STUDY PROTOCOL TITLE

Study of the impact of one day versus three days of low residue diet on bowel preparation quality before colonoscopy

PROTOCOL CONTRIBUTORS

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ABSTRACT

- **Background**: Colonoscopy represents the gold standard for the study of the colon. While numerous studies have compared different purgatives and different intake regimens for bowel preparation, little evidence exists as to what may be the best dietary regimen prior to colonoscopy. The purpose of the study is to compare 3 days low-fiber diet and 1 day low-fiber diet regimen, the impact on bowel preparation quality and the satisfaction and adherence of outpatients undergoing colonoscopy.
- **Methods**: Eligible patients will be allocated to one of two groups, with an equal chance of being in either group (like tossing a coin). Based on the group to which they were assigned, participants will be informed about the type of diet to follow. Participants in the first group will be asked to follow a 1-day structured low-residue diet (LRD) for 1 day prior to their colonoscopy and those in the other group will be asked to follow a structured LRD for 3 days prior to their colonoscopy.
- **Discussion**: An adequate dietary regimen may induce the patient to take the laxative in the right modality and in an optimal dose. It is commonly believed in clinical practice that a 3-day low-waste diet can improve the quality of bowel cleansing, although there is a lack of evidence to this effect. This study will attempt to fill a hole in the scientific evidence on this 'topic' by also addressing the tolerability for the patient of such a dietary regimen. In addition to the obvious clinical repercussions related to the quality of the colonoscopy, it might be possible to stratify a subgroup of patients (e.g. those with slow intestinal transit) to be subjected to a more restrictive dietary regimen prior to taking the laxative.

Trial registration: Registration identification number ISRCTN10567113 of 08/12/2021; URL for the trial's registry: https://doi.org/10.1186/ISRCTN10567113.

KEYWORDS

Bowel preparation; Colonoscopy; Low Residue Diet.

SYNOPSIS of the STUDY

Title	Study of the impact of one day versus three days of diet on bowel preparation quality before colonoscopy
Trial registration	Registration identification number ISRCTN10567113 of 08/12/2021; URL for the trial's registry: https://doi.org/10.1186/ISRCTN10567113.
Protocol version	Ethics committee of the G. Rummo Hospital approved Version – protocol code 135 03/02/2014.
Funding	Società Italiana Endoscopia Digestiva - Campania region.
Selection criteria for Centres	Performing > 300 colonoscopies/year
Protocol author names and affiliations	**Dr. Giuseppe Scaglione MD**, G. Rummo Hospital Gastroenterology and Digestive Endoscopy Unit, Via Pacevecchia, 53 Benevento, Italy **Prof. Paola Iovino MD**, AOU San Giovanni di DIo e Ruggi D'Aragona Gastroenterology and Digestive Endoscopy Unit Via San Leonardo, 1 Salerno, Italy **Prof. Dario Bruzzese MD**, Department of Public health, Univeristy of Naples Federico II, Naples, Italy
Name and contact information for the trial sponsor	Società Italiana Endoscopia Digestiva , Via Napoleone Colajanni, Roma, Italy +39 (0)636309599 sied@scstudiocongressi.it
Role of sponsor	Financial support
Planned end date	30 March 2016
No. of planned centres (estimate)	3
No. of subjects to be enrolled	421
Study Coordinator	Dr. Giuseppe Scaglione MD, G. Rummo Hospital Gastroenterology and Digestive Endoscopy Unit, Via Pacevecchia, 53 Benevento, Italy

Study Coordinator Centre	G. Rummo Hospital Gastroenterology and Digestive Endoscopy Unit, Via Pacevecchia, 53 Benevento, Italy
Head of statistical analysis	Prof. Dario Bruzzese MD, Department of Public health, Univeristy of Naples Federico II, Naples, Italy

INTRODUCTION

Background and rationale

Little evidence exists on what may be the best dietary regimen prior to colonoscopy. A low-residue diet on the day before the procedure is generally recommended in clinical practice, although it is conceivable that a diet continued for three days may improve the quality of cleansing through a reduction in faecal mass.

Objectives

To compare the impact of a 3-days versus 1-day low residual diet on the quality of the bowel preparation and the satisfaction and adherence of outpatients undergoing colonoscopy.

Trial design

Multicentre parallel randomized controlled single-blinded trial.

METHODS: PARTICIPANTS, INTERVENTIONS AND OUTCOMES

Study setting

The study population consists of consecutive outpatients undergoing total colonoscopy for any indication (symptoms, screening, surveillance). The study informed consent will be collected and demographics and medical history recorded on the data collection form. Eligible patients will be randomized to one of the following two groups: 1-day structured low-residue diet or 3-days structured LRD.

