



## **GRADE INSUFFICIENCY FOOD AT PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND NUTRITIONAL SUPPORT OPPORTUNITIES**

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### **RESUME**

MINI Nutrition Assessment scale (MNA) was used to estimate nutrition in 105 senior patients with chronic obstructive pulmonary disease, which showed malnutrition signs in 42.5% of CUPD patients, and 33.3% of patients needed nutritional support. Malnutrition in CUPD patients is a multifactor and nutritional factor plays the important role, which are characterized in third of CUPD patients by deficiency of proteins, fruits, vegetables and fluid intake. 6.7% of CUPD patients have difficulties in having food because of intensifying of dyspnea. CUPD patients overestimate their nutritional status and health condition. Administration of nutrients in CUPD complex therapy results with significant restorative and anabolic effect, increases physical tolerance and improves quality of life.

**Keywords:** Chronic obstructive pulmonary disease, malnutrition, nutritional support, pharmacological nutrition.

The prevalence of initial malnutrition according to the European Association for Parenteral and Enteral Nutrition was noted in 15% of elderly people living at home; 30% - in nursing homes; in 48% of long-term treated elderly patients and in 50% of patients in hospitals of various profiles: surgery 27-48%, therapy 46-59%, geriatrics 26-57%, orthopedics 39-45%, oncology 46-88% infection 42-59%, pulmonology 33-63%, gastroenterology 46-60%, HPN-dialysis 31-59% (Ferreira IM et al., 2000; ESPEN, 2007).

Nutritional deficiencies become clinically significant when the loss weight is 10% or more. Loss of 20% of body protein dramatically increases the likelihood of developing: fatigue, depression; perioperative complications; sepsis and wound infections; mortality (Gray-Donald K. et al., 1996; Schols AM et al., 1998; Allison SP, 2000; Malnutrition is largely undiagnosed and untreated, especially in hospitalized patients. This is mainly due to the lack of adequate training in the field of nutritional therapy methods, appropriate awareness and knowledge among the staff, and also due to the lack of suitable protocols for examining and assessing malnutrition and the





inadequacy of the actions taken in this regard (Kostyukevich O.I., 2011; Detsky AS et al., 1987).

Numerous studies have established that malnutrition is often accompanied by various structural and functional changes in the body, as well as metabolic disorders, homeostasis and its adaptive reserves. A direct correlation has been established between the trophic supply of seriously ill patients and their mortality - the higher the energy deficit, the more often they have severe multiple organ failure and death (Popova T.S. et al., 2000; Gray-Donald K. et al. , 1996; Landbo C. et al., 1999).

There is no doubt that trophic homeostasis, together with oxygen supply, is the basis of the vital activity of the human body and the cardinal condition for overcoming many pathological conditions. Maintenance of trophic homeostasis, along with its internal factors, is determined to a very large extent by the possibility and reality of obtaining by the body the nutrient substrates necessary for life support.

The purpose of the study was to assess the nutritional status of patients with chronic obstructive pulmonary disease (COPD) and determine the tactics of nutritional support.

**Materials and research methods.** Analysis of the assessment of nutritional status conducted in 105 elderly COPD patients using the Mini Scale (Mini Nutrition Assessment -MNA) - the most simple and acceptable for evaluation nutrition in elderly patients, which is based on the assessment of 6 parameters at the first stage (screening), where the total maximum score for the first stage should be 12 points and more, what characterizes the state nutrition in norm, no risk and no need for a second stage of the assessment. With 11 points or less, malnutrition is possible and it is necessary to continue the assessment of the second stage 2 in 12 parameters, where the total maximum score for the second stage is 16 points. The total score for the two stages is a maximum of 30 points. Assessment of malnutrition on the Mini-scale: 17-23.5 points - the risk of malnutrition and less than 17 points - obvious malnutrition. COPD patients with initial signs of malnutrition and in need of nutritional support received additional therapy against the background of complex treatment of exacerbation of the disease: Kuvatin 1 tablet 3 times a day for 3 months and Ekdisten 2 tablets 2 times a day in courses of 15 days ( with 10 day breaks) 4 courses (35 patients - 1 group); isolated food supplement (Kuvatin) in the therapy regimen, 1 tablet 3 times a day for 3 months (25 patients - group 2). Kuvatin was prescribed 1 tablet 3 times a day for 20 minutes before meals for 3 months. Ekdisten was prescribed for a long time in courses of two weeks (with breaks of 10 days between courses). Number of courses - 4.

A control group of 15 COPD patients who were recommended a regimen nutrition.





Research results and discussion. According to the results of the survey, it was noted that 42.8% of COPD patients may have malnutrition.

