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ULCERATIVE COLITIS EXCLUSION DIET (UCED) – AN EMERGING NEW DIETARY APPROACH FOR ULCERATIVE COLITIS

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ABSTRACT

Background: Ulcerative colitis (UC) is a chronic condition marked by widespread inflammation of the mucosa of the colon and rectum. In view of the growing prevalence and hardships during the disease process, it is necessary to search for new therapeutical approaches.
Research objectives: The aim of this review is to investigate the new diet named Ulcerative Colitis Exclusion Diet (UCED), which may help in maintaining a stable course of UC.
Methods: The review was conducted using the PubMed database mainly from 2018 to 2024 with the use of keywords: "ulcerative colitis", "ulcerative colitis treatment", "ulcerative colitis diet", "gastrointestinal microbiome". Some of the data comes from the clinical trials website "https://clinicaltrials.gov".
Key findings: UC is a chronic, immune-mediated inflammatory condition of the colon, belonging to inflammatory bowel diseases (IBD). The exact pathogenesis is unknown, yet many factors contribute to the onset and exacerbation of the disease. Currently, the prevalence is increasing worldwide. The most common symptoms are diarrhea and lower gastrointestinal bleeding combined with other, less specific manifestations. Making a diagnosis requires endoscopic evaluation of the colon. Pharmacological treatment is insufficient in some cases, and therefore, new therapeutic approaches are being explored. Intake of strictly defined products and avoidance of certain substances according to UCED guidelines may result in beneficial gut microbiota changes and reduction of inflammation, leading to a better disease control.
Conclusions: Considering the challenges of UC and the importance of proper nutrition in IBD, the introduction of a proper diet is desirable. Although UCED is a relatively innovative dietary approach, it appears promising and requires further research.

KEYWORDS

Colitis, Ulcerative, Diet, Inflammatory Bowel Diseases, Crohn Disease

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1. Introduction

Ulcerative colitis (UC) is a chronic inflammatory condition of the large intestine, classified as one of the inflammatory bowel diseases (IBD) (Sarbagili-Shabat et al., 2021). Inflammation may affect any part of the colon, beginning with rectum and extending proximally, yet the process is limited to bowel mucosa. Among a variety of symptoms, the most typical ones are abdominal pain, bloody diarrhea, fecal urgency and/or tenesmus (Feuerstein et al., 2019). Although the pathogenesis of UC remains partially unknown, a number of factors are linked to the disease process, including genetic and environmental factors, dysregulated immune response, and altered gut microbiota (Kobayashi et al., 2020). Due to unpredictability, recurrent course, chronicity and painfulness, UC is a challenge for both clinicians and patients (Pravda, 2019). The treatment of UC is continuously developing, providing with new drugs and therapeutic options (Hirten & Sands, 2021). However, clinical remission is achieved in less than half of patients and the quality of life (QoL) of initially responsive patients is negatively impacted by the loss of response over time. The magnitude of the problem demands widening of perspectives. Apart from drugs, the significance of the diet may be crucial as it is responsible for human gut microbiota. Studies show that poor nutrition can lead to dysbiosis resulting in intestinal inflammation (Chicco et al., 2021). There are some dietary approaches recommended in UC, however, the search for new and more effective ways of nutrition already brought some evidence supporting a new diet. Ulcerative Colitis Exclusion Diet (UCED) is an innovative dietary approach with a few studies performed, which may cause a breakthrough in the future. In view of the fact that UC is increasingly considered a global illness as its incidence and prevalence are increasing worldwide, searching for new therapeutic methods such as UCED implementation is advisable (Pravda, 2019).

1.1. Epidemiology

There are two peaks when it comes to the age of onset of UC. The first is between 20-30 years of age, while the second one is between 60-79 years according to reports. The average age of onset in Western Europe, North America and Oceania in adults is 31-34 years which is similar to the data from Asia with median age of 34-42 years (Mak et al., 2020). Over the past two decades, the prevalence of UC has changed. 60% of UC investigations conducted worldwide have revealed a statistically significant rise in incidence. As an example, a study by Shivashankar et al. revealed a rise in UC incidence and prevalence in Olmsted County (Minnesota, USA) through the years 2000-2010. The incidence rates went up from 10.7 per 100.000 person-years (1970-2010) to 12.2 per 100.000 (2000-2010). Also, between 2001 and 2011 the prevalence went up from 214 per 100.000 to 286.3 per 100.000 which is a rise of 33% (Shivashankar et al., 2017). A continuous upward trend in the incidence in western countries is observed along with a significant change concerning Asia and the Middle East, as well. These regions were former regarded as low-incidence areas, however, as of today, the researchers describe a rise in incidence of UC there (Sharara et al., 2018; Shivashankar et al., 2017). Similar trend is observed in Europe, especially in Denmark which shows one of the highest increases around the world. Lophaven et al. described in their research that the ratio of UC in Denmark between 1980 and 2013 increased from 10.7 per 100.000 to 18.6 per 100.000 regardless of gender (Lophaven et al., 2017). Other data show prevalence rising in developing regions, which are characterized by substantially lower incidence than the developed ones (Kobayashi et al., 2020).

1.2. Etiology

Despite numerous studies, the etiology of the disease is not yet fully understood. Environmental and host variables, genetic factors, immunological response, and gut microbiota are believed to play a significant role in UC pathogenesis.

UC is linked to several genetic pathways, including those that affect epithelial barrier function (e.g., CHD1 and LAMB1), cytokines (e.g., IL1R2, IL8RaIRB, and IL7R), and inflammatory markers (e.g., TNFRSF15, TNFRSF9). Among many discovered genetic factors, only 7.5% of UC variance is attributed to genetics. HLA-DQA1 variations are the most significantly linked to UC among over 200 risk loci associated with IBD (Feuerstein et al., 2019).

Another UC factor is "microbial dysbiosis" characterized by a decrease in bacterial diversity, with smaller proportions of Firmicutes and Bacteroides and larger proportions of Enterobacteriaceae. Lower levels of Clostridia and Bacteroides were also discovered in UC. These bacteria create short-chain fatty acids (SCFAs), including butyrate, which provide energy for colonic cells and have anti-inflammatory characteristics. Reduced amounts of SCFAs may lead to inflammation and nutritional deficit in the epithelial cells (Du & Ha, 2020). The dysregulation of intestinal barrier allows bacteria to enter the mucosal layer, generating abnormal immunological responses, inflammation and tissue damage (Zheng et al., 2020).

Among environmental factors the most relevant seem to be dietary changes, urbanization, exposure to pollution, smoking and sedentary lifestyle (Sun et al., 2021). The intake of certain foods or additives may contribute to increased risk of developing UC, experiencing UC relapse or frequency and severity of flares. These include saturated, trans and dairy fat, processed dairy, products rich in maltodextrins additives, artificial sweeteners or processed food containing nanoparticles (Levine et al., 2020). A diet rich in dietary fiber can help prevent UC because once fiber is metabolized into SCFAs, it suppresses the transcription of pro-inflammatory factors and eliminates oxygen free radicals (Guo & Wang, 2023). While smoking may reduce the risk of developing UC, smoking cessation might lead to a considerable rise in disease incidence and severity. According to a comprehensive study of meta-analyses, having pets, access to a personal toilet, hot water and living close to farm animals were protective factors against UC. It is also believed that receiving drugs such as antibiotics and oral contraceptive pills increase the risk of UC development (Du & Ha, 2020). Researchers analyzed data from US and European cohorts and suggested that adopting healthy living habits might prevent up to 40% of Crohn’s disease (CD) and UC diagnoses (Ananthakrishnan et al., 2024).

1.3. Diagnostics

The most prevalent clinical sign of UC is diarrhea accompanied by lower gastrointestinal bleeding. Other symptoms may include stomach discomfort, weight loss, fever, and extraintestinal symptoms. If patient presents rectal involvement only, constipation may occur, too (Eder et al., 2023). Although a flexible sigmoidoscopy is frequently used to make the initial diagnosis of UC, a full ileocolonoscopy should be performed, usually within the first year, to confirm the diagnosis and severity of the disease (Lamb et al., 2019). Endoscopic evaluation is crucial for making a diagnosis. Ileocolonoscopy is the main endoscopic procedure, followed by macroscopic evaluation and collection of at least two biopsy specimens from all investigated intestinal segments for histological analysis (Eder et al., 2023). Focal or diffuse basal plasmacytosis is the most reliable early indicator of UC diagnosis, present in 38% of patients within two weeks after the onset of symptoms. After at least four weeks mucosal atrophy, mucosal or crypt deformation and irregular or villous mucosal surface can be observed (Maaser et al., 2019). Inflammatory lesions may be noticed as vascular pattern loss, erythema, granularity, mucosal bleeding, erosions, or ulcers. Typically, they are continuous and limited to the rectum or the colon and rectum with a clear distinction between inflamed and normal mucosa (Eder et al., 2023). The Mayo Score for UC provides an assessment of the disease severity (Table 1) (Lamb et al., 2019).

Table 1. Mayo score for UC (Lamb et al., 2019).

Mayo index	0	1	2	3
Rectal bleeding	No blood	Streaks of blood with stool less than 50% of the time	Obvious blood with stool most of the time	Blood passed without stool
Stool frequency	Normal number of stools/day	1-2 stools more than normal/day	3-4 stools more than normal/day	5 or more stools more than normal/day
Mucosa (endoscopic evaluation)	Normal/inactive disease	Mild disease (erythema, mild friability, decreased vascular pattern)	Moderate disease (marked erythema, friability, absent vascular pattern, erosions)	Severe disease (spontaneous bleeding, ulcerations)
Physician's Global Assessment	Normal	Mild disease	Moderate disease	Severe disease

Moreover, biochemical tests and radiological examinations are being conducted as supplements (Eder et al., 2023). Biochemical examinations include full blood count, liver enzymes, electrolytes, inflammatory markers (such as C-reactive protein [CRP]) and stool sample for infectious causes because their abnormal results may indicate the presence of the disease. Another indicator is the fecal calprotectin (FC) which is a protein produced by neutrophils. It seems to be the most sensitive indicator of intestinal inflammation in IBD. Calprotectin levels have a strong correlation with endoscopic indicators of disease activity, however, FC is not precise enough to distinguish between IBD and other intestinal inflammations. Nonetheless, it is suggested that a cut-off value of 150 μg/g can provide adequate diagnostic accuracy (Maaser et al., 2019).

1.4. Treatment

The utmost goal of UC treatment is to maintain relatively high quality of life as well as to avoid disability. Both alleviation of clinical symptoms and the achievement of mucosal healing contribute to improvement of long-term results (Spinelli et al., 2022). Treatment for UC is reliant to some factors such as severity, distribution, and course of the disease. Besides, age at onset and the length of the disease are also substantial determinants (Radziszewska et al., 2022). 5-aminosalicylic acid (5-ASA), thiopurines, anti-TNF, and vedolizumab are commonly administered to induce and maintain remission in UC. 5-ASA is the first-choice drug for mild to moderate UC, having the greatest therapeutic effect when oral and rectal formulations are combined. If patient's response is insufficient to 5-ASA (or sulfasalazine – an alternative drug) after providing an optimal therapy, the next step in treatment are topical steroids, namely budesonide-multi-matrix (budesonide MMX) or systemic steroids such as prednisone and methylprednisolone. In severe UC, intravenous corticosteroids are the first-line treatment, while infliximab and cyclosporin are utilized in acute severe UC resistant to steroid therapy (Burri et al., 2020). In some severe cases surgical treatment should be considered, especially if symptoms of toxic megacolon, extensive bleeding, or shock are present. Among novel medicines dedicated to UC treatment figure ozanimod, upadacitinib and filgotinib (Eder et al., 2023). Notably, special dietary approaches are becoming a popular therapeutic option for UC (Cusimano & Damas, 2022).

2. Aim of the study

The aim of this study is to summarize and critically evaluate the current evidence regarding the UCED as a potential therapeutic approach in the treatment of UC. This review aims to discuss the rationale for using UCED, analyze available clinical studies conducted in both adult and pediatric populations, and evaluate the effectiveness of this diet in inducing remission, alleviating clinical symptoms, reducing markers of inflammation, and affecting the gut microbiota. In addition, the study aims to identify existing gaps in knowledge and highlight the need for further research to determine the role of UCED in routine clinical practice.

3. Methodology

This narrative review was conducted based on the available scientific literature on UC and dietary interventions. A comprehensive search of electronic databases, including PubMed, Scopus, and Google Scholar, was conducted. The search strategy included terms such as “ulcerative colitis,” “diet,” “elimination diet,” “UCED,” “nutritional therapy,” “microbiota,” and “inflammatory bowel disease.” We focused on publications from 2018 to 2024.

4. Discussion

4.1. The importance of diet in treatment of UC

Diet-induced alterations in gut microbiota may initialize or maintain inflammation process, yet a well-balanced diet designed for UC may serve as one of the treatment methods (Herrador-López et al., 2023). A comparison of different diets as induction therapy in UC is summarized in Table 2.

Table 2. Diets investigated for induction therapy of UC (Melton et al., 2024; Shabat et al., 2022).

Diet	Meat	Dairy	Additives	Fiber	Highest level of evidence	Practice point
Low sulfur	↓	↔	↓	↓	Pilot (Roediger, 1998)	Insufficient data to recommend or trial
UCED	↓	↔	↓	↑	Pilot (Sarbagili-Shabat et al., 2021)	Insufficient detail of diet published to trial for defined timeframe
Mediterranean	↓	↔	↓	↑	RCT (El Amrousy et al., 2022)	Trial for defined timeframe due to potential for efficacy and principles in line with population-based dietary guidelines
IgG4 exclusion	↓	↓	↓	↔	RCT (Jian et al., 2018)	Insufficient data to recommend or trial
CMP-free	↔	↓	↔	↔	RCT (Strisciuglio et al., 2013)	Insufficient data to recommend or trial
Low FODMAP	↔	↔	↔	↓	RCT (Bodini et al., 2019)	Insufficient data to recommend or trial

↑ increased; ↔ unchanged; ↓ decreased; CMP, cow’s milk protein; FODMAP, Fermentable Oligosaccharides, Disaccharides, Monosaccharides, and Polyols; RCT, Randomized Controlled Trial, UCED, Ulcerative Colitis Exclusion Diet.

Creating specific dietary guidelines for UC poses a challenge, however, The International Organization for the Study of Inflammatory Bowel Diseases (IOIBD) released a document summarizing the state of knowledge of IBD in terms of diet. Recommendations for UC suggest increased intake of omega-3 fatty acids from fish and other food, while red and processed meat, dairy fat, palm and coconut oils, saturated and trans-fats, emulsifiers, carrageenans, artificial sweeteners, maltodextrins, and titanium dioxide should be avoided (Levine et al., 2020). The recommendations by IOIBD include UCED (Herrador-López et al., 2023). The concepts of UCED are to minimize or eliminate specific dietary components such as processed meals, sulfated

amino acids, dietary sulfur, animal protein and saturated fat, because studies have proven their negative impact on the microbiome-host interaction. On the contrary, the intake of natural products rich in tryptophan, pectin and resistant starch should be included. Dietary products are divided into 3 groups: mandatory, allowed, and disallowed in compliance with UCED concept (Table 3) (Shabat et al., 2022).

Table 3. Shortened dietary recommendations in UCED – daily amounts (Shabat et al., 2022).

	Mandatory	**Allowed**	**Disallowed - any foods not listed among the mandatory or allowed products**
Dietary products	one serving of mixed salad two potatoes (preferably cooked and refrigerated) two bananas one apple	chicken breast fresh fruits and vegetables cooked vegetables legumes olive oil, canola oil one egg one plain yoghurt one slice of bread rice rice flour/rice noodles buckwheat oatmeal nuts, seeds fresh fish (max two times a week) cheese (one slice a week) wheat flour (only first week of diet)	butter, margarine vegetables oil (except for olive/canola oil) dry fruits canned fruits, vegetables, legumes frozen legumes chicken (except for chicken breast) beef turkey seafood smoked canned fish packed/canned food cereals dairy (except for plain yoghurt) baked products (except for bread)

