

FEATURES OF A HEALTH-IMPROVING DIET FOR PATIENTS WITH CHRONIC FATIGUE SYNDROME: ARGUMENTS, EXPERIENCE, DISCUSSION

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ABSTRACT. Relevance. Chronic fatigue syndrome (CFS) is considered to be one of the challenges to the world medicine: its prevalence, complex pathogenesis and diagnosis, and poor treatment results are growing. The objective is to increase the effectiveness of a comprehensive treatment of patients with CFS (after the main stage) by applying pathogenetically improved healthy food.

Material and Methods. 48 patients with CFS were observed including 25 with improved healthy food (the main group) against the background of dosed physical activity, psychotherapy and cognitive-behavioral therapy in both groups. The period of observation was one year.

Results. Patients of the main group were found to have significantly less frequent relapses of CFS during the year, their duration was reduced, remission and complete restoration of professional ability were longer; they only occasionally required the use of medications (for relapses), the indicators of life quality became better.

Conclusion. A well-designed healthy diet for patients with CFS, considering the effect produced on the main links of pathogenesis of the disease, can significantly improve the overall results of non-drug methods of a comprehensive treatment.

Key Words: chronic fatigue syndrome, health-improving diet, non-drug methods.

Relevance. Chronic fatigue syndrome (CFS) is a multiple organ disease, polyetiologic in nature, with inadequately examined pathogenesis, which affects a part of the most creative population, urban residents mostly and women in particular. Its diagnostics and treatment today are rather [1, 3, 5, 8]. CFS has a tendency to increase, especially in the most developed countries. It occurs under the influence of numerous external and internal factors. The issue is examined intensively and diversely by means of modern methods including neurovisualization. Different names of the disease are found in scientific literature such as myalgic encephalomyelitis (ME), CFS/ME, systemic exertion intolerance disease (SEID) [8, 18]. The number of such patients in the world is considered to achieve dozens of millions including less developed countries and Ukraine, which can cause a burdensome medical-social problem for any state [4, 6, 18]. For example, the USA spends about 24 billion dollars for medical service issued to two millions of CFS registered patients [8]. Though there are certain opinions that it is only 20% out of an expected amount of patients who are not still diagnosed as those having CFS on different reasons.

Deep and expensive studies of CFS pathogenesis in recent years have shown that the basis of the disease is formed by systemic and stable metabolic disorders (decrease) on the levels from the neurostructures to cellular mitochondria [15, 16], considerable and resistant immune disorders [11], systemic inflammation, oxidative, nitric oxide stresses, and endothelial dysfunction [14, 15]. All of them are caused by dysfunctions of the nervous, endocrine, immune systems, deterioration of their interaction [16], reduction of cognitive functions, psychosocial functioning, and deterioration of activity of other organs and systems [18]. The above mentioned promotes frequent infection by viral diseases of herpes virus group (cytomegalovirus, Epstein-Barr virus (EBV), VI type virus or Borna virus etc.), which are characterized by lifelong persistency with periodical reactivation, immune suppression, pantropism, opportunistic pattern and a complicated strategy of parasitizing enabling them to avoid the action of antiviral agents [17]. These peculiarities of herpes virus parasitizing in a depressed organism are considered to be one of the causes of systemic and multiple organ signs of CFS, stable maladjustment on various levels and low results of treatment [17]. Though, bio-

logical "behavior" of herpes viruses in the human body is evidenced to depend on the state of its immune system, and the viruses play the role of triggers promoting exacerbation of the disease [17, 18]. The latest information concerning possible pathogenic role of intestinal microbiome disorders in CFS patients deserves certain consideration [9].

Scientific achievements and conceptions mentioned have become powerful arguments for improvement of a comprehensive treatment of this complicated illness called a new challenge to the world medicine [6, 8]. Nowadays a comprehensive treatment of CFS in the view of evidenced-based medicine is rather complicated in its structure and realization. It is based on the use of non-drug and pharmacological measures, but non-drug approaches appeared to be more effective [6, 12]. In the context of the latter the following measures are recognized: dosed increasing physical activity, psychotherapy, cognitive-behavioral therapy, psychosocial support and education of patients, health-improving diet [10]. It is health-improving diet that is least described in modern literature in the aspect of CFS treatment [10]. Though there are certain studies concerning effect of dietary supplements in the form of vitamin-trace elements complexes, L-carnitine, coenzyme Q10, adenine nucleotide, apiculture products in a comprehensive treatment of CFS patients [7, 13].

