IJIMM, Volume 2, Issue 6 2024
ISSN: 2995-5319
http://medicaljournals.eu/index.php/IJIMM

INTERNATIONAL JOURNAL OF
INTEGRATIVE AND
MODERN MEDICINE

MICRONUTRIENT DEFICIENCY IN PATIENTS WITH ULCERATIVE COLITIS

Eshniyazova G.Sh.
Bukhara State Medical Institute, Bukhara, Uzbekistan

Abstract. Malnutrition is a common problem in patients with inflammatory bowel disease, occurring in 18-62% of patients with ulcerative colitis (UC). This study aimed to evaluate the micronutrient status in CKD patients and its association with disease severity.From 2022 to 2023, a prospective case-control study was conducted in 46 patients visiting the department of gastroenterology and purulent surgery. Patients were divided into mild, moderate and severe groups according to the results of colonoscopy and histopathological examination. Serum iron, magnesium, zinc, selenium and copper were tested. 46 patients (17 men, 29 women) with an average age of 32 years were included in the study and were divided into 2 groups (23 with CKD and 23 healthy individuals). Serum magnesium, zinc and selenium levels were significantly lower in patients in the YaK group (p< 0.001, 0.018 and < 0.001). However, iron and copper levels were not significantly different in the 2 groups of patients. It should be evaluated whether the elimination of micronutrient deficiencies can help achieve remission in patients with CKD.

Keywords: ulcerative colitis, micronutrients, malnutrition

Ulcerative colitis (UC) is a chronic inflammation of the gastrointestinal tract that subsides with episodes of exacerbation and remission [1]. CKD is often accompanied by diarrhea, abdominal pain, rectal bleeding, weight loss, and restlessness [2]. The diagnosis of ulcerative colitis is made clinically using the results of colonoscopy, histopathological examination and negative stool examination for infectious causes [3].

Malnutrition is a common problem in patients with inflammatory bowel disease, occurring in 18–62% of patients with ulcerative colitis (UC) [4]. As for the chronic nature of the disease, chronic diarrhea, reduced food intake (in cases of food restriction, anorexia, nausea and vomiting), malnutrition, increased intestinal transit, bleeding, intestinal there is a possibility of micronutrient deficiency due to action and drug interactions [5]. Thus, this study aimed to evaluate the micronutrient status and its association with disease severity in patients with CKD.

Research methods and materials. 46 patients (17 men, 29 women) who visited the Department of Gastroenterology and Purulent Surgery, patients with an average age of 32 years, were divided into 2 groups (23 with CKD and 23 healthy individuals). The study was conducted in the period from 2022 to 2023.

All patients with CA underwent physical examination and history taking. All patients were mild, moderate according to clinical evaluation by a specialist gastroenterologist, as well as laboratory according to the Mayo scale [6], colonoscopy results, Ulcerative Colitis Endoscopic Severity Index (UCEIS) [7] and histopathological examination. and severe ulcerative colitis.

Laboratory examinations were carried out in the laboratory of Bukhara Regional Multidisciplinary Medical Center and ENDOMED Clinic. Blood samples (5 mL) were collected from the CKD patients and controls in a plain tube and allowed to clot for 20 minutes. Samples were centrifuged at 2500 rpm for 10 minutes and stored at 20°C for determination of serum iron, magnesium, zinc, selenium, and copper levels. Copper was measured colorimetrically with Diborm-PAESA. Zinc was measured using a

colorimetric method using 5-BROMO-PAPS. Iron was measured by the colorimetric CAB method. Magnesium phosphanzo III was measured by colorimetric method. Selenium was measured using the ELISA method.

Research results. 46 patients (17 men, 29 women) with an average age of 32 years were included in the study. Both groups (23 naive YaK patients and 23 healthy controls) were similar in terms of age, sex, and place of residence. It was observed that serum levels of magnesium, zinc and selenium were significantly lower in YaK group patients. However, iron and copper levels were not significantly different between the two groups. A statistically significant increase in white blood cells was observed in the YaK group compared to the control group (Table 1).

Table 1

Analysis of laboratory parameters among study groups

Indicators	YaK	Control group	P
Hb	11.2 ± 1.7	11.5 ± 1.8	0.474
Leukocytes	8.2 ± 2.6	6.3 ± 2.1	0.045
Platelets	260 (210–297)	250 (183–279)	0.756
Selenium	144.2 ± 57.3	534.2 ± 181	<0.001
Zinc	64.1 ± 17.0	74.9 ± 21.3	0.017
Copper	88.9 ± 10.9	82.1 ± 11.9	0.414
Iron	96.2 ± 36.9	103.5 ± 28.3	0.661
Magnesium	1.8 (1.7-2.0)	2 (2-2.1)	<0.001

Table 1 shows that in patients with ulcerative colitis, compared to the control group, the amount of micronutrients selenium, zinc, iron and magnesium decreased (respectively 144.2 ± 57.3; 64.1 ± 17.0; 96.2 ± 36.9 and 1.8 (1.7-2.0)), increased copper content (88.9 ± 10.9) was noted.

