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Influence of physician and clinical dietitian on the use of dietary supplements among Polish patients with ulcerative colitis – pilot study

Monika MAĆKÓW[1], Dorian NOWACKI[1], Robert GAJDA[1], Andrzej STAWARSKI[2], Katarzyna NEUBAUER[3]

1 Department of Human Nutrition, Wrocław University of Environmental and Life Sciences.
2 2nd Department and Clinic of Paediatrics, Gastroenterology and Nutrition, Wrocław Medical University.
3 Department and Clinic of Gastroenterology and Hepatology, Wrocław Medical University.

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ABSTRACT

Introduction: Patients with ulcerative colitis are a group of patients who are particularly vulnerable to nutritional deficiencies. Supplementation, prescribed by a physician or clinical dietitian, is therefore important in these patients.

Materials and methods: The study was carried out by means of a questionnaire on a group of 106 people diagnosed with colitis and in remission.

Results: More than 92% recommended the use of dietary supplements. Vitamin supplements were most common among people with ulcerative colitis (82.7%). The physician as a source of knowledge positively influenced the use of vitamin and mineral supplements (r=0.23, p=0.0213) while dietitians as a source of knowledge showed no significant effect on patients' supplementation choices.

Conclusion: In Poland, the physician is the main source of supplementation knowledge than the clinical dietitian. This may be due to the unregulated nature of the dietitian profession in the Polish health care system. It is therefore necessary to integrate dietitians in Poland into the medical profession, which will allow for better results in the treatment of not only IBD patients.

KEYWORDS

Dietary supplements, ulcerative colitis, physician, clinical dietetitian

Correspondencia:
Monika Maćków
monika.mackow@upwr.edu.pl

INTRODUCTION

Inflammatory bowel disease (IBD) includes ulcerative colitis (CU), Crohn's disease (CD) and indeterminate colitis (IC), which currently affects around 0.2% of the European population. Recent data show that the prevalence of CD in Europe ranged from 0.4 to 22.8 per 100,000 person-years, while the prevalence of UC, ranged from 2.4 to 44.0 per 100,000 person-years and was generally higher[1]. Ulcerative colitis (UC) is a diffuse, non-specific inflammation of the mucosa of the rectum or rectum and colon, leading to ulceration[2]. Patients with UC experience symptoms such as diarrhoea with blood, mucus discharge and urgency to defecate, and the course of the disease can vary widely. Some patients suffer from continuous disease activity, while others experience episodes of exacerbations of varying severity and frequency[3]. Therefore, one component of UC therapy is appropriately selected nutritional treatment to prevent deficiencies due to bloody diarrhoea or medication.

Certain vitamins and minerals are particularly important in the diet of people with UC. Vitamins of particular relevance for IBD patients are vitamin B9 (folic acid) and B12 (cobalamin), deficiencies of which are observed in IBD patients and can lead to anaemia, hyperhomocysteinemia and neurological and psychiatric disorders[4]. Due to possible deficiencies, both ECCO (The European Crohn's and Colitis Organisation) and ESPEN (The European Society for Clinical Nutrition and Metabolism) recommend dietary supplementation of IBD patients with components such as iron, vitamin B12, folic acid, calcium, vitamin D, or zinc[5,6].

The persons responsible for appropriately selected supplementation are a doctor and a dietician. Currently, in Poland, due to the lack of regulation of the dietetic profession, the profession is to a limited extent an integral part of the health care

system. The profession of dietician in Poland is not precisely regulated by current legislation, which differs from analogous regulations in many economically developed countries. The position of the Committee on Human Nutrition Science of the Polish Academy of Sciences on the use of dietary supplements containing vitamins and minerals by adults, in a document developed on the use of dietary supplements, recommends that prior to the use of a dietary supplement, a dietician or other specialist in qualitative and quantitative assessment of the diet should carry out an assessment of the diet, taking into account the individual needs of the consumer depending on gender, age, physical activity, and recommends the use of follow-up advice from a doctor and a dietician to monitor the effectiveness of the dietary supplement and, if necessary, to change its type or dose. Hence, both the doctor and the dietician are entitled to recommend the use of dietary supplements[7].