Achievements in investigation of pathogenesis of numerous illnesses have made the foundation to improve not only pharmacological treatment but created new views and conceptual approaches in dietology. One of the examples is the book by H.K.Bakhru "Healing through Natural Foods" [5]. On the basis of the world achievements in dietology the author distributes the most valuable health-improving food staff according to a key mechanism of action: antibacterial, anti-inflammatory, antioxidant, antidepressant, immune modulating, sedative, nootropic etc. Such an approach forms totally different opinions concerning different health-improving food staff in the context of pathogenic thinking of a doctor in case of disease, extends understanding of their differentiation application in diet strategy, and demonstrates a diverse, multiple organ effect produced on the human body by one food item in particular and in their combination.

Possessing the experience of many years in using health-improving diet and apiculture prod-

ucts in case of internal diseases summarized in the monograph [2] and considering modern scientific approaches in dietology presented by H.K.Bakhru [5], we have advanced healthy-improving diet of CFS patients at the second stage of their rehabilitation (2-2,5 months after a comprehensive non-drug and pharmacological treatment) considering the latest achievements in investigation of pathogenesis of the disease.

Objective is to increase the results of a comprehensive treatment of CFS patients by means of the use of pathologically advanced healthy-improving diet at the second stage of rehabilitation.

Materials and Methods. 48 patients suffering from CFS at the age of 28-53 were observed including a dominating group of women (36 individuals – 75,0%). The diagnosis of CFS was made according to the criteria of the US Center for Disease Control and Prevention (CDC). All the patients underwent the first (main) stage of treatment by means of complexes of non-drug means (dosed physical exercises, variants of psychotherapy, autogenic training, yoga, Wushu, cognitive-behavioral therapy, therapeutic diet focused on vitamin intake) and pharmacological ones (one of nonsteroid anti-inflammatory agents, antidepressants, antioxidant vitamin-trace elements complexes) during 2,5-3 months achieving complete remission in 25 individuals and incomplete remission in 23 patients (47,91%).

Further course of the disease has a tendency to frequent relapses, and even during remission the tolerance to psychophysical exertion decreases which later can cause exacerbation. The management of such patients at further stages of observation should include non-drug measures only, mainly dosed physical exercises, certain elements of psychotherapy, rational job placement, improved diets and minimized administration of medicine as much as possible [1, 4]. Considering our own long-term experience of an effective use of therapeutic diet in case of other internal diseases [2] as well as the latest achievements in investigation of CFS pathogenesis [14], and according to the distribution of health-improving food by key mechanisms of action suggested by H.K. Bakhru [5], we have developed our own recommendations of health-improving diet for this group of patients and instructions for CFS patients containing information about the nature of the disease, importance to realize the suggested health-improving diet in order to promote recovery from

the illness, proper restoration of capacity to work (maintenance of professional and social activity), and the role of the patient and his family in the overall process (Table 1 and Instructions).

The patients were randomized into two clinical groups: the main one (25 individuals) who gave a written consent to realize dietary program, and the group of comparison (23 patients), who were not able to keep to the suggested recommendations due to various reasons. Both groups were matched concerning age, sex, duration and manifestation of the disease.

The information about the nature of the disease and recommendations are presented in the form understandable for the patient in order he/she follows them consciously but not automatically. The patient will be able independently evaluate efficacy and requirements for further keeping to the recommendations as a new reliable life style and diet. Such Instructions were issued to every patient from the main group.

The patients were observed for a year. They were visited with inspection every quarter, and in certain cases – by the telephone.

Table 1

Basic dietary recommendations issued to CFS patients (the list, description of the recommended food containing higher content of arginine and carnitine, and recommendations to use them)

Food with an increased content of arginine	Arginine content in mg/100 g of an item	Recommendations for use
Pumpkin seeds	5353	1. A desirable total daily dose of arginine in these food items is 4-5 grams. 2. Addition of this food into one's diet is voluntary, according to taste habits and economic possibilities
Sesame seeds	3326	
Peanuts	3506	
Pine nuts	2413	
Walnuts	2278	
Almonds	2492	
Liver	1256	3. These meat products contain a sufficient daily dose of carnitine determining your physical activity. 4. Types of culinary processing: a) seeds of pumpkin or sunflower, walnuts, hazel nuts can be taken raw or with porridges, salads; б) well-boiled peas, lentils, beans in soup or garnish; в) cereals (oats, wheat, barley) – porridges or muesli; г) beef, duck, goose, fish, seafood – any types of thermal treatment; д) sour-milk food – all-natural.
Beef	1194	
Chicken fillet	1436	
Chicken breast	1033	
Chicken, red meat	1211	
Chicken, white meat	1397	
Chicken eggs	820	
Cow's milk	119	
Yoghurt	125	
Cheese 2%	623	
Skimmed curds	786	
Fish and seafood:		5. Possible combinations: a) porridges with seeds of sunflower, pumpkin, nuts (better chalked); б) meat dishes with garnish cooked of legumes; в) sour-milk food + chalked seeds of sunflower, pumpkin, walnuts. 6. The food mentioned should be taken with every meal.
White fish	1142	
Raw salmon fillet	1221	
Cod	1065	
Flatfish	1 128	
Carp	1067	
Eel	1103	
Shrimps	1776	
Crabs	1600	
Flour, cereals and legumes:		7. Spices, fruit and vegetables included in the Instructions for the patient can be added to various dishes, salads, teas, juices or they may be taken separately on an empty stomach or after meals. 8. Approximate total arginine dose should be calculated in the food taken. 9. Such a diet is reasonable to be used for many years (it prevents occurrence or progressing of diseases of the cardiovascular, digestive, muscular-skeletal systems)
Muesli	900	
Wheat flour	642	
Rolled oats	600	
Corn flour	345	
Non-ground rice	602	
Dried peas, beans, lentils	2188	
Arginine is present in desserts, food on gelatin as the base, chocolate and raisins.		

The following efficacy criteria are indicated: frequency and duration of CFS relapses during a year, duration of remission, qualitative indices of life (mood, sleep, tolerance to psychophysical exertion, restoration of professional ability), the need to administer medicines additionally.

The materials were statistically processed by means of PC and the package of statistical software Excel for Windows, Statistica 6,0 and SPSS Statistics.

Results and discussion. Clinical age-sexual, urban characteristics and risk factors of the examined groups with CFS are presented in Table 2.

It should be noted that women suffered from the disease longer ($2,8 \pm 0,43$ роки). They did not readily respond to treatment at the preliminary stages. Risk factors both industrial (night shift work) and domestic (daily desynchronization) were more frequent among them; night recovery period was reduced (duration of sleep), and meals were inadequate and irregular.

The majority of patients followed the recommendations contained in the Instructions carefully. Compliance was considered to be satisfactory (about 80% of recommendations). The level of performance was determined by social-eco-

nom status of the patient and level of education.

The results of the suggested health-improving diet depended on the degree of elimination/minimization of risk factors, duration and manifestation of the disease. Particular results of treatment according to the suggested criteria in the main group and the group of comparison are presented in Table 3.

The statistical data presented in Table 3 demonstrate that the health-improving diet added to a comprehensive treatment of patients with CFS at the second (after the main one) stage of rehabilitation improves general outcomes considerably. Worse results of treatment in the group of comparison demonstrate that keeping to dosed physical exercises and various variants of psychotherapy, education of patients with usual regimens and quality of diet do not provide reliable recovery, and occupational restoration. Frequent and longer relapses require additional administration of 2-4 medicines, usually nonsteroid anti-inflammatory drugs in combination with adaptogens or antidepressants, antioxidants. CFS relapses in both groups of patients examined were found under conditions of inadequate elimination of risk factors, long anamnesis of the

Table 2

Age-sexual characteristics and risk factors of the examined patients with CFS

Examined parameter	n, %
Sex:	
males	12 (25,0%)
females	36 (75,0%)
Age (M \pm m), years	35,4 \pm 4,78
Duration of the disease, years	2,3 \pm 0,44
Place of residence:	
urban	34 (70,83%)
rural	14 (29,17%)
Risk factors:	
a) long psychophysical exertion	48 (100%)
b) long stresses of various origin	48 (100%)
c) industrial and domestic desynchronization	32 (66,67%)
d) reduced recovery period (sleep, lack of days off vocations)	35 (72,91%)
e) occupational hypodynamia	32 (66,67%)
f) abuse of tonics	21 (43,75%)
g) low social-cultural status (poverty)	11 (22,92%)
h) unfavorable surroundings	6 (12,5%)
i) malnutrition:	
- qualitative aspect	32 (66,67%)
- time incompatibility	44 (91,67%)
- both factors available	30 (62,5%)
Diagnosis of CFS is made:	
- up to 1 year	11 (22,92%)
- up to 2 years	31 (64,58%)
- at 3 and more years	6 (12,50%)

Table 3

Results of the health-improving diet use after the main stage of a comprehensive treatment of patients suffering from chronic fatigue syndrome

Examined parameters	Main group, n=25	Group of comparison, n=23
Rate of relapses, n, %	3(12%)	10 (43,47)*
Duration of relapse (days)	16,7±2,34	31,4±2,26*
Duration of remission, months	9,6±0,72	4,8±0,32*
The need to administer additional medicines, number of cases, %	3(12%)	13(56,52%)*
Complete restoration of professional ability	22 (88,0%)	10(43,47%)*

Note: * - degree of confidence in the main and comparison groups of patients ($p < 0,05-0,01$)

disease and individuals over 40, and low social-economic status.

Conclusions

1. Chronic fatigue syndrome is a long and often relapsing pathological condition requiring an improved comprehensive treatment including the period after the main stage of therapy focusing on non-drug methods of treatment.

2. Rationally developed health-improving diet considering the effect produced on the main pathogenic chains of the disease (activation of metabolic processes, increase of immune, cogni-

tive properties; decrease of the signs of systemic inflammation, depression and intestinal dysbiosis) can improve general results of treatment and rehabilitation of such patients considerably.

3. Appropriate educational component of patients concerning their diet, their motivation to conscious fulfillment of the suggested recommendations are an important constituent in the improvement of results of a comprehensive treatment.

In further studies the authors consider to test different apiculture products in a comprehensive treatment of patients with CFS.

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INSTRUCTIONS

for a patient with chronic fatigue syndrome (or how to get rid of the illness)

Chronic fatigue syndrome (CFS) is a disabling disease, but unlike the majority of other diseases its course is considerably longer, it does not respond to treatment readily and the success of treatment depends on both doctors and patients (following all the recommendations, especially those concerning diet and life style).

1. Determine risk factors of the disease and eliminate them as much as possible. Risk factors of CFS include: malnutrition (insufficient amount of vitamins, fruits, vegetables, animal proteins, trifling breakfast or its absence, overeating before going to bed, two meals a day, abuse of tonics, coffee, tea etc.), long psychophysical exertion, long excessive stresses of various origin, short recovery period (sleep, lack of days off, holidays), occupational sedentary style (drivers, IT workers etc.), bad habits (nicotine, alcohol), unfavorable environment or working conditions etc.

Calculate a fluid balance of your diet (norm – 2-2,5 L/day: first dishes 250-350 ml; fruit, vegetables or juices – 400-700 ml, sour dairy products 250-500 ml, herbal teas or mineral waters – 500-750 ml, the rest – usual drinking water of a good quality).

2. Remember: your disease is based on disturbed (reduced) metabolism, decreased (inhibited) immunity, weak but stable inflammation on all the levels of the body, chronic infections (including viral ones), depressed activity of the central nervous system (memory, ability to concentrate, sleep, mood, headache, depression), muscular-skeletal system (chronic weakness, muscular pain and ache in joints), gastrointestinal tract (abdominal discomfort, flatulence, stomach rumbling, unstable defecation) and other systems.
3. The above signs can be eliminated (or reduced) by means of the following food included into your everyday meals:
 - a) improve metabolism: carrot, cabbage, ginger, garlic, oats, onion, nuts, seeds of pumpkin, sunflower, tomatoes, pumpkins, squash, green vegetables such as parsley and dill, currants, blueberries;
 - б) increase immunity: sour dairy products (especially yoghurt, kefir), carrot, garlic, mushrooms (porcini (*Boletus edulis*), chanterelle), zinc and selenium containing food including nuts, seeds of pumpkin, sunflower, peas, beans, cereals, raw fresh domestic chicken or quail eggs (4-6 eggs/day);
 - в) eliminate chronic inflammation or pain of various localization: ginger, curcuma, onion, honey, lemon, lime, radish, cloves, cabbage, home cheese, caraway seeds, sage (tea), carrot, egg-plant, dill seeds, cinnamon, green vegetables such as parsley and dill, red bilberries, cranberries;
 - г) reduce depression: apples, honey, chili pepper, garlic, green vegetables, selenium containing food – milk, tomatoes, garlic, onion;
 - д) improve memory: bee pollen with honey (1:1) 1-2 table spoons a day with herbal tea, apples, black pepper, nuts, caraway seeds, sunflower seeds, lemon, parsley;