Eligibility criteria

Participant inclusion criteria:

Patients aged ≥18 years and scheduled to have a colonoscopy with bowel preparation

Participant exclusion criteria:

Age < 18 years

Patients undergoing colonoscopy as in-patients

Have undergone a previous proctocolectomy

Patients undergoing colonoscopy without intestinal preparation by mouth or in whom preparation is contraindicated

Patients in whom the dietary regime to be adopted prior to preparation is contraindicated
Patients refusing to provide informed consent to the processing of clinical personal data
Patients unable to understand instructions and explanations concerning the purpose and design of the study.

Who will take informed consent?

The study informed consent will be collected the day of colonoscopy by medical staff involved in study.

Interventions

Explanation for the choice of comparators

Although a low-residue diet on the day before the procedure is generally recommended in clinical practice, it is conceivable that a diet continued for three days may improve the quality of cleansing through a reduction in faecal mass. So we have defined two groups of study: 1-day LRD and 3-days LRD groups.

Intervention description

The intervention type is behavioral. Based on the group to which they were assigned, patients were informed both orally and by means of leaflets about the type of diet to be performed. Specifically, the differences between the two arms consisted of the duration of the LRD. Allowed foods were: pasta or rice (not whole), meat, fish, milk, eggs, cheese, ham and cold cuts, bread (not brown or rye bread), potatoes. Forbidden foods were: vegetables, legumes, fruits. All patients received the information sheet for participation in the study and the assessment of the standardized questionnaire of satisfaction for colonoscopy preparation.

Outcomes

Primary outcome

The primary endpoint consisted of the evaluation of the proportion of subjects with a satisfactory degree of bowel cleanliness defined as score ≥ 2 on the Boston scale in each segment

Secondary outcome

The secondary endpoints were to assess the proportion of patient's satisfaction with and adherence to the prescribed diet and, eventually, to identify subgroups of patients to be subjected to a "more restrictive" diet prior to colonoscopy

Study timeline

Overall trial start date:04/11/2013
Overall trial end date:01/03/2021
Recruitment start date:01/09/2015
Recruitment end date:30/03/2016

Sample size

Sample size estimation will be based on the primary endpoint consisting of the evaluation of the proportion of subjects with a satisfactory degree of bowel cleanliness (Score 2 and 3 on the Boston scale) in each segment. We will assume a proportion of subjects with "satisfactory" cleanliness equal to 0.6 in the control arm (1-day LRD) and considering as clinically relevant a 15% increase in the 3-days LRD group (which corresponds to a doubling of the frequency of outcome in the odds scale), 152 patients per arm (304 subjects overall) will deem sufficient to highlight such difference with a power of 80% and a two-sided significance level of 5%.

Recruitment

The colonoscopies will be scheduled during an endoscopy session within 2 weeks of being included in the study. According to the randomization group, each patient will receive specific verbal and written information regarding the 1-day LRD or 3-days LRD. In the coordinator centre the 1- and 3-days structured LRD that considered daily intake of less than 10 grams of fiber contained in specific foods will be formulated under the guidance of a nutritionist

ASSIGNMENT OF INTERVENTIONS: ALLOCATION

Sequence generation

The randomization sequence will be computer generated using fixed blocks of size 8 stratified by the centre. Sealed randomization envelopes will be used. Eligible patients will be randomized to one of the following two groups: 1-day structured LRD or 3-days structured LRD.

ASSIGNMENT OF INTERVENTIONS: BLINDING

Who will be blinded

The nurses who will be involved in the study in order to collect data collection form regarding the bowel preparation ingested and the satisfaction questionnaire.

The gastroenterologists with more than 10 years of practice, unaware of the type of diet adopted by the patient.

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Data collection and management

The data collection form will consist of different sections, containing different types of pre-coded fields, relating to demographic data such as initials of patient’s name, sex, age and body mass index (BMI); comorbidities such as diabetes, high blood pressure, cerebrovascular accident (CVA), chronic renal failure (CRF), chronic obstructive pulmonary disease (COPD), ischemic heart disease, liver cirrhosis and other comorbidities; previous surgery such as abdominal and/or gynecological surgery; concomitant therapies such as antihypertensives, antidiabetics, antiarrhythmics, platelet antiaggregants, anticoagulants, lipid-

lowering, proton pump inhibitors, anxiolytics, neuroleptics, thyroid drugs and other; bowel function such as number of weekly bowel movements (1 to 3 evacuation/week, 4 to 7 evacuation/week, > 7 evacuation/week); colonoscopy indication such as bleeding, bowel habit modification, anemia, abdominal pain, positive occult blood, weight loss, family history, post-polypectomy surveillance, inflammatory bowel diseases; type of bowel preparation such as polyethylene glycol (PEG) (4 liters), PEG + bisacodyl (2 liters), PEG + ascorbate (2 liters), sodium picosulfate + magnesium citrate, the modality of dose intake, split dose or same-day dose on the basis of scheduled time of colonoscopy, amount of preparation taken by the patient (%) (<50%, between 50 and 75%, > 75%); time in hours between the end of preparation and the beginning of the colonoscopy; degree of intestinal preparation according to the BBPS score); sedation such as midazolam, antispasmodic, opiate, or no sedation; endoscopic outcome in relation to complete or incomplete colon exploration and an assessment of reasons for incompleteness such as inadequate preparation, technical difficulties, intolerance and patient's will; endoscopic diagnosis such as normal examination, diverticula, inflammatory bowel diseases, angiodysplasia, ischemic lesions, hemorrhoids, neoplasms localized in right or left colon and polypoid lesions or non-polypoid lesions localized in right or left colon.