The aim of this study was to assess the influence of the physician and dietician on the use of dietary supplements in patients with CU in remission from the Lower Silesia region of Poland. The rationale for such a study is the growing consumer interest in dietary supplements in Poland[8], but also in other countries in the world[9]. People with CU, as studies show, are particularly prone to iron deficiencies, which can result in iron deficiency anaemia[10], vitamin B12 [11,12] and B9, which, also if deficient, can lead to other types of anaemia[12].

Therefore, how important it is to emphasize to such patients that well-selected supplementation is an element supplementing the diet in providing the right amount of essential nutrients, for which information should be the responsibility of a dietitian.

MATERIALS AND METHODS

Study Participants

The survey was conducted among 106 people from Wrocław and the Lower Silesia region of Poland between April and September 2021. Respondents were women and men diagnosed with UC in clinical remission only. Participants in the study were recruited through advertisements in closed inflammatory bowel disease groups on a social networking site. Inclusion criteria were age 18 years or older, a diagnosis of UC by a gastroenterology specialist and declaration of a period of remission at the time of completing the study. Informed consent was obtained from all participants and they were informed that the survey was approved by the Bioethics Committee at the Medical University of Wrocław (KBE 777/2021). Current body weight, height, place of residence, age and occupational status were provided by the participants as the study was conducted during the COVID-19 pandemic.

Assessment of the use of supplementation

Participants in the study were asked to complete an online questionnaire about their use of dietary supplements over the past six months. The questionnaire was distributed via a Google form due to the prevailing COVID-19 virus pandemic. The survey was constructed for the study. The questionnaire was previously validated and the Crombach coefficient knocked out 0.70. The survey questionnaire consisted of 19 questions, both single and multiple choice. The questionnaire was designed for both users and non-users of dietary supplements to assess the level of supplementation use among this group of respondents. The questionnaire consisted of two parts: a metric and a section containing questions about dietary supplements. The questions in the questionnaire concerned the types of dietary supplements consumed, frequency of consumption, reasons for use, where they were purchased and sources of knowledge. Respondents who did not use dietary supplements were also asked to indicate the reason for not taking supplements and then complete the survey.

Statistical analysis

Data collected from the questionnaires were entered into a Microsoft Excel 2010 workbook. Statistical analysis was performed using SPSS (SPSS StatSoft Statistica 13.3, PL). Relationships between data were analysed using chi square test and Spearman's rank correlation, where p values less than 0.05 were considered statistically significant.

RESULTS

Basic demographics

The study involved 106 people diagnosed with ulcerative colitis from towns and villages in Lower Silesia, Poland. Detailed demographic characteristics are presented in Table 1. Among the respondents, women accounted for more than 65% of the study participants (69 people). The mean body weight of all respondents was 62.0 kg (±10.5). Women had an average weight of 71.6 kg and men 65.3 kg. The mean height of the study group was 166.1 cm (±6.5). Body mass index (kg/m) was 22.7±3.3 kg/m2 in the study group. Among women, the mean BMI was 22.5 kg/m2 and in men it was 22.9 kg/m2. Most women and men had a BMI in the range 18.5-24.99 (69.6 and 70.3% respectively). Among all respondents, 49% had a university education and 40.6% had a secondary education. More than 53% of respondents lived in a city of less than 500,000 inhabitants. More than 68% (73 people) of the respondents were employed and about 4.7% (5 people each) were unemployed or on maternity leave.