- e) normalize the activity of the gastrointestinal tract: yoghurt, kefir, ginger, curcuma, seeds of dill and caraway, cinnamon, garlic, parsley.
4. Notice that such available health-improving food as carrots, cabbage, garlic, onion, ginger, nuts, oats, honey, apples, peas, tomatoes, green vegetables (parsley, dill) possess many-sided action practically for all the signs of the disease.
 5. Health-improving mixtures should be combined most often: honey with bee pollen (1:1), honey with nuts (walnuts, hazelnuts) or seeds of pumpkin or sunflower; sour dairy food, ginger, curcuma, cinnamon.
- Remember: keeping to all the doctor's recommendations concerning the use of non-drug means of treatment of the disease is considerably more effective and reliable than expensive pharmacological therapy.
- All these recommendations have been developed according to Hippocrates' postulate: «Let your food become your medicines».
- Note: the most effective food staff is indicated in bold type.

ОСОБЛИВОСТІ ОЗДОРОВЧОГО ХАРЧУВАННЯ ПАЦІЄНТІВ ІЗ СИНДРОМОМ ХРОНІЧНОЇ ВТОМИ: ОБГРУНТУВАННЯ, ДОСВІД, ДИСКУСІЯ

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РЕЗЮМЕ. Актуальність. Синдром хронічної втоми (СХВ) вважають одним із викликів медицини світу: зростає його поширеність, складні патогенез і діагностика, низькі результати лікування.

Мета – підвищити ефективність комплексного лікування хворих із СХВ (після основного етапу) шляхом застосування патогенетично вдосконаленого оздоровчого харчування.

Матеріали і методи. Спостереження проведені у 48 хворих із СХВ, у 25 з яких застосували удосконалене оздоровче харчування (основна група) на тлі дозованих фізичних навантажень, психотерапії та когнітивно-поведінкової терапії в обох групах. Тривалість спостереження – один рік.

Результати. Встановлено, що у хворих основної групи впродовж року вірогідно рідше спостерігались рецидиви СХВ, меншою була їх тривалість, тривалішими періоди ремісії та повне відновлення професійної здатності; лише зрідка потребувалось застосування медикаментозних засобів (при рецидивах), кращими були якісні показники життя.

Висновок. Правильно побудоване оздоровче харчування хворих із СХВ з урахуванням впливу на основні ланки патогенезу цієї недуги може значно покращити загальні результати безмедикаментозних методів комплексного лікування.

Ключові слова: синдром хронічної втоми, патогенетично вдосконалене оздоровче харчування.

ОСОБЕННОСТИ ОЗДОРОВИТЕЛЬНОГО ПИТАНИЯ ПАЦИЕНТОВ С СИНДРОМОМ ХРОНИЧЕСКОЙ УСТАЛОСТИ: ОБОСНОВАНИЕ, ОПЫТ, ДИСКУССИЯ

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РЕЗЮМЕ. Актуальность. Синдром хронической усталости (СХУ) считается одним из вызовов медицине мира: растет его распространенность, сложные патогенез и диагностика, низкие результаты лечения.

Цель. Повысить эффективность комплексного лечения больных с СХУ (после основного этапа) путем применения патогенетически усовершенствованного оздоровительного питания.

Материалы и методы. Наблюдение проведено у 48 больных с СХУ, у 25 из которых применили усовершенствованное оздоровительное питание (основная группа) на фоне дозированных физических нагрузок, психотерапии и когнитивно-поведенческой терапии в обеих группах. Длительность наблюдения – один год.

Результаты. Установлено, что у больных основной группы в течение года достоверно реже наблюдались рецидивы СХУ, сократилась их продолжительность, продлилась ремиссия и полное восстановление профессиональной способности; только изредка требовалось применение медикаментозных средств (при рецидивах), улучшились качественные показатели жизни.

Вывод. Правильно построенное оздоровительное питание больных с СХУ с учетом влияния на основные звенья патогенеза этого заболевания может значительно улучшить общие результаты безмедикаментозных методов комплексного лечения.

Ключевые слова: синдром хронической усталости, патогенетически усовершенствованное оздоровительное питание.

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