The results of the study showed that a decrease in the amount of food consumed for recent 3 months due to decrease appetite stated 57.1% patients, in volume including With strong loss appetite 14.3 % patients and co middle - 42.8%; a decrease in body weight over the past 3 months by 1-3 kg was noted by 28.6%; restriction of physical activity that does not allow going out was noted by 14.3% COPD patients; 14.3% of COPD patients noted the phenomena of irritability, anger, memory impairment; 14.3% of patients had a body mass index less than 19 kg/m<sup>2</sup>.

Evaluation of the nutritional quality of COPD patients showed that only 66.7% of patients have 2 full meals per day. For selected markers, protein intake:

not less 1 dishes from dairy products in day "Yes" or "No";

Two or more dishes With vegetables or eggs in week "Yes" or "No";

Meat, fish or homemade bird daily "Yes" or "No"

33.3% of COPD patients have one "yes" answer from the selected protein intake markers, 66.7% have two "yes" answers from the selected protein intake markers, and almost none of the COPD patients determined the complete list of protein intake markers.

The use of two or more dishes from fruits or vegetables daily is noted by 66.7% of COPD patients and 33.3% of patients do not have these opportunities.

The amount of liquid you drink (water, juice, coffee, milk, tea) per day: 33.3% of COPD patients are limited to 3-5 glasses. 6.7% of COPD patients have difficulty self-regulating nutrition (increased shortness of breath during the reception food). Self-assessment of the state of nutrition in patients is overestimated 66.7% of patients note that there are no problems with nutrition and only 6.7% believe that the state of nutrition is poor. Self-assessment of the state of health in comparison with people of the same age is also overestimated and 66.7% believe that their condition is better and 33.3% - the same as that of people of the same age.

The results of the study showed that 33.3% of COPD patients require nutritional support.

According to the standards, the absolute indications for prescribing active nutritional support (NP) to patients are:

The presence of relatively rapidly progressive weight loss (BW) due to an existing disease, amounting to > 2% per week, > 5% per month, > 10 per quarter, or more than 20% per 6 months.

Available at patients initial signs hypotrophy:

index masses body (BMI) < nineteen kg/ m<sup>2</sup> growth;



circle shoulder (OP) < 90% from standard (m - < 26 cm., and - < 25 cm.);  
hypoproteinemia < 60 g/l and (or) hypoalbuminemia < thirty g/l;  
absolute lymphopenia < 1200.

Threat development quickly progressive trophic insufficiency:

absence opportunities adequate natural oral nutrition (can't, won't, shouldn't eat naturally).

Availability expressed phenomena hypermetabolism and hypercatabolism Treatment of malnutrition involves three main principles:

timeliness: follows, How can earlier start off therapy not allowing the development of severe malnutrition, difficult to treat;

adequacy: nutrients entering the patient's body must compensate for all the costs of the body;

optimality: therapy should be continued until complete normalization of somatometric and clinical and laboratory parameters.

Treatment insufficient nutrition provides appointment reinforced diet, as well as special mixtures for enteral and parenteral nutrition. The diet should contain an increased amount of easily digestible proteins, have sufficient energy value, be enriched with macro- and microelements and vitamins. Practical experience shows that the choice of food products with these properties is very limited.

We have considered approaches to providing nutritional support to patients with COPD based on the use of nutraceuticals (pharmacological nutrition) in the form of a biologically active food supplement (kuvatin) and ecdysterones (ecdysten).

Kuvatin - biologically active additive to food, having a natural protein composition and chemical composition, containing amino acids (asparagine, threonine, serine, glutamine, proline, glycine, alanine, cysteine, valine, methionine, isoleucine, leucine, tyrosine, phenylalanine, histidine, tryptophan, lysine, arginine ) and trace elements (sodium, bromine, magnesium, potassium, silver, chromium, iron, titanium, calcium, manganese, copper).

Ekdisten is the most promising in terms of anabolic actions. It is obtained from the grass and roots of the plant of the safflower headweed (synonymous with the safflower-like leuzea), the whole-leaved headweed, the Compositae family. Ecdisten has a pronounced tonic and, which is essential, anabolic action. By molecular mechanisms actions ecdisten similar with anabolic steroids (binds to recipes on muscle membranes cells, is transferred with cytoplasmic recipes to the cell nucleus, where it regulates the synthesis of nucleic acids, which in turn control protein biosynthesis). Ecdysterones, as well as anabolic steroids, are substances of the so-called cumulative (i.e., cumulative action).



The results of dynamic monitoring of patients with COPD while taking nutraceuticals Kuvatin and phytoecdysterone (Ecdisten) and the control group are presented in Table 1-2.

