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**AN EFFECTIVE METHOD OF TREATMENT AND REHABILITATION OF
ULCERATIVE COLITIS**

ЖАРАЛУУ КОЛИТТИ ДАРЫЛОО ЖАНА РЕАБАЛИТАЦИЯЛООНУН ЭФФЕКТИВДҮҮ
МЕТОДУ

ЭФФЕКТИВНЫЙ МЕТОД ЛЕЧЕНИЯ И РЕАБИЛИТАЦИИ ЯЗВЕННОГО КОЛИТА

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AN EFFECTIVE METHOD OF TREATMENT AND REHABILITATION OF ULCERATIVE COLITIS

Abstract

Assessment of the effectiveness of the Modulen inflammatory bowel disease (IBD) mixture, which is used for the purpose of nutraceutical support in the treatment of patients with ulcerative colitis. The results obtained show that the mass of somatic adipose tissue increases after a course of nutritional support, it is not known whether the amount of visceral fat has changed. It should be noted that the thickness of the skin-fat fold of the triceps has not changed significantly, which makes it possible to predict the redistribution of body fat towards an increase in body fat reserves, while the amount of fat tissue in the fly does not increase.

Keywords: ulcerative colitis, nutritional status, enteral feeding, “Modulen IBD”.

ЖАРАЛУУ КОЛИТТИ ДАРЫЛОО ЖАНА РЕАБИЛИТАЦИЯЛООНУН ЭФФЕКТИВДҮҮ МЕТОДУ

Аннотация

Макаланын максаты жаралуу колит менен ооруган бейтаптарды дарылоодо “Modulen IBD” аралашмасынын эффективдүүлүгүн баалоо. Натыйжалар көрсөткөндөй, соматикалык май кыртышынын массасы тамактануу курсунан кийин көбөйөт; висцералдык майдын көлөмү өзгөргөнбү белгисиз. Белгилей кетчү нерсе, трицепстин үстүндөгү тери-май бүктөмүнүн калыңдыгы олуттуу өзгөргөн жок, бул чымындагы майлуу ткандардын көлөмүн, ал эми денедегі майдын запастарын көбөйтүү багытында майлуу катмарлардын кайра бөлүштүрүлүшүн болжолдоого мүмкүндүк берет.

Ачкыч сөздөр: жаралуу колит, тамактануу абалы, энтералдык тамактануу, “Modulen IBD”.

ЭФФЕКТИВНЫЙ МЕТОД ЛЕЧЕНИЯ И РЕАБИЛИТАЦИИ ЯЗВЕННОГО КОЛИТА

Аннотация

Оценка эффективности смеси “Modulen IBD” для лечения воспалительных заболеваний кишечника (ВЗК), который используется с целью нутрициологической поддержки при лечении пациентов с язвенным колитом. Полученные результаты показывают, что масса соматической жировой ткани увеличивается после курса нутритивной поддержки, неизвестно, изменилось ли количество висцерального жира. Следует отметить, что толщина кожно-жировой складки над трицепсом существенно не изменилась, что позволяет прогнозировать перераспределение жировых отложений в сторону увеличения жировых запасов организма, при этом количество жировой ткани в ширинке не увеличивается.

Ключевые слова: язвенный колит, нутритивный статус, энтеральное питание, “Modulen IBD”.

Introduction. Due to the fact that the clinical picture of ulcerative colitis (UC) is characterized to some extent by the presence of diarrhea, malabsorption, in some cases stenosis and bleeding syndromes, eating disorders are observed in most patients. This is expressed in a decrease in body weight, a decrease in the amount of total protein, albumin, hemoglobin in the blood. In these patients, especially during lambing, a deficiency of negative nitrogen balance, protein, iron, calcium, magnesium, folic acid is detected [2, 5].

Anti-inflammatory drugs are traditionally used in the treatment of patients with UC, such as Group 5 aminosalicylic acid (salofalk, sulfasalazine), corticosteroids (budesonide, prednisolone), immunosuppressants (azathioprine), inhibitors of the tumor necrosis factor (infliximab). These drugs affect the pathogenesis of the disease and reduce the acute symptoms of inflammatory syndrome, but this practically does not affect the nutritional status of patients, the symptoms of nutritional deficiencies, hypo - or vitamin deficiency, anemia, in some cases – osteoporosis, alopecia and hypogonadism are preserved [1, 3].

Fully balanced nutritional mixtures may be prescribed for Enteral Nutrition in order to improve nutritional status. One of these modern nutritional mixtures is "Modulen IBD" ("Nestle", Switzerland), specially designed to feed patients with inflammatory bowel diseases. In 100 g of dry mixture "Modulen IBD" contains 18 g of milk protein, 23 g of fat, 54 g of carbohydrates, 14 macro and microelements and 13 vitamins. The energy value of 100 g of the mixture is 500 kcal, the osmolarity is 270 mosm / L [5, 8].