Characteristics of supplement consumption

Of the 106 respondents, 8 people did not use any dietary supplements. Among the 8 who did not use supplementation, 4 people gave the reason 'Supplementation was not recommended for me' (Table 1). Supplementing nutritional deficiencies (51%) and Improvement of the intestinal microflora (42.9%) were among the most common reasons for the use of dietary supplements by study participants (Table 2). More than

Table 1. Basic characteristics of the study population (n=106)

Variables	n=106 [%]	p
Gender		
Male	37 (34,9)	≤ 0.001
Female	69 (65,1)	
Age (years)		
19-29	38 (35,8)	0.901
30-40	49 (46,3)	
>40	19 (17,9)	
Body Mass [kg]		
Total	65,3±11,7	≤ 0.001
Male	71,57±11,42	
Female	62,02±10,52	
Height [cm]		
Total	169,7±8,2	≤ 0.001
Male	176,7±6,6	
Female	166,1±6,5	
BMI [kg/m^2]	Male Female	
Total	22,9±3,2 22,5±3,4	0.603
>18,5	2 (5,4) 6(8,7)	
18,5-24,99	26 (70,3) 48 (69,6)	
25,0-29,99	8 (21,6) 13 (18,8)	
>30	1 (2,7) 2 (2,9)	
Education level		
Basic	7 (6,6)	0.018
Medium	43 (40,6)	
Professional	4 (3,8)	
Higher	52 (49)	
Place of living		
Village	23 (22,2)	0.057
Town <500,000 citizens	57 (53,7)	
Town >500,000 citizens	26 (24,1)	
Professional status		
Working	73 (68,9)	≤ 0.001
Studing	16 (17)	
Unemployed	5 (4,7)	
Pension	6 (5,7)	
Maternity leave	5 (4,7)	
Use dietary supplements		
Yes	98 (92,5)	0.632
No	8 (7,5)	
Reason why dietary supplements are not used		
Contraindications for use	1 (12,5)	0.392
I'm not sure about supplementation	2 (25)	
I believe that my diet does not require supplementation	1 (12,5)	
Supplementation was not recommended for me	4(50)	

Significantly different at p ≤ 0.05.

Table 2. Dietary supplements use among participants

Variables	n=106 [%]	p
Types of dietary supplements		
Vitamins	81 (82,7)	< .001
Minerals	39 (39,8)	< .001
Vitamins and minerals	17 (17,3)	< .001
Proteins	9 (9,2)	< .001
Herbs	32 (32,7)	0.002
Probiotics	76 (77,5)	< .001
Reasons for use		
Weight loss	1 (1)	0.320
Improvement of the skin condition	11 (11,2)	< .001
Improvement of physical/mental condition	8 (8,2)	0.004
Supplementing nutritional deficiencies	50 (51,0)	< .001
Doctor's recommendation	30 (30,6)	< .001
Dietician's recommendation	5 (5,1)	0.025
Improvement of immunity	19 (19,4)	< .001
Prevention of diarrhea	12 (11,2)	< .001
Improvement of the intestinal microflora	42 (42,8)	< .001
Prevention of osteoporosis	4 (4,1)	0.045
Frequency of consumption		
Once a day	64 (65,3)	0.663
Several times a Day	25 (25,5)	0.255
A few times a week	8 (8,2)	0.071
Several times a month	1(1,0)	0.010
Sources of information		
Internet	64 (65,3)	< .001
Newspaper	4 (4,1)	0.045
Pharmacist/Physisian	49 (50)	0.004
Family/Friends	14 (14,3)	< .001
Books	8 (8,2)	< .001
Nutritionist/Dietitian	16 (16,3)	< .001
The decisive factor in choosing a supplement		
Price	22 (22,4)	< .001
Composition	74 (75,5)	< .001
Destiny	34 (34,7)	< .001
Doctor's opinion	36 (36,7)	< .001
Dietician's opinion	10 (10,2)	0.001
Opinion of friends	3 (3,1)	0.083
Advertisement	3 (3,1)	0.083
Product packaging	2 (2,0)	0.158
Place to purchase		
Pharmacy	65 (66,3)	0.045
Supplement store	2 (2,0)	0.004
Drugstore	1 (1,0)	< .001
Internet	30 (30,7)	< .001

Significantly different at p ≤ 0.05.

