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**DEVELOPMENT AND EVALUATION OF THE EFFECTIVENESS  
OF OPTIMIZED DIETARY DIETS FOR PATIENTS WITH  
METABOLIC SYNDROME**

*Abstarct:* The manual describes in detail the epidemiology, development factors, pathogenesis, criteria and methods of diagnosis, epidemiology and differential diagnosis of metabolic syndrome.

The history of the development of ideas about the metabolic syndrome is also described. A separate chapter is devoted to violations of the psychological status and eating behavior in patients with metabolic syndrome.

The application contains a scale of anxiety and depression, as well as various questionnaires for determining eating behavior. In conclusion, a test control is provided, which includes 20 tests with correct answers.

*Key words:* otomycosis, clinic, diagnosis, mycotic treatment.

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**РАЗРАБОТКА И ОЦЕНКА ЭФФЕКТИВНОСТИ  
ОПТИМИЗИРОВАННЫХ ДИЕТИЧЕСКИХ РАЦИОНОВ ДЛЯ  
ПАЦИЕНТОВ С МЕТАБОЛИЧЕСКИМ СИНДРОМОМ**

*Аннотация:* В пособии подробно излагается эпидемиология, факторы развития, патогенез, критерии и методы диагностики, эпидемиология и дифференциальная диагностика метаболического синдрома.

Также описывается история развития представлений о метаболическом синдроме. Отдельная глава посвящена нарушениям

психологического статуса и пищевого поведения у больных с метаболическим синдромом.

В приложении представлены шкала тревоги и депрессии, а также различные опросники для определения пищевого поведения. В заключении приводится тестовый контроль, который включает 20 тестов с правильными ответами.

**Ключевые слова:** диетотерапия, метаболический синдром, рацион, пациент, эффективность.

**Relevance.** In the treatment of MC, the primary and pathogenetically justified measures are aimed at normalizing metabolic disorders and reducing body weight[3,6]. Diet therapy is one of the most important links in the prevention and treatment of MC. Targeted modeling of the diet allows to reduce or normalize the level of glucose and lipids in the blood, blood pressure and body weight in patients with MC. The main requirement for the construction of a diet with MC is to limit its energy value[1,5].

At the same time, it is necessary to monitor the implementation of the patient's needs for a set of macro - and micronutrients, which is achieved by using specialized and functional foods balanced in the composition of nutrients and adapted to the characteristics of the patient's body with MC in standard hypocaloric diets[2,4]. Optimization of diet therapy in MC is the most effective when taking into account the results of a comprehensive assessment of the nutritional status using bioimpedance, indirect calorimetry, biochemical parameters of lipid, carbohydrate, protein metabolism, as well as hormonal and cytokine status[3,5].

**The purpose of the study.** Based on a comprehensive assessment of the nutritional status using modern methods of nutrimentalomics, to develop and evaluate the effectiveness of optimized dietary diets for patients with metabolic syndrome.

**Materials and methods of research.** A comprehensive clinical and laboratory examination was performed in 168 patients with MS-34 men and 134 women aged 23 to 69 years (the average age in the group was  $55.2 \pm 1.5$  years).

**The results of the study.** The inclusion of a specialized product enriched with plant and animal proteins, dietary fibers, vitamins and minerals in the standard hypocaloric diet in patients with metabolic syndrome was accompanied by a more pronounced decrease in body fat mass (by  $6.1 \pm 0.4\%$  vs.  $5.4 \pm 0.3\%$ , respectively), an increase in the proportion of lean body weight (by  $2.0 \pm 0.2\%$  vs.  $1.3 \pm 0.2\%$ , respectively,  $p < 0.001$ ), a decrease in the rate of protein oxidation (by  $25.1 \pm 5.1\%$  and  $19.3 \pm 3.4\%$  of the initial level, respectively.,  $p < 0.04$ ) and an increase in the rate of fat oxidation (by  $38.7 \pm 5.6\%$  and  $21.2 \pm 3.5\%$  from the initial level, respectively,  $p < 0.01$ ).

Modification of the fatty acid composition of the diet in patients with metabolic syndrome using a functional food product containing a fat emulsion that provides slow fat breakdown, contributed to a significant decrease in hunger and a longer feeling of satiety than in patients of the comparison group, as well as a greater decrease in body weight due to the fat component (by  $9.7 \pm 1.3\%$  vs.  $5.4 \pm 0.3\%$ , respectively,  $p < 0.01$ ) and a significantly more pronounced decrease in the level of ghrelin in the blood (by  $27.0 \pm 2.4\%$  and  $12.0 \pm 1.6\%$ , resp.,  $p < 0.05$ ).

The use of a specialized product containing slowly absorbed carbohydrates, dietary fiber and monounsaturated fatty acids in a complex of therapeutic measures for metabolic syndrome and type 2 diabetes mellitus was accompanied by a more pronounced decrease in the insulin resistance index of NOME (by  $44.8 \pm 5.6\%$  vs.  $10.4 \pm 2.2\%$ , respectively,  $p < 0.001$ ), glycated hemoglobin (by  $15.2 \pm 3.4\%$  vs.  $2.5 \pm 0.5\%$ , respectively,  $p < 0.01$ ), as well as a decrease in the level of resting energy consumption (by  $21.3 \pm 3.5\%$  versus  $13.8 \pm 2.3\%$ , respectively.,

$p < 0.05$ ) and an increased rate of fat oxidation ( $18.5 \pm 3.5\%$  versus  $11.7 \pm 2.9\%$ , resp.,  $p < 0.01$ ).

Developed optimized dietary diets for patients with metabolic syndrome contribute to the emergence of positive dynamics of indicators of glycemic control, lipid metabolism, hormonal status, body composition (reduction of body weight mainly due to the fat component and the preservation of the active cell of body weight) and metabolic status (reduce energotrust rest, the rate of oxidation of carbohydrates and protein, increasing the rate of oxidation of fat).

**Conclusion.** It was found that a comprehensive assessment of the nutritional status allows optimizing dietary approaches for the correction of basal and postprandial hyperglycemia, dyslipidemia, arterial hypertension (AH) in patients with MS.

The revealed violations of the nutritional status in MS (excessive fat content, increased resting energy consumption with a decrease in the rate of fat oxidation, dyslipidemia, hyperglycemia, hyperinsulinemia, hyper-C-peptidemia, hypoadiponectinemia) justify the need to optimize diet therapy in these patients.

It has been shown that metabolically oriented diet therapy improves the indicators of glycemic control, lipid and protein metabolism, and increases the sensitivity of peripheral tissues to insulin in patients with MS.

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