A distinctive feature of the "Modulen IBD" mixture, which provides its medicinal properties, is the presence of anti-inflammatory mucosal growth factor (TGF-B2) in the intestinal mucosa of patients, which reduces the initial increase in interleukin-1, interleukin-8 and interferon gamma levels [4, 7].

The "Modulen IBD" mixture is intended for oral administration or probe enteral feeding. It can be prescribed in the amount of 1-3 cups per day as an addition to the main diet or as the only food source [6, 9].

The use of "Modulen IBD" in patients with inflammatory bowel diseases allows:

- ensure adequate delivery of nutrients and energy;
- compensate for the lack of proteins, iron, calcium, other macro - and microelements and vitamins;
- accelerate the onset of remission of the disease by reducing inflammatory activity and strengthening the restoration of the damaged mucous membrane.

It is prescribed in patients with UC in the presence of signs of lack of enteral nutrition, lack of macro - and microelements. Currently, neither parenteral nor enteral nutrition is used as monotherapy [10, 11, 12]. Due to the listed reasons, there was a need to develop a new method with the aim of restoring nutritional status in patients with UC.

The purpose of the research. Assessment of the effectiveness of the Modulen IBD mixture, which is used for the purpose of nutriciological support in the treatment of patients with ulcerative colitis.

Research material and methods. The study was carried out in the Department of Gastroenterology of the scientific and practical medical center of specialized therapy and medical

rehabilitation of the Republic (RIT and TRIATM) in 2020-2022. The study included 48 patients who received both inpatient and outpatient treatment with UC. The median age of patients was 36.8 ± 10.4 years.

In this group of patients, the following indicators were used to determine nutritional deficiencies: body mass index (BMI) $< 19 \text{ kg/m}^2$, shoulder circumference $< 26 \text{ cm}$ (for men) and $< 25 \text{ cm}$ (for women), thickness of the skin-fat fold above the triceps (SFFAT) $< 9.5 \text{ mm}$ (for men) and $< 13 \text{ mm}$ (for women), Total Protein $< 65 \text{ g/l}$, albumin $< 35 \text{ g/l}$.

In addition UC was evaluated on the Truelove and Witts and Meyo indices before treatment and 3 months after treatment for the purpose of determining activity levels. At the same time, a special laboratory indicator for UC was determined – the level of fecal calprotectin in the stool.

All patients received Basis drug therapy, which includes preparations of 5-aminosalicylic acid (sulfasalazine, salofalk) and corticosteroids (prednisolone).

All patients are divided into two groups:

- Patients of the main group (30 people) received a mixture of “Modulen IBD” with a volume of 400-600 ml per day for 12-14 days, in addition to basic therapy (5-aminosalicylic acid (5-Ask)) and regular dietary nutrition. The mixture is prescribed in small portions in 2-3 doses between main meals (with the "Siping" method).
- Control group (30 people) patients received only basic drug therapy (5-Ask + glucocorticosteroids (GKS)) and dietary nutrition. Support for nutrition with a mixture of “Modulen IBD” was not carried out.

In the main and control groups, there were no significant differences in gender, age, location of intestinal lesions, severity of the disease, and type of existing nutritional deficiencies.

The assessment of the nutritional status and effectiveness of nutritional support was evaluated according to the following indicators:

- body weight index and body weight dynamics;
- circumference of shoulder and shoulder muscles (somatic protein);
- thickness of skin-fat folds (using caliper) at Standard points under the biceps, Spade and in the chov area;

Statistical data processing was done using the SPSS Statistics 17.0 (USA) software package. The χ^2 square criterion (Pearson's criterion) was used to statistically compare the principal and control groups. If the expected number of observations in some cells of the table is less than 5, Fisher's explicit criterion was used to determine the level of statistical reliability.

Research results. Analysis of clinical indications shows that as a result of increased protein loss through the intestine and an active inflammatory process, nutritional deficiencies and associated nutrient and energy deficiencies slow down reparative processes in the mucous membrane of the small and large intestine, and eventually an increase in the remission time of the disease occurs.

The primary group of people with ulcerative colitis had 17 men (56.7%), 13 women (43.3%), and the control group had nearly equal numbers of men and women (14 (46.7% and 16 (53.3%)), respectively. The mean age distribution of the primary and control groups is 32.4 ± 5.6 and 34.2 ± 6.8 ,

respectively. In terms of activity level in Truelove and Witts, 2 LA was also significantly active in the group. In the case of the Meyo index, too, 2 La showed the same value in the group 2 (Table 1).

Table 1. Differentiation of groups with ulcerative colitis

Patient group	Gender	Age	Activity level in Truelove and Witts	Meyo index
Main group (5-ASK+ Modulen IBD) n=30	17 male 13 female	32,4±5,6	Moderate activity	2
Control group (5-ASK+GKS) n=30	14 male 16 female	34,2±6,8	Moderate activity	2

During treatment, activity levels in Truelove and Witts and the Meyo index changed positively in the core group in more patients than in the control group (Table 2).

