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Investigation of laboratory and clinical parameters in the background of thrombosis in celiac disease and inflammatory bowel diseases

Submission date
05/03/2018

Recruitment status
No longer recruiting

Registration date
29/06/2018

Overall study status
Completed

Last Edited
31/07/2026

Condition category
Digestive System

[_] Prospectively registered
[X] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Celiac disease (CD) or gluten-sensitive enteropathy is a immune system disorder affecting 1% of the Western population, while inflammatory bowel disease (IBD) is less common. Hypercoagulability (an increased tendency for the blood to clot) is associated with several immune-mediated disorders, including CD and IBD. The aim of this study is to assess the properties of blood and blood flow in CD and IBD patients compasred with people without these diseases to understand whether having CD or IBD means people are more likely to have problems involving blood clots..

Who can participate?
We will include CD patients, IBD patients, and non-CD, non-IBD volunteers. Adults (≥18 years) will be included irrespective of gender.

What does the study involve?
Participants will give blood and urine samples, fill in questionnaires and be interviewed by researchers.

What are the possible benefits and risks of participating?
This is an observational study, which means there is no treatment given. The study involves assessing the normal situation. Only those patients where blood tests have already been ordered for medical reasons (e.g., at a follow-up visit or for diagnostic purposes) will be included. Patients may benefit from the results of detailed laboratory investigations and dietary assessment. Due to the observational design of the study, there will be no side effects.

When is the study starting and how long is it expected to run for?
March 2018 to May 2020 (updated 13/06/2019, previously: December 2019)

Who is funding the study?
No financial compensation will be given to the participants and there is no extra cost to them. Since no additional treatment is necessary for the study, the general healthcare costs are

covered by the National Healthcare System (University of Pécs – Medical School). Center costs and the cost of the study are funded by the following grants: University of Pécs Medical School, Momentum Grant of the Hungarian Academy of Sciences (LP2014-10/2014), Highly Cited Publication Grant (KH 125678) of the National Research Development and Innovation Office (GINOP 2.3.2-15-2016-00048 Stay Alive) and (EFOP 3.6.2-16-2017-00006 Live Longer), and Translational Medicine Foundation. In addition, this project is supported by the ÚNKP-17-3-II New National Excellence Program of the Ministry of Human Capacities.

Who is the main contact?
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Scientific

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Study information

Scientific Title
Hemorheologic parameters in celiac disease and inflammatory bowel diseases: a prospective controlled study

Acronym
HERMES

Study objectives
Hemorheologic alterations may be responsible for the increased risk of thrombosis in celiac (CD) and inflammatory bowel disease (IBD) patients.

Ethics approval required
Old ethics approval format

Ethics approval(s)
University of Pécs Regional and Local Research Ethics Committee, 08/12/2017, 6917

Primary study design

Observational

Study design
Prospective controlled cross-sectional trial

Study type(s)
Other

Health condition(s) or problem(s) studied
Celiac disease, inflammatory bowel disease (Crohn’s disease and ulcerative colitis)

Interventions
We will include 50 CD patients, 50 IBD patients, and 50 non-celiac, non-IBD control subjects (age- and sex-matched inclusion after recruiting CD and IBD patients) in the first phase of the study. Then, an interim analysis will be performed to assess power and establish the need for further recruitment. Questionnaires, interviews, urine collection, and blood sampling will be carried out on the day of recruitment.
1. Questionnaires will be applied, as follows: a thrombophilia questionnaire (assessing risk factors and history of venous and arterial thrombotic events) to all participants, Gastrointestinal Symptoms Rating Scale (GSRS) and self-reported dietary adherence (on a scale between 1 and 10 and following the work of Silvester published in 2016 in J Hum Nutr Diet) to CD patients, and Mayo score/Crohn's Disease Activity Index to IBD patients.
2. Venous blood samples will be collected to measure routine laboratory parameters (bilirubin, urea, creatinine, cholesterol (total, high-density and low-density lipoproteins), triglyceride, aspartate- aspartate aminotransferase, alanine aminotransferase, alkaline phosphatase, gamma glutamyl transferase, total protein, albumin, immunoglobulins, C-reactive protein, vitamin B12, prothrombin, thrombin time, activated partial thromboplastin time, fibrinogen, blood counts, erythrocyte sedimentation, antithrombin activity, protein C activity, protein S activity, antiphospholipid antibodies (lupus anticoagulans, cardiolipin IgG/A/M, B2-glycoprotein-I IgG/A /M, prothