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TREATMENT OF METABOLICALLY ASSOCIATED FATTY LIVER DISEASE IN THE YOUNG POPULATION

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ABSTRACT

Metabolically Associated Fatty Liver Disease (MAFLD) has emerged as a significant public health concern, driven by rising global obesity rates and metabolic syndromes. This paper reviews the existing evidence on the efficacy and safety of Ursodeoxycholic Acid (UDCA) for the treatment of MAFLD, discussing the biochemical and physiological mechanisms through which UDCA may exert its effects. Furthermore, we will explore future research avenues and clinical implications.

KEYWORDS

MAFLD, liver, method, treatment, diagnosis.

Introduction

Polymorbid disease dictates the need for a comprehensive approach to solving the problem of obesity, using an arsenal of drugs that simultaneously take into account all links in the pathogenesis of diseases and at the same time have the most pluripotent effect. The World Health Organization considers obesity to be one of the 10 leading causes of preventable death worldwide [1]. The effectiveness of ursodeoxycholic acid in the treatment of MAFLD, in particular non-alcoholic steatohepatitis (NASH) has been proven [2]. Taking ursodeoxycholic acid at a dose of 15-30 mg/kg of body weight daily for 24-48 weeks leads to a reliable decrease in the activity of serum transaminases [3].

MATERIALS AND METHODS

According to current recommendations, diet therapy and lifestyle modification are the basic treatment tactics for patients with MAFLD. Many studies have proven the ability of a hypocaloric diet and exercise to reduce the severity of steatosis and necroinflammatory processes in MAFLD [4]. The hypocholesterolemic effect when using dietary fiber as a diet modifier is due to a decrease in cholesterol absorption in the intestine; a decrease in cholesterol synthesis in the liver; a decrease in cholesterol excretion into bile; a decrease in toxicity and a decrease in the frequency of side effects when using statins due to the induction of CYP3A4; a moderate suppressive effect on cholesterol synthesis in the liver (inhibiting HMG-CoA reductase) [3].

RESULTS AND DISCUSSION

The introduction of dietary fiber (DF) into the diet has been approved and recommended by such authoritative organizations as the American Heart Association (AHA) and the Food and Drug Administration (FDA). Over the past few years, the mechanisms of DF action and the feasibility of their use have been studied in many studies, including randomized controlled trials [1].

Regular consumption of DF leads to a decrease in the absorption of proteins, fats and carbohydrates, helping to reduce the energy value of food, which is important in metabolic syndrome [1].

The purpose of the study: to evaluate the effectiveness of the combination of Mucofalk and Ursofalk in the treatment and prevention of MAFLD and obesity in patients with eating disorders.

The object of the study were 242 male employees of a paramilitary security company. The average age of the subjects was 40.5 ± 4.7 years, work experience from 5 to 15 years. Persons under 22 and over 55 years of age, with less than 5 years of work experience and more than 15 years of work experience were excluded from the study.

During the examination, 180 patients were found to have an increased body mass index (BMI), of which 141 were found to have MAFLD. The Quetelet BMI in patients with MAFLD averaged 33.7 ± 0.44 kg/m². All patients with MAFLD had impaired carbohydrate tolerance to varying degrees, which is consistent with literature data [5]. The laboratory research methods performed allowed us to establish the presence of metabolic syndrome in all patients with MAFLD: carbohydrate (impaired fasting glycemia) and lipid (atherogenic dyslipoproteinemia) metabolism disorders characteristic of this condition were noted.

Overweight and obesity are among the significant modifiable risk factors for cardiovascular diseases, adverse metabolic disorders - arterial hypertension, increased cholesterol and triglyceride levels in the blood, insulin resistance [3]. The issues of preventing cardiovascular risks at the stage of treatment of predisposing comorbid pathology should be considered key in terms of reducing mortality from cardiovascular diseases. All patients had a history of ineffective attempts to lose weight with a subsequent return to the original BMI values, the problem was explained by irregular working hours, stress, the possibility of eating in a quiet environment only at home in the late evening.