The patient’s satisfaction and adherence questionnaire will consist of different sections, containing precoded fields relating to: patients data such as initial of patients name and surname, age, sex, height and weight; difficulty in following the prescribed diet specifying if there was no difficulty, some difficulty, many difficulties or if the patient had not followed the diet; difficulty in taking the prescribed laxative specifying if there was no difficulty, some difficulty, many difficulties or if the patient had not taken the laxative; evaluation of the experience of laxative and diet scored as worst, poor, good or excellent experience; willing of adopt a different diet and the reason.

STATISTICAL METHODS

Statistical methods for primary and secondary outcomes

Demographic and clinical baseline data will be summarized using standard descriptive statistics and will be compared between groups (without reporting statistical significance) to assess whether good balance was achieved by randomization.

The difference between groups with respect to primary and secondary endpoints will be assessed using chi-square test or Fisher exact test when appropriate. Potential effect modifiers explored using multivariable logistic regression models will be treatment, the specific factor and their interaction, entered as independent variables. In case of significance of the interaction term, the Odds Ratios (ORs) between treatment and outcome, with the corresponding 95% confidence intervals (95% CIs), will be computed for each level of the effect modifier. All statistical analyses will be conducted using the statistical platform R, version 4.0.1.

COORDINATION

The study is coordinated by the U.O. of Digestive Endoscopy of the Rummo Hospital in Benevento.

The Coordinator in charge of the study is Dr. Giuseppe Scaglione MD

AUTHORSHIP

Dr Giuseppe Scaglione MD, Prof. Paola Iovino MD, CDR SIED Campania, Dr Dario Bruzzese MD

PARTICIPATING CENTRES

Gastroenterology and Digestive Endoscopy Centres located throughout the Campania region that perform at least 300 total colonoscopies/year are selected:

- G. Rummo Hospital, Gastroenterology and Digestive Endoscopy Unit, Via Pacevecchia, 53 Benevento, Italy
- AOU San Giovanni di Dio e Ruggi D'Aragona, Gastroenterology and Digestive Endoscopy Unit Via San Leonardo, 1 Salerno, Italy
- Maresca Hospital, Gastroenterology and Digestive Endoscopy Unit, Torre del Greco, Va Montedoro, 53 Italy

FUNDING

Financial support will be assured by Società Italiana Endoscopia Digestiva , Via Napoleone Colajanni, Roma, Italy +39 (0)636309599
sied@scstudiocongressi.it

REPERCUSSIONS OF THE STUDY

It is well known that bowel preparation is often perceived by the patient as the most troublesome aspect of the endoscopic procedure. It is the result of two basic components: dietary modifications and laxative intake. An adequate dietary regimen may induce the patient to take the laxative in the right modality and in an optimal dose. It is commonly believed in clinical practice that a 3-day low-waste diet can improve the quality of bowel cleansing, although there is a lack of evidence to this effect. This study will attempt to fill a hole in the scientific evidence on this 'topic' by also addressing the tolerability for the patient of such a dietary regimen. In addition to the obvious clinical repercussions related to the quality of the colonoscopy, it might be possible to stratify a subgroup of patients (e.g. those with slow intestinal transit) to be subjected to a more restrictive dietary regimen prior to taking the laxative.

PUBLICATION OF DATA/RESULTS

The results of the study are confidential material, covered by professional secrecy and therefore strictly confidential. Disclosure of clinical data in scientific publications or conferences remains possible, subject to patient confidentiality.

Each scientific publication on the results of the study in question will have all the Centres that contributed to the data collection cited among the authors; it will be the responsibility of the Centre Manager to indicate the name of the author(s) to be cited (maximum 2 names/per Centre).

Any further publications, proposed on particular topics developed in the context of complementary study groups/sub-projects and/or additional data collections, will be submitted in advance to the Coordinating Centre for approval on content and citation of authors.

AVAILABILITY OF DATA AND MATERIALS

All data generated or analysed in this study will be available in the published article based on this protocol.

COMPETING INTERESTS

The authors declare no conflict of interest.

ETHICAL CONSIDERATIONS

This study has already been approved by the EC of the coordinating centre (protocol code 135 of 03/02/2014). Each investigator will declare that the preparation will be conducted in accordance with the Declaration of Helsinki and subsequent amendments and all existing laws and regulations in this regard in Italy.

All data enabling the identification of the subject will be treated confidentially. Each patient will be informed of the purpose of the study and its modalities and will participate only after signing the informed consent and personal data processing form.

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