the low level of NK cells) [1].

Introduction of injections of the immunomodulator of polyoxidonium into the complex spa therapy increases the efficiency of spa treatment according to clinical examination of patients (significantly more often disappearance of low-temperamental fever and headache), as well as immune status indicators.

With a total assessment, the effectiveness of treatment for patients with chronic fatigue syndrome with the use of natural therapeutic factors of the resort is 62.5%, and when used in this complex injection of polyoxidonium, the effectiveness of treatment increases to 84.5% [9, 10].

At the same time, leading resorters, as well as neuropathologists working on the problem of rehabilitation in sanatorium for patients with asthenia, chronic fatigue syndrome or fatigue, indicate the lack of preparedness of the medical community for the massive use of physical natural resort factors in rehabilitation of children with the above-mentioned pathology [12].

Long-term results of the sanatorium-resort treatment for patients with chronic fatigue syndrome indicate a significant stability of the achieved therapeutic effect according to clinical, psycho-functional and immunological examinations. So according to the work of Vagaytseva E.A. [1] remission duration of 6 to 12 months marked by a total of 49.5% of the investigated patients with chronic fatigue syndrome; in the comparison group, this figure was 37.5% of patients.

The absence of a single, pathogenetically oriented system for the rehabilitation of patients with chronic fatigue syndrome causes the prospects of developing new methods of rehabilitation treatment for this group of patients, including physiotherapeutic methods.

The literature presents the methodology and results of the use of endonazal electrophoresis, as an electropharmacological method, which provides greater penetration of cortexin than through the skin. The method of administration of cortexin by endonazal electrophoresis, along with intra-muscular administration, is successfully used in patients with asthenic conditions. As a current source for endonazal cortexin electrophoresis a device for galvanizing "Flow-1" is used. The drug is introduced by an anode. The first three procedures are the recommended current strength of 1 mA, for 10-15 minutes, the following procedures current strength – 3 mA, for 15-20 minutes. Number of procedures performed 10-12 [11].

The results of the treatment by endonazal electrophoresis with cortexin were manifested in the fact that all patients noted subjective improvement in the form of a decrease in the frequency and severity of headaches, dizziness, manifestations of asthenic syndrome. There was an improvement in the functions of sleep, attention, memory in 85% of patients. The emotional background has been improved in reducing the severity of the depression level, anxiety, stress, increased interest in life. Reduced muscle fatigue was observed in 78% of patients. In addition, most patients have a tendency to normalize EEG rates. The proposed method of endonazal electrophoresis with cortexin in CFS has a positive effect on hemodynamics, bioelectric activity of the brain, cognitive processes and functional state of the limbic system (LS). Normalization of the processes in the LS, which largely determines the vegetative regulation, the background of mood, overall mental activity, the orientation of motivation, behavior and adaptation processes, plays an important role in the process of rehabilitation of patients with CFS [11].

The sanation-eliminating mechanism of attraction of physical natural spa resort factors of the recreational zone "Arhipo-Yosypivka" in the sanatorium rehabilitation of children with CFS in the work of Shoghina N. N. was based on on the combined technologies of restorative treatment, where there were simultaneously 5 main components: a) psammotherapy (sand treatment); b) local mineral water; b) thalase procedures according to individual methods; d) vegetator-adjusting methods of modern physiotherapy with the use of special equipment; e) selected forms of psychotherapy on the background of dosed sleep under the influence of hypnosisgesty in the pavillons with special climate near the sea.

The use of essential oils can be a very effective and safe mean of treating chronic fatigue syndrome. It has been found that the use of essential oils of rosemary, lavender,

geraniums, sandalwood and essential oils of bitter orange may be the best. A particularly effective method would be to use aromatherapy with compositions of essential oils, such as: lavender-geranium-sandalwood; lavender-geranium; lavender-rosemary [14].

In phytotherapy of CFS drugs that have both tonic, anti-inflammatory and improving the metabolism of action are used [4].

Conclusions and perspectives for further research

Providing of medical care to patients with chronic fatigue syndrome should be based on an algorithm that involves early detection of the symptoms by primary care physicians, verifying the diagnosis and eliminating diseases with similar symptoms, reducing the effects or eliminating the progression factors of the disease, symptomatic treatment, as well as professional, family, social readaptation and rehabilitation.

The main principle of treatment and rehabilitation of CFS is a complexity, which is expressed in the normalization of recreation and physical activity; unloading and diet therapy, the appointment of vitamins, dosed physical loads, autogenous training, immune corrections, nootropic drugs, enterosorbents and symptomatic drugs.

Prospects for further research are to develop physical rehabilitation programs for patients with chronic fatigue syndrome.

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