65% of CU patients declared consuming supplements once a day. Among the types of dietary supplements used, 82.7% of respondents declared the use of vitamin preparations. As a source of knowledge about dietary supplements, respondents mainly mentioned the Internet (65.3%) and their doctor (50%). The main factor in choosing a dietary supplement for 75.5% of the respondents was their composition. For more than 66% of people with ulcerative colitis, dietary supplements were purchased from pharmacies and more than 30% the place to purchase these preparations was the Internet.

Influence of doctor and nutritionist on dietary supplement choices

Those who used their doctor's advice when choosing dietary supplements were less likely to use supplements that prevent diarrhoea, strengthen immunity and improve intestinal microflora (r=0.21; p=0.035). The opinion of dietitians had a significant effect on the use of supplements aimed at weight reduction (r=0.23; p=0.0026). Respondents whose use of dietary supplements was the result of a dietitian's recommendation were less likely to use dietary supplements to improve intestinal microflora (r=-0.20, p= 0.047). Statistical analysis showed that with a doctor's recommendation, price and composition were less important to respondents when choosing dietary supplements (r=-0.29; p=0.00002) while with a dietitian's recommendation, only composition was less important to respondents (r=- 0.19, p= 0.0052).

Where patients purchase dietary supplements

Those whose choice of dietary supplement was dictated by a doctor's recommendation were more likely to buy supplements from pharmacies and supermarkets (r=-0.36; p= 0.00032). In contrast, patients whose choice of supplement was dictated by a dietician's recommendation were more likely to buy supplements online and in a drugstore (choice - dietician's opinion and place of purchase; r= 0.25; p=0.0139).

The doctor and nutritionist as a source of knowledge

The doctor as a source of knowledge positively influenced the use of vitamin and mineral supplements (r=0.23, p=0.0213) while dietitians as a source of knowledge showed no significant effect on patients' supplementation choices. Those choosing a dietician or doctor as a source of knowledge on supplementation were less likely to use online sources of knowledge on this topic (r= -0.47, p=0.000002). Statistical analysis shows that respondents for whom a doctor was a source of knowledge about supplements. diet were less likely to use the press as sources of knowledge on this topic (r=-0.21; p= 0.042). In contrast, respondents choosing family and friends as a source of knowledge were less likely to use a doctor's recommendation (r= -0.29; p= 0.0036).

DISCUSSION

A high intake of dietary supplements is currently observed in many countries, especially among athletes of all genders and ages[13], young people[14], elderly people[15] as well as among patients from different healthcare institutions and with different ailments[16]. In our study, a greater number of UC patients were also taking dietary supplements. A similar result of frequent supplementation use by people with IBD was obtained by other authors, indicating the prevalence of dietary supplement use among different population groups. However, in the Shink study[17], it was those with CD who were more likely to report overall dietary supplement intake than those with CU. In contrast, in the Limdi et al. study[18], 59% of patients with IBD did not take any vitamins or other dietary supplements. As shown above, research shows variation in the use of dietary supplements among this group of patients, which is often dependent on their nutritional status or concomitant diseases.

Vitamins appeared to be the most popular type of dietary supplement in Polish UC patients. Similar results were obtained in other studies[19] conducted on patients with various diseases, including IBD, where it was shown that vitamin or multivitamin type preparations were the most commonly used. Different results were obtained by other researchers[17], in which the vast majority of patients used vitamins and minerals simultaneously. The implication is that patients mostly consume single vitamin or multivitamin supplements for fear of deficiencies. It can be assumed that people who consume dietary supplements show a lack of knowledge about the vitamin content of dietary supplements and food.

The main reason for supplementation in our study was to supplement dietary deficient components. In people with IBD in the study by de Vries et al[20], the main aim was to improve health. In other studies, it was also mainly about health improvement[21]. Both goals, in turn, were mentioned in a study conducted in a group of elderly women[22], indicating a similar goal of supplementation regardless of population.

More than 67% of UC patients used dietary supplements once a day. In other studies, they were used daily or occasional[21-24]. This may indicate that most people, including patients with chronic diseases most often use supplements daily, indicating regular use, mainly to achieve

the desired results. In people with chronic diseases, this regularity of supplementation is likely to be a result of the disease, which influences greater motivation in the context of health promotion and prevention activities.

