

Summary

Introduction

Inflammatory bowel disease is a group of chronic diseases with a multifactorial ethology. They are diagnosed in patients with a genetic predisposition who have been shown to have disturbances in the functioning of the immune system, most often in correlation with specific environmental factors. The main diseases of this group are Crohn's disease and ulcerative colitis. Inflammation in Crohn's disease can affect any part of the gastrointestinal tract, but most often it is the final segment of the small intestine and the initial large intestine, while in ulcerative colitis the rectum and/or the large intestine (mainly the colon). The most commonly reported symptoms are diarrhoea with blood and abdominal pain. Many patients show parenteral manifestations, the most common being osteopenia, osteoporosis, skin diseases or liver, and bile ducts. Vitamin and mineral deficiencies also often occur, even in the presence of co-occurring overweight or obesity. Surgical treatment, an active inflammatory process and diet modifications introduced by patients increase the risk of nutrition disorders, and reduced bone mineral density. Due to a small amount of research assessing the nutritional status and body composition of Polish patients with inflammatory bowel disease, an attempt was made to analyse the above factors.

Aim

The study aimed to assess the nutritional status and body composition of patients with Crohn's Disease and Ulcerative colitis in the active phase of the disease.

Material and methods

119 patients with clinically confirmed, endoscopically, and histopathological inflammatory bowel diseases and a properly selected group of 82 healthy people were included in the study. Patients were recruited from the Department of Gastroenterology with IBD Unit of Clinical Hospital No.2 Rzeszow. After the patients were included in the study, they were invited to a meeting at which they were notified of its purpose and learned about the information about its course and how to collect data. At the first meeting, after agreeing to participate in the study, patients completed an informed consent to participate and completed the information in the questionnaire. They were directed to study bone mineral density and body composition. In the last stage of research, information on the results of selected biochemical parameters was

supplemented. In the control group, the study was the same procedure except for biochemical tests. Statistical analysis of collected test results was performed using IBM SPSS Statistics version 25.

Results

Nutritional disorders related to 39.4% of patients with Crohn's disease [6.6% underweight, 32.8% body weight above normal (BMI > 25.0 kg / m²) and 53.4% with ulcerative colitis (13.8% underweight, 39.6% body weight above normal (BMI > 25.0 kg / m²)]. Fat mass, free-fat mass and bone mineral content (BMC) were characterized by the same level in all groups, therefore statistically significant differences were observed in each of the variables, multiple comparisons between pairs of the subgroup show differences: bone mineral density values in the lumbar spine, left femur neck and total body density were lower in the group of patients with Crohn's disease and ulcerative colitis. The bone mineral density in patients was similar. Body composition and bone mineral density correlated with body mass index – BMI. Patients with Crohn's disease had more frequent folate deficiencies than patients with ulcerative colitis. Every second patient with ulcerative colitis and every third patient with Crohn's disease had an iron deficiency. In addition, vitamin B12 deficiencies have been observed which was associated with reduced intake of foods rich in this vitamin. There were no differences in Resting Metabolic Rate between patient groups and healthy people.

Conclusions

1. The study showed significant differences in the mineral density of the lumbar spine (L2-L4), left femoral neck and total body between patients with Crohn's disease (CD), ulcerative colitis (UC) and the control group. There were no differences in body composition parameters analyzed by dual-energy x-ray absorptiometry (DEXA), such as free-fat mass, fat mass and bone mineral content (BMC) between patients with CD, UC and the control group.
2. The correlation has been demonstrated between total body mineral density and the frequency of milk consumption in CD and UC patients.
3. The positive correlation between the frequency of fish consumption and iron concentration in blood serum was found in patients with CD, while in UC patients with vitamin B12 concentration.
4. There is a relationship between body mass index (BMI) and total body bone mineral density in patients with IBD. In addition, BMI was correlated with left femoral neck mineral density in

CD patients. Furthermore, BMI correlated with body composition parameters such as fat mass, free-fat mass and BMC in IBD patients.

5. The relationship between different BMI range and resting metabolic rate (RMR) determined by DEXA was demonstrated in both group of patients with CD and UC.

Key words: inflammatory bowel disease, bone mineral density, body composition, nutritional status