Retrospective analysis of outpatient records of patients revealed annual detection of newly established diagnoses of obesity (up to 10 cases), hyperlipidemia (up to 16), arterial hypertension (up to 7), MAFLD (up to 6), impaired glucose tolerance (up to 5) during routine medical examinations, while at the time of employment all patients without exception had the 1st health group, served in the armed forces, had not previously been registered with a dispensary and had not visited a doctor at the place of residence. Patients were divided by composition into a study group (109 people) and a comparison group (71 people). The average age of patients in both groups was 41 ± 7.3 years. The control group, similar in gender and age composition, included 62 practically healthy people without diseases of the hepatobiliary system. A comprehensive clinical, laboratory and instrumental examination was performed at the beginning and end of therapy. Etiological verification of the MAFLD diagnosis was carried out based on the results of a set of generally accepted methods of laboratory and instrumental examination (ultrasound examination (US) of the abdominal organs, computed tomography, results of a study of the level of alanine and aspartic aminotransaminases (ALT, AST), glucose and lipid profile, including total cholesterol (TC), triglycerides (TG), high-density lipoproteins (HDL) and low-density lipoproteins (LDL)). To exclude chronic alcohol intoxication, the CAGE questionnaire was used, and

the results of a chemical-toxicological study of blood for alcohol were taken into account, carried out in accordance with the requirements of the enterprise where all the examined people work. An anthropometric examination was carried out to assess the degree of excess body weight, BMI was calculated. Body weight was determined without outerwear and shoes using portable medical scales that passed metrological control. The measurement accuracy was 0.1 kg. BMI was calculated according to the formula: BMI (kg/m²) = weight (kg)/height² (m²). When assessing the results, we used the classification of obesity by BMI (WHO, 1997): underweight with BMI < 18.0 kg/m²; normal weight — with BMI 18.0–24.9 kg/m²; overweight — BMI 25.0–29.9 kg/m²; grade 1 obesity — BMI 30.0–34.9 kg/m²; grade 2 obesity — BMI 35.0–40.0 kg/m²; grade 3 obesity — BMI over 40.0 kg/m².
Statistical data processing was performed using the Statistica 6.0 (StatSoft) software package. Standard methods of descriptive statistics (calculation of means, standard deviations, standard errors, etc.) and nonparametric significance tests (Fisher's F test, Mann-Whitney test) were used. The distribution of results was checked using the Kolmogorov-Smirnov test.
To describe the obtained quantitative characteristics, the data were presented as a median (Me) and the 25th and 75th percentiles. Differences between groups and the significance of the relationships between the indicators were considered significant at $p < 0.05$.
Patients in the study group received Ursofalk in the standard regimen - in case of detected fatty hepatosis (increased transaminases, signs of fatty hepatosis on ultrasound) at a dose of 10-15 mg / kg of body weight for at least 9 months. Patients in the comparison group received the ursodeoxycholic acid Ursofalk in combination with the psyllium preparation Mucofalk to modify eating behavior, 30 minutes before each meal, with 200 ml of water, to reduce the amount and calorie content of food consumed, as well as to achieve a hypoglycemic and hypocholesterolemic effect. The dynamics of the clinical picture and symptoms, the results of the biochemical blood test were assessed.

CONCLUSION

A statistically significant efficacy of using a combination of psyllium and ursodeoxycholic acid in patients with MAFLD for weight loss, normalization of transaminase levels, correction of lipid profile indicators, blood glucose, as well as in preventing new cases of obesity, dyslipidemia in situationally conditioned eating behavior disorders in patients with metabolic syndrome was revealed. The complex nature of therapy using a combination of ursodeoxycholic acid and factors of eating behavior modification is effective not only for treatment, but also for prevention of metabolic disorders in patients with MAFLD and obesity, ensuring a high quality of life when diet correction is necessary.

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