The Internet was the most common source of information for 65.3% of Polish IBD patients. Similar results were obtained in another study[25], in which the Internet was also found to be the most popular source of knowledge about dietary supplements among respondents, regardless of the age

of the respondents. However, in the study by Radwan et al[24], the main source of information for those using dietary supplements turned out to be a healthcare professional, while for those not using supplements, this source was social - media. This means that, regardless of age or disease, the Internet is the most common source regarding supplementation. However, it is also important to remind supplement users of the reliability of information on the Internet and to advise them to use more reliable information such as their doctor and clinical nutritionist, because in some communities, the role of the family is very important in the choice of supplementation and can supersede the recommendations of a healthcare professional.

The factors that guided UC patients in choosing a dietary supplement were its composition and a doctor's recommendation. Also in the study by Chaloupkova et al[25], the composition of the supplement was the main factor determining the choice of supplement preparation, which means that consumers pay attention to supplement preparations in specific disease units.

For 66.3% of our respondents, the main place to purchase dietary supplements was a stationary pharmacy. The result of our study confirmed

the results of other studies in which respondents also bought supplement preparations in stationary pharmacies[23]. This may indicate about the fact that, despite widespread access to online shops, consumers still prefer stationary pharmacies as a place to buy dietary supplements. This may be due to the beliefs of consumers, who regard them as a reliable and safe place to buy, even though dietary supplements in Poland are not subject to as much supervision as medicines.

In our study, we also addressed the issue of probiotic intake. They were used by more than 77% of adults with UC in our study. A similar result was obtained in a study by Koning et al[26], in which probiotics were used more frequently by people with UC than by those with CD. A completely different result in people with IBD was obtained by de Vries et al[20], in whom 73.5% of the subjects did not use pre- and probiotics. In other studies reviewed[27], these preparations were not used or were used extremely rarely in UC patients. As can be seen in both our and the cited studies, the results are mixed. The significant role of probiotics should be emphasised here. particularly in CU, as the current literature indicates a beneficial role for probiotics in inducing and maintaining remission in patients with CU[28].

This justifies the need for even more research on the effects of probiotics on IBD patients and the formulation of recommendations for probiotic therapy. For this reason, the development of optimal doses, method of administration and duration of these therapies should be pursued[29].

CONCLUSIONS

The analysis of the literature, in the context of our study, points to the need for more detailed research on the use of dietary supplements among people with IBD, as these people are particularly vulnerable to various deficiencies and the resulting ailments. For this reason, they are often forced to supplement their diet with one or more nutrients. Particularly in people with chronic illnesses, supplements should be introduced on the basis of a recommendation from a specialist - a doctor and a clinical dietician - and online sources are not always reliable. Our research indicates that the role of the doctor as well as the dietician is very important in the use and choice of dietary supplements. Although it should be noted here that the role of the doctor seems to be more significant for our respondents. This may be related to the lack of legal regulation of the dietetic profession in our country or the insufficient respect of this profession by other medical professions. The role of the dietician is very important, because on the basis of the assessment of the whole daily ration and the evaluation of the nutritional status, the dietician can select an appropriate probiotic strain and indicate which dietary components require additional supplementation. Undisputed,

The dietician should be an integral part of the medical team in the treatment of patients with IBD. Unfortunately, in Poland, the legal regulation of the dietetic profession is still unclear, even if the very classification of this profession as a full-fledged medical profession is questionable. The legal marginalisation of dieticians in Poland often contributes to the omission of their role in the treatment of patients with IBD, which may result in a prolongation of the treatment process and thus an increase in costs for the state health service. It is therefore necessary to integrate dietitians in Poland into the medical profession, which will allow for better results in the treatment of not only IBD patients. We also believe that with the appropriate regulation of the dietetic profession in Poland as a medical profession, it is necessary to authorise dietitians to perform certain medical activities, such as referring patients for certain examinations, as is the case in other countries.

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