Table 1. Peculiarities clinical currents chronic obstructive disease lungs on background applications nutraceuticals

Criteria	Therapy group	Dynamics observations on background treatment				
		before	Through 10 days	Through 30 days	Through 3 months	R1-4 _
The phenomena of asthenia	1 group	22(62.8±8.2)	7(20.0±6.8)	4(11.3±5.3)	2(5.7±3.9)*	<0.05
	2 group	14(60.0±10.0)	7(28.0±9.2)	4(16.0±7.5)	3(12.0±6.6)	<0.05
	control	10(66.7±12.6)	8(53.3±13.3)	6 (40.0±13.1)	6 (40.0±13.1)	>0.05
Decreased appetite	1 group	22(62.8±8.2)	12(34.3±8.0)	7(20.0±6.8)	2(5.7±3.9)*	<0.05
	2 group	16(64.0±9.8)	10(40.0±10)	6(24.0±8.7)	3(12.0±6.6)	<0.05
	control	10(66.7±12.6)	6 (40.0±13.1)	5(33.3±12.6)	6 (40.0±13.1)	>0.05
Limitation of physical activity	1 group	32(91.4±4.7)	24(68.6±10)	16(45.7±8.4)	12(34.3±8.0)*	<0.05
	2 group	23(92.0±5.5)	19(76.0±8.7)	14(56.0±11)	10(40.0±10)	<0.05
	control	14(93.3±6.7)	12(80.0±10.7)	11(73.3±11.8)	11(73.3±11.8)	>0.05
Weight gain, kg	1 group		0.35±0.03	0.55±0.01	0.75±0.01*	<0.05
	2 group		0.15±0.02	0.25±0.01	0.45±0.02	<0.05
	control		0.050±0.02	0.020±0.02	0.050±0.02	>0.05
Metabolic disorders myocardium	1 group	22(62.8±8.2)	12(34.3±8.0)	7(20.0±6.8)	2(5.7±3.9)*	<0.05
	2 group	16(64.0±9.8)	10(40.0±10)	6(24.0±8.7)	3(12.0±6.6)	<0.05
	control	10(66.7±12.6)	8(53.3±13.3)	6 (40.0±13.1)	8(53.3±13.3)	>0.05
6-MShT, m	1 group	241.8±10.2	278.9±8.5	296.2±10.5	323.5±9.5	<0.05
	2 group	246.9±7.8	270.2±6.5	276.9±7.5	305.9±6.5	<0.05
	control	248.3±8.2	248.9±10.5	256.2±11.2	259.2±9.2	>0.05

Table 1 shows that against the background of the use of nutraceuticals by the 3rd month of therapy in patients with COPD, the frequency of asthenia phenomena, decreased appetite, limitation of physical activity and metabolic changes in the myocardium is significantly reduced, more dependent in the group of patients who received a complex of drugs Kuvatina and Ecdisten. The use of nutraceuticals contributed to a more intense weight gain in patients with COPD, on average up to 750 g and 450 g, by 3 months of therapy, and had a positive effect on the results of the test of physical tolerance to stress and was determined by an increase in distance at 6 MST by 82 m and 59 m, respectively. In the control group of patients with COPD, where patients followed the recommendations on the diet, there were no significant increases in the results of the estimated parameters.

The use of nutraceuticals had a positive effect on the clinical course of COPD (Table 2).



Table 2. Peculiarities clinical currents chronic obstructive disease lungs on background applications nutraceuticals

Criteria	group therapy	Dynamics observations on background treatment			
		before	Through 10 days	Through thirty days	Through 3 months
Episode of reinfection %	1 group			1(2.8 ± 2.8)	1(2.8 ± 2.8)*
	2 group			1(4.0 ± 4.0)	2(8.0 ± 5.5)*
	control			3(20.0 ± 10.7)	5(33.3±12.6)
Duration of exacerbation, cf. day	1 group			18.0 ± 1.0	15.0 ± 1.0*
	2 group			21.0 ± 1.0	18.0 ± 2.8*
	control			28.0 ± 1.0	30.0 ± 3.0
Repeated hospitalizations, %	1 group			-	1(2.8 ± 2.8)*
	2 group			1(4.0 ± 4.0)	2(8.0 ± 5.5)*
	control			2(13.3 ± 9.1)	5(33.3 ± 12.6)
Absolute number of lymphocytes	1 group	1.25±0.5	1.55±0.4	1.78±0.3	1.82±0.4*
	2 group	1.32±0.7	1.51±0.5	1.65±0.4	1.71±0.5
	control	1.37±0.9	1.41±0.4	1.56±0.3	1.50±0.4
CAT test, score	1 group	25.6±1.1	21.1±0.9	16.5±1.2	13.2±1.8*
	2 group	26.4±1.5	25.4±1.2	21.8±1.3	19.1±1.1
	control	26.6±1.4	25.4±1.2	24.8±1.3	21.1±1.6