Table 2. UC activity level dynamics

	Activity level in Truelove and Witts		Meyo index	
	Before treatment	After treatment	Before treatment	After treatment
Main group (5-ASK+ Modulen IBD) n=30	30	25	30	26
Control group (5-ASK+GKS) n=30	30	27	30	27

In patients with UC, the fecal calprotectin post-treatment rate was much lower in the primary group than in the control group, i.e., before treatment, fecal calprotectin in the primary group decreased 4.2 times the pre-treatment rate (645), while in the control group it decreased 5.1 times (130) from the initial result (668) (Figure 1).

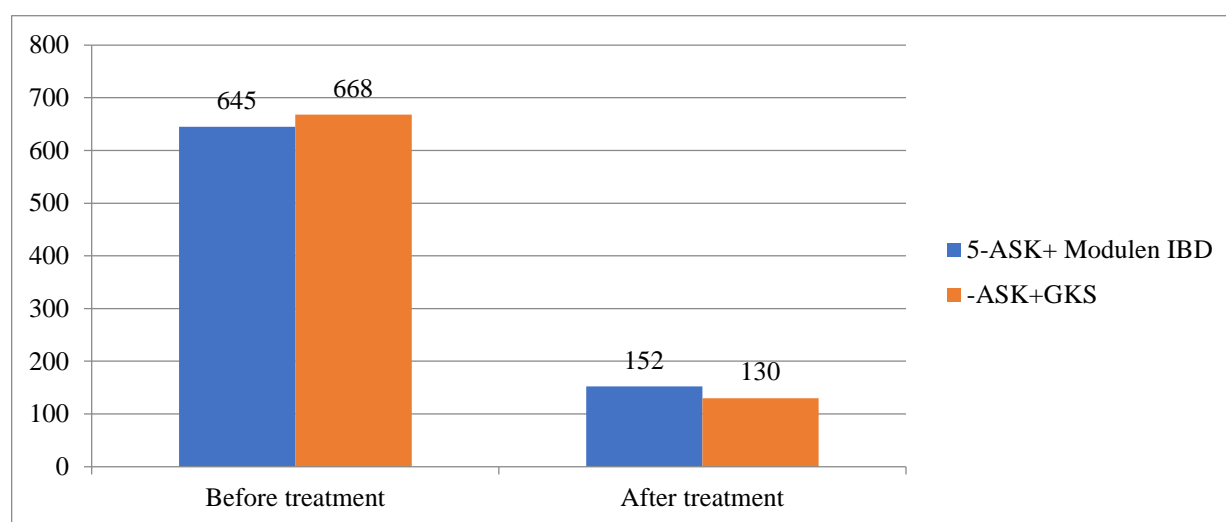


Figure 1. Indication of fecal calprotectin before and after treatment

A statistically significant increase in body weight ($R<0.01$) and body mass index ($R<0.01$) followed a course of nutritional support in the form of supplemental enteral nutrition. But the most important clinical effect of nutritional support should be considered a change in the composition of the body due to an increase in muscle mass and blood proteins, that is, an increase in the somatic and visceral amount of protein. This fact is confirmed by a statistically significant increase in lean body

weight ($R < 0.05$) and shoulder circumference ($R < 0.001$), while being explained by a relatively strong (for lean body mass) and a very strong (for shoulder circumference) nutritional support and an increase in these indicators of nutritional status (Table 3).

Table 3. Patients with UC nutritional status indicators

Indicators	Main group		Control group	
	Before treatment	After treatment	Before treatment	After treatment
Body weight, kg	57,5+ 1,2	62,7+ 2,2	57,4+ 2,0	58, 4+ 2,2
BMI, kg/m ²	16,8+ 2,3	18, 5+ 2,1	17, 2+ 1, 2	18,4+ 1,4
Shoulder girdle, sm	22,2+ 1, 8	24, 5+ 1,5	23, 3+ 1, 7	23, 3+ 1,9
4 skin folds sum, mm	17,6+ 0,8	21, 6+ 0,7	18, 2+ 0,7	18, 8+ 1, 1

The results obtained show that the mass of somatic adipose tissue increases after a course of nutritional support, it is not known whether the amount of visceral fat has changed. It should be noted that the thickness of the skin-fat fold of the triceps has not changed significantly, which makes it possible to predict the redistribution of body fat towards an increase in body fat reserves, while the amount of fat tissue in the fly does not increase. This assumption can be confirmed by studies using only two-energy X-ray absorbiometry, which allows you to assess not only the fat mass, but also the amount of fat tissue in each limb, but the use of this method is limited by the high cost of the study.

Conclusion. Thus, after a course of support for nutrition with a mixture of “Modulen IBD” with the help of additional enteral nutrition in patients with UC, an improvement in nutritional status was noted, which indicates an increase in the body's plastic and energy reserves. Our study shows that the appointment of additional enteral nutrition with a mixture of “Modulen IBD” as part of complex treatment at the stage of UC lamination significantly improves the patient's nutritional status, helps to treat nutritional deficiencies and increases the body's energy and plastic reserves.

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