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How changing diet by cutting out specific foods affects the symptoms and gut bacteria in people dealing with ulcerative colitis

Submission date	Recruitment status	[_] Prospectively registered
27/12/2023	No longer recruiting	[X] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
11/03/2024	Completed	[_] Results
Last Edited	**Condition category**	[_] Individual participant data
14/08/2024	Digestive System	[_] Record updated in last year

Plain English summary of protocol

Background and study aims
Ulcerative colitis is becoming a common disease in India. The disease occurs in the large intestine of patients and the common symptoms of this disease are diarrhea and bleeding per rectum. The disease is treated by a variety of oral or intravenous medications depending upon the disease severity. The currently available agents are costly and not all patients respond to them. So there is a need to develop efficacious and cost-effective therapies for this disease. Dietary manipulation through microbiome modification could be a physiological approach to counter the disease-associated inflammation and cause clinical improvement. The study aims to compare the dietary modification with standard of care in patients with mild to moderate UC.

Who can participate?
All adult patients (18 – 65 years of age) with ulcerative colitis who had active disease (mild to moderate) were included in the study.

What does the study involve?
The study involves a comparison of dietary manipulation with standard of care in patients with mild to moderate ulcerative colitis in causing clinical improvement. The therapies we used in this research were partial enteral nutrition (PEN) and exclusion diet(ED). Partial enteral nutrition (PEN) is a soya-based powdered formula which contains nutrients like protein, fats carbohydrates, minerals and vitamins. Patients in one group were given the 50% calorie requirement in the form of PEN, along with diet modifications and the second group was given standard treatment for ulcerative colitis.

What are the possible benefits and risks of participating?
The Patients may benefit as disease activity may improve. If proven to be effective it may be useful as an effective and safe alternative for all patients with mild to moderate ulcerative colitis.
There was no risk observed during clinical assessment or blood or stool sample collection.

Where is the study run from?
The study was conducted in IBD Clinic, Department of Gastroenterology and Human Nutrition, All India Institute of Medical Sciences, New Delhi, India.

When is the study starting and how long is it expected to run for?
February 2021 to January 2022

Who is funding the study?
This study is funded by The Indian Council of Medical Research (ICMR), Govt. of India.

Who is the main contact?
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Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Clinical Trials Information System (CTIS)
Nil known

ClinicalTrials.gov (NCT)
Nil known

Protocol serial number
R/IEC-61/8.01.2021

Study information

Scientific Title

A study to evaluate efficacy and tolerability of partial enteral nutrition with exclusion diet and its effect on microbiome change in patients with mild to moderate ulcerative colitis: a quasi-experimental study

Study objectives
The proposed study will try to overcome the current challenges associated with the treatment of inflammatory bowel disease (IBD)- limitations of immune based therapies: primarily limited efficacy, cost and adverse effects. Dietary manipulation is efficacious and safe alternative for treatment of IBD. By targeting the proposed pathogenesis of IBD, microbial manipulation is also expected to alter the disease course of IBD, thereby improving outcomes in the long-term.

Ethics approval required
Ethics approval required

Ethics approval(s)
approved 13/02/2021, Institute Ethics Committee for postgraduate residents (AIIMS, Room no. 102, 1st floor, Old OT block, Ansari Nagar, New Delhi, 110029, India; +90 11-26594579; ethicscommitteeaiims@aiims.ac.in), ref: IEC-61/08.01.2001

Study design
Single-center open-label quasi-experimental trial

Primary study design
Interventional

Study type(s)
Efficacy

Health condition(s) or problem(s) studied
Ulcerative colitis

Interventions
The study is single center, open label, quasi experimental trial of partial enteral nutrition (PEN) and exclusion diet in comparison to standard medical therapy in adult patients with mild to moderate ulcerative colitis. Included patients will undergo a uniform baseline evaluation which will include a clinical evaluation, and laboratory assessment. Neither the patient nor the investigator can be blinded to the treatment. However, the investigator analyzing the data will be blinded to the treatment details.

Intervention: Patients with active disease will either receive PEN and exclusion diet (experimental arm) or standard medical therapy (SMT, control arm). Patients in both groups will continue the ongoing treatment prior to inclusion in study and local therapy will be optimized before up gradation to higher immunosuppressants.