Clinical characteristics and histopathological examination results of patients with CKD are presented in Table 2. 8.9% of patients with ulcerative colitis had mild, 47.5% moderate and 43.6% severe.

Table 2

Analysis of clinical features in patients with ulcerative colitis

Signs	the median
Number of bowel movements (per day)	4 (3-8)
Duration of illness (months)	1 (1-2)
Clinical signs	n (%)
Blood in the stool	15 (65.2)
Lose weight	11 (47.8)
Abdominal pain	16 (69.6)
Disease levels	n (%)
Light	3 (13.0)
Medium heavy	9 (39.1)
Heavy	11 (49.7)

When analyzing the clinical symptoms of patients with ulcerative colitis, 65.2% of patients had blood in stool, 47.8% had weight loss, and 69.6% had abdominal pain. When analyzing the severity of the disease, 13.0% had mild, 39.1% had moderate and 49.7% had severe.

Summary. Determining micronutrient levels in patients with CKD should be evaluated not only to decide on adjunctive therapies, but also to warn that addressing these immunocompromising deficiencies may help achieve remission. Magnesium levels are important in determining the severity of the disease, ranging from mild to severe.

List of used literature

1. Tran V, Shammas R, Sauk J, Padua D (2019) Evaluating tofacitinib citrate in the treatment of moderate-to-severe active ulcerative colitis: design, development and positioning of therapy. Clin Exp Gastroenterol 12:179–191

2. Boal Carvalho P, Cotter J (2017) Mucosal healing in ulcerative colitis: a comprehensive review. Drugs 77(2):159–173

3. Lee J, Kim E, Moon W (2019) Chronological review of endoscopic indices in inflammatory bowel disease. Clin Endosc 52(2):129–136

4. Shafiee N, Manaf Z, Mokhtar N, Ali R (2020) An assessment of dietary intake, food avoidance and food beliefs in patients with ulcerative colitis of different disease status. Intest Res 18(4):447–458

5. Poursadegh F, Ahadi M, Vosoughinia H, Salehi M, Namdar A et al (2018) A STROBE compliant observational study on trace elements in patients with ulcerative colitis and their relationship with disease activity. Medicine 97(52):1–7

6. Rubin D, Ananthakrishnan A, Siegel C, Sauer B, Long M (2019) ACG clinical guideline: ulcerative colitis in adults. Am J Gastroenterol 114(3):384–413

7. Xie T, Zhang T, Ding C, Dai X, Li Y et al (2018) Ulcerative Colitis Endoscopic Index of Severity (UCEIS) versus Mayo Endoscopic Score (MES) in guiding the need for colectomy in patients with acute severe colitis. Gastroenterol Rep 6(1):38–44

8.Abdullayev RB, Makhmudova LI Features of Chemical Elements in Various Forms of Irritable Bowel Syndrome // Annals of RSCB, ISSN:1583-6258, Vol. 25, Issue 2, 2021, Pages. 2993 - 3000.

9. Abdullayev RB, Makhmudova LIMicro elemental imbalance in irritable bowel syndrome and IBS correction. Academicia. Vol. 11, Issue 5, May 2021:655-662.

10. Abdullayev RB, Makhmudova LI, (2021). Assessment Of Clinical And Psychological Status And Quality Of Life Of Patients In Different Forms Of Irritable Bowel Syndrome. The American Journal of Medical Sciences and Pharmaceutical Research, 3(02), 127-134.

11. Makhmudova LI, Akhmedova N.Sh. Irritable bowel syndrome: a new look at the problem // Academicia. 10.5958/2249-7137.2020.00983.0. 433-38.

12. Makhmudova LI, Akhmedova N.Sh., Ergashov BB Clinical manifestation of irritable bowel syndrome. Art of medicine. International medical scientific journal. Vol. 1, Issue 2. 2021:24-33.

13. Makhmudova LI, Ismatova MN, Mukhamedjanova MH, Sulaymanova GA Evaluation of microelement status and IBS correction with irritable bowel syndrome. New day in medicine. 2(34) 2021:325-331.

14.Makhmudova LI, Shazhanova NS, Akhmedova N.Sh., (2021). Clinical Features Of Irritable Intestinal Syndrome. The American Journal of Medical Sciences and Pharmaceutical Research, 3(04), 154-159.

15. Makhmudova LI, Sharipov JNState of intestinal microflora in irritable bowel syndrome. Thematic journal microbiology. Vol.6, Issue 1. 2022:104-109.