4.2. Elimination diet in UC – a review of studies

A Randomized Controlled Trial (RCT) named The CRAFT UC study was conducted involving patients with refractory established UC. Those who presented with active disease characterized by an endoscopic Mayo score of 2-3 and a simple clinical colitis activity index (SCCAI) of equal or above 5 and equal or below 11 were randomly assigned to one of three groups. It is important to mention, that the SCCAI score consists of six items to evaluate: bowel frequency during the night, bowel frequency during the day, presence of blood in stool, general wellbeing, urgency of defecation and some extraintestinal manifestations with the maximum score of 19. In the trial, Group 1 received a free diet and standard fecal transplant (FT) by colonoscopy from donor on Day 1 followed by rectal enemas from the same donor with no dietary conditioning of the donor on Days 2 and 14. In addition to receiving FT in the same scheme as above, Group 2 also got a UCED for the patients, while the donors got dietary preconditioning. Group 3 received only UCED. Patient assessments were performed at the beginning of the study (Week 0) and at Weeks 2, 8 and 12.

The primary endpoint was to reach clinical remission in Week 8, which meant SCCAI below 3. The secondary endpoints covered improvement in the SCCAI score at Weeks 8 and 12, endoscopic remission at Week 8, change in calprotectin at Week 8 and determining the need for additional treatment by Week 12 in each group.

Treatment response and remission rates at Week 8 in Group 1 were respectively 35.3% and 11.8%, in Group 2 - 42.1% and 21.1%, in Group 3 - 60% and 40%. Endoscopic remission rate at Week 8 was the highest in Patients from Group 3 (26.6%), while the lowest in Patients from Group 1 (11.7%, p=0,38).

Also, at Week 8 none of 36 patients receiving FT attained a Mayo endoscopic score of 0 (p=0.022), whereas in Group 3 it was 3/15 patients (20%). In the subset of SCCAI <9 patients diet alone resulted in remission in 6/12 (50%), compared to 6/22 (27.3%) in both FT groups (p=0.25). UCED implemented alone, without FT, appeared to be more effective in inducing clinical remission as well as mucosal healing (Group 3), while combined with FT did not have such good outcomes (Group 2).

At Week 12, sustained remission was observed in 7 out of 12 patients who achieved clinical remission at Week 8 (SCCAI <3), all from Group 2 or Group 3, without any further treatment (Group 2, n=3; Group 3, n=4). No serious adverse events were reported.

The trial was stopped because of unsatisfactory results concerning FT arms. However, surprisingly, the effectiveness of UCED was demonstrated in some patients during the study. After commencing the diet, 40% of patients who were not responding to medical therapy achieved clinical remission, with only one patient experiencing disease deterioration (Shabat et al., 2022).

In 2024 Shabat et al. published a post-hoc analysis of the CRAFT UC study. The aim of this analysis was to investigate gut microbial changes related with donor diet conditioning and each of the FT techniques. Therefore, the original study's dietary arm, which only received the UCED, was excluded. The researchers conducted a metagenomics microbial investigation of the stool donors and the two FT arms of the previous study. The results show that the donors of the stool who received UCED had a substantial reduction in the amount of microbial metabolic pathways linked to the biosynthesis of primary sulfur-containing amino acids. Moreover, the abundance of sulfate-reducing commensals, which were proven to increase gut inflammation by the production of hydrogen sulfide, was decreased as well. The intervention in Group 2, who received FT from diet conditioned donors and sustained UCED, resulted in increased Eubacterium sp. AF22-8LB, a taxon associated with UC remission post-FT and inactive UC. This taxon has also been demonstrated to be lowered in individuals following a western diet and a protein-rich diet, which may support the researchers' finding of this taxon's higher abundance in patients who followed UCED. In addition, the abundance of Sutterella wadsworthensis was notably decreased in patients who obtained clinical remission in Group 2. This species induces enterocytes to produce pro-inflammatory interleukin-8, which may explain why its reduced abundance is linked to greater rates of clinical remission. Besides, Sutterella wadsworthensis has been linked to ultra-processed food intake in IBD patients as a sulfate-reducing bacterium.

The results of this post-hoc analysis are consistent with the UCED's objective (Leibovitzh et al., 2024).

Another study by Chen Sarbagili-Shabat et al. investigated pediatric population suffering from UC. It was an open-label, single-arm, prospective, multicenter pilot study which targeted patients aged 8-19, divided into stable maintenance therapy or taking no medications, for at least 6 weeks. Pediatric UC activity index (PUCAI), indicating mild to moderate disease, was necessary for inclusion in the study ($10 \leq PUCAI \leq 45$). This scale covers 6 items: abdominal pain, stool consistency, rectal bleeding, number of stools per 24 hours, activity level, and nocturnal stools. The trial consisted of two phases, each lasting 6 weeks. All patients received UCED for the first 6 weeks. The adherence to the diet was supervised throughout the study. Patients were assessed at Weeks 0, 3, 6, and 12 with evaluation according to the PUCAI at each visit. If clinical remission at Week 6 was observed (PUCAI <10), a step-down diet was implemented for the next 6 weeks. By Week 6, 17 out of 24 patients (70.8%) presented with clinical response to UCED (PUCAI decreased by at least 10 points) and 9 out of 24 patients (37.5%) achieved an intention-to-treat (ITT) clinical remission. The median PUCAI score declined from 35 at baseline to 12.5 at Week 6. Moreover, during the study, FC levels in stool samples from patients were measured at Weeks 0, 3 and 6. The median FC decreased from 968.0 µg/g at Week 3 to 592.0 µg/g at Week 6 ($p=0.41$), yet the overall FC outcomes were not statistically significant probably due to the small amount of data. 5 out of 9 patients in remission had a median FC drop from 630 µg/g at Week 0 to 230 µg/g at Week 6 ($p=0.14$). Only 12% of the patients in the study stopped the diet, while the majority of them tolerated it well (Sarbagili-Shabat et al., 2021).

A new study investigating combination of UCED and oral budesonide intake in mild to moderate flare of UC disease patients started in December 2023. It is a multinational single-blinded RCT named "The ReDUCE Trial". Using a new formula, this study aims to confirm the clinical effectiveness of UCED alongside partial enteral nutrition (PEN).

The trial is divided into two phases: the induction of remission for a period of 8 weeks and the maintenance phase lasting 24 weeks. For 6 weeks, Group 1 is treated with 9 mg oral budesonide topical therapy along with UCED and PEN (Phase 1), whereas Group 2 receives 9 mg oral budesonide topical therapy alone, without any dietary intervention. This is preceded by a baseline flexible sigmoidoscopy. As a next step, both groups discontinue budesonide at Week 6 but continue receiving the previous maintenance treatment until Week 12. During Weeks 7-12, Group 1 adheres to UCED/PEN (Phase 2), whereas Group 2 continues their regular diet. Afterwards, a flexible sigmoidoscopy is performed again in both groups at Week 12.

The researchers are hopeful that combining UCED with the medications may result in better remission and mucosal healing by altering the microbiome. The estimated study completion date is 2026 (Wolfson Medical Center, n.d.).

4.3. What do the guidelines and recommendations say about elimination diets in UC?

There is limited data about elimination diets in UC included in guidelines or recommendations. Most of the information relates to IBD in general with emphasis on CD due to greater advancement and more research on it.

The European Society for Clinical Nutrition and Metabolism (ESPEN) updated the Guideline on Clinical Nutrition in IBD and published a current version in 2023. According to the Guideline, latest pilot studies indicate that processed food may contribute to development of IBD. Therefore, elimination of processed food (especially ultra-processed food) in patients with IBD is highly recommended. Moreover, some preclinical studies show the pro-inflammatory effect of carboxymethyl cellulose, which is used in the food industry as a viscosity modifier or thickener. Despite preliminary results, there appeared to be a cautious recommendation to reduce intake of this dietary emulsifier as a prevention of developing IBD. The Guideline highlights that there is no specific general diet to promote remission in IBD patients with active disease. The RCTs outcomes on elimination diets such as: low Fermentable Oligosaccharides, Disaccharides, Monosaccharides and Polyols (FODMAP), gluten-free, milk-free, vegetarian, anti-inflammatory, low or high red meat, carrageenan-free and some more diets, are still uncertain and need further investigations (Bischoff et al., 2023). A study by Comeche et al. describe that predefined diets have been demonstrated to be partially effective in the treatment of IBD and are compatible with other medical therapies (Comeche et al., 2021). The ESPEN Guideline reports that currently there is no possibility of implementing any strong conclusion on beneficial effects of dietary interventions in UC or CD. This is probably due to considerable variability of the observed diets and data. No recommendations concerning UCED are provided in the Guideline (Bischoff et al., 2023).

American Gastroenterological Association (AGA) published a Clinical Practice Update (CPU) regarding diet and nutritional therapies in IBD patients in 2024. Recommendations are divided into 12 best practice advice statements based on existing literature and expert opinion. The first statement suggests following a Mediterranean diet low in ultra processed food, salt and added sugar. Simultaneously, the diet should be rich in fresh fruit and vegetables, complex carbohydrates, monounsaturated fats, and lean proteins. Low red and processed meat intake may also prevent UC flares. There is no certain evidence of effectiveness of gluten-free diet in IBD patients without a diagnosis of celiac disease or suspected gluten sensitivity. When it comes to short-term usage of low FODMAP dietary strategy, it may be beneficial during symptomatic IBD according to some research. However, low FODMAP is suggested to be replaced with Mediterranean diet as soon as symptoms resolve because of potential negative long-term consequences. AGA CPU covers the Crohn's Disease Exclusion Diet (CDED), however, there is no data on UCED presented (Hashash et al., 2024).

Joint European Crohn's and Colitis Organization (ECCO) and European Society of Pediatric Gastroenterology, Hepatology and Nutrition (ESPGHAN) Evidence-based Consensus Guidelines regarding management of pediatric UC were launched in 2018. It was reported that the disease flare-ups had been linked to a high intake of protein, alcoholic beverages, sulfur, and sulfates, as well as red or processed meat. Nonetheless, exclusion of certain foods was not recommended in induction or remission of pediatric UC due to absence of firm evidence and potential nutritional deficiencies. Moreover, the Guideline indicated no beneficial impact of specific diets in Acute Severe Colitis (ASC) in children. Since then, no updated guidelines concerning children with IBD have been published (Turner, Ruemmele, Orlanski-Meyer, Griffiths, De Carpi, Bronsky, Veres, Aloi, Strisciuglio, Braegger, Assa, Romano, Hussey, Stanton, Pakarinen, De Ridder, Katsanos, Croft, Navas-López, et al., 2018), (Turner, Ruemmele, Orlanski-Meyer, Griffiths, De Carpi, Bronsky, Veres, Aloi, Strisciuglio, Braegger, Assa, Romano, Hussey, Stanton, Pakarinen, De Ridder, Katsanos, Croft, Navas-Lopez, et al., 2018).

IOIBD formulated dietary guidance for patients with UC and CD in 2020. The dietary rules are described in Point 6. Nevertheless, all food types and additives recommendations for UC show low or very low evidence level, which suggest that more studies need to be performed (Levine et al., 2020).

5. Limitations

This review has several limitations. First, the available data on UCED remain limited, and most studies involve small samples, which reduces the power and generalizability of the findings. Furthermore, this review is narrative in nature and therefore subject to selection bias. Finally, the results of new, ongoing studies, such as the ReDUCE trial, have not yet been published, which may have a significant impact on the future interpretation of the effectiveness of UCED.

6. Conclusions

UC is a life-long disease affecting everyday life. Both patients and clinicians may face numerous challenges during the treatment process. This requires a proper understanding of the nature of the disease and close cooperation. Although the etiology of UC remains partially unclear, there are some ways elaborated to help patients stay in good condition. In search of improving patients' quality of life new, upgraded medications are constantly invented. Besides well-known drugs with different mechanisms of action, an idea of targeted dietary management becomes an object of an increasing number of studies. This may be an effect of obtaining new scientific data from studies investigating alterations in gut microbiota due to consumption of various food products. Among a wide range of dietary approaches, UCED may be promising. Unfortunately, UCED is quite a novel subject of interest, preceded by analogous diet in CD with much more studies available. Thus, further studies in UCED should be conducted in order to possibly bring desired results.

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