Note: \* - authenticity differences ( $p < 0.05$ ) between group control and therapy

As can be seen from the presented table, in COPD patients who took nutritional support drugs, episodes of reinfection and exacerbations were significantly less common. It was noted that during 3 months of therapy with Kuvatin and Ecdisten drugs, episodes of reinfection and exacerbation were noted in 5.7% of patients, Kuvatin - in 16%, and against the background of dietary recommendations - in 53.3% of patients. The fact of a decrease in the duration of clinical symptoms of exacerbation was noted, on average, to 16.5 and 19.5 days, respectively, of nutraceutical regimens versus 29 days in patients with COPD with dietary recommendations. The intake of nutraceuticals also had a positive effect on the frequency of repeated hospitalizations of COPD patients. It was noted that in patients during 3 months of therapy taking Kuvatin and Ecdisten, the frequency of exacerbations requiring hospitalization was 2.8% of persons, Kuvatina - 12.0% and against the background of dietary recommendations - 40% of patients. The results of a 3-month follow-up among patients treated with Kuvatin and Ekdisten, the parameters of the absolute number of lymphocytes had a significant increase, which reflected the restoration of immune hemostasis.



The use of nutraceuticals has a positive effect on the health of COPD patients in general. When analyzing the results of the questionnaire for assessing the health status of a COPD patient, it was noted that among patients who received Kuvatin and Ecdisten during a 3-month follow-up period, 52% of patients noted changes in the impact of COPD on the patient's life from strong to insignificant (up to 10 points) and 48% - from strong to moderate (up to 20 points). In patients who took Kuvatin, in most cases, changes in the impact of COPD on the patient's life from strong to moderate were noted, and only 5% of patients with dietary recommendations stated changes in the impact of COPD on the patient's life from strong to moderate.

Findings.

The prevalence of malnutrition is noted in 42.5% of COPD patients and 33.3% of COPD patients require nutritional support.

Inadequate nutritional status in COPD patients is caused by multifactoriality and a significant role in its development is played by the nutritional factor, which in a third of COPD patients is characterized by restrictions on the full intake of protein, fruits and vegetables, and the amount of fluid they drink. 6.7% of COPD patients experience difficulty in self-feeding, which is associated with increased shortness of breath while eating.

Patients with COPD have an overestimated self-esteem of both the state of their own nutrition and the state of health, which determines the need for increased alertness of pulmonologists in diagnostic approaches to malnutrition.

The use of nutraceuticals in the complex therapy of patients with COPD demonstrates a pronounced tonic and, which is significant, anabolic effect, the level of tolerance to physical activity increases and the degree of influence of the disease on the patient's life is leveled.

## LITERATURE

1. Kostyukevich O.I. Modern approaches to diagnostics and treatment syndrome cachexia from the perspective of a general practitioner// Russian Medical Journal.- 2011.-№6.- p.
2. Popova T.S. et al. Modern ideas about the metabolic response to systemic damage. Syndrome of hypermetabolism-hypercatabolism. In book. Nutritional support for critically ill patients. M.: M-Vesti, 2000.- p.12-47.
3. Allison S. P. Malnutrition, disease and outcome // Nutrition.- 2000.- vol. sixteen.- s. 590.
4. Detsky AS What is subjective global assessment of nutritional status/ ASDetsky, JRMcLaughlin, JR Baker et al. // JPEN.- 1987. - vol.11. -s.8.





5. ESPEN Guidelines for enteral nutrition - 2007 - 52 s.
6. Ferreira IM, Brooks D., Lacasse Y., Goldstein RS Nutritional support for individuals with COPD: a meta-analysis // Chest. - 2000.-vol. 117.-p. 672-678.
7. Gray Donald K. Nutritional status and mortality in chronic obstructive pulmonary disease / K.Gray-Donald, L.Gibbons, SH Shapiro et al.//Am . J. Respir. Crit. Care Med.- 1996.-vol. 153. - p. 961-966.
8. Landbo C. Prognostic value of nutritional status in chronic obstructive pulmonary disease / C. Landbo, E. Prescott, P. Lange and al. // Am. J. Respir. Crit. Care Med.- 1999.- vol. 160.-p. 1856-1861.
9. Schols AM, Slangen J., Volovics L., Wouters EF Weight loss is a reversible factor in the prediction of chronic obstructive pulmonary disease // Am. J. Respir. Crit. Care Med. 1998. - vol. 157. - p. 1791-1797