Experimental arm: Patients will be asked to strictly adhere to the PEN along with exclusion diet for 4 weeks. PEN is a soya based powdered polymeric nutrition supplement formula (REMATIN, Waterley) which contains nutrients like calories, protein, carbohydrates and fat along with vitamins and minerals which provides 1kcal/ml energy. Patients will be administered 50% of caloric requirement in the form of PEN and exclusion diet (table 1), which would be rich in dietary constituents that expand T-regulatory cells, promote healthy microbiota and improve

the intestinal barrier, and will be poor in dietary constituents that cause dysbiosis or have negative effect on intestinal barrier. Patients will be given a diet chart accordingly and will be counseled to adhere to the diet protocol. Regular telephonic interviews will be done to ensure compliance with the diet. PEN and exclusion diet will be continued for 4 weeks.

Control arm: Patients will be given standard medical therapy (SMT-continuation of baseline medications), along with optimizing the dose of 5-ASA and/or addition of topical therapy.

Follow-up: Patients will be followed at weeks 2 and 4. Clinical disease activity (SCCAI) will be assessed at all visits, and dietary adherence in the experimental arm will be assessed at weeks 2 and 4. Stool sample for microbiome analysis and fecal calprotectin will be collected at baseline and 4 weeks. The stool samples will be stored at -80 for microbiome analysis. Microbiome analysis will be done only in intervention arm and compared with baseline analysis.

Clinical and laboratory evaluation: Detailed history will be taken regarding demographic information, onset and duration of symptoms, and clinical features. Disease activity will be assessed at baseline using SCCAI and partial Mayo score. Laboratory investigation Hemogram, liver function test, renal function test, and serum C-reactive protein will be done in all patients. Stool samples will also be collected in a sterile airtight container for microbiota assessment and fecal calprotectin.

Intervention Type
Supplement

Primary outcome(s)
Composite of clinical remission (assessed by simple clinical colitis activity index (SCCAI)≤2) and faecal calprotectin <150ug/gm at 4 weeks

Key secondary outcome(s))
1. Change in microbiome at 4 weeks after partial enteral nutrition (PEN) and exclusion diet in the intervention arm
2. Proportion of patients with rectal bleeding score of 0 and stool frequency score of ≤1 at 4 weeks
3. Tolerability of PEN + exclusion diet at 4 weeks

Completion date
10/02/2022

Eligibility

Key inclusion criteria
1. Patients who are confirmed cases of mild to moderate ulcerative colitis
2. Age: 18 – 70 years of either gender
3. Patients on stable dose of mesalamine for past 4 weeks
4. Patients on stable dose of azathioprine/6-mercaptopurine for past 6 months
5. Patients on stable doses of topical therapy for past 2 weeks
6. Patients who are willing to participate

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Upper age limit
70 years

Sex
All

Total final enrolment
60

Key exclusion criteria
1. Received oral steroids in the past 4 weeks
2. Received oral antibiotics within past 2 weeks
3. Patients with severe disease activity
4. Patients with fulminant colitis requiring hospitalization
5. Patients who have had surgery
6. Patients with concomitant GI infection
7. Patients with significant hepatic, renal, endocrine, respiratory, neurologic, or cardiovascular diseases will also be excluded
8. Pregnant, lactating females

Date of first enrolment
15/02/2021

Date of final enrolment
10/09/2021

Locations

Countries of recruitment
India

Study participating centre
All India Institute of Medical Sciences, New Delhi
Third Floor, Teaching Block
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Sponsor information

Organisation
All India Institute of Medical Sciences

ROR
https://ror.org/02dwcqs71

Funder(s)

Funder type
Government

Funder Name
Indian Council of Medical Research

Alternative Name(s)
Indian Council of Medical Research, Government of India, Indian Council of Medical Research (ICMR), New Delhi, ICMROrganisation, , Indian Council of Medical Research, New Delhi, ..., ICMR, ICMRDELHI, ...

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
India

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request
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IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet			08/01/2024	No	Yes

Protocol file	08/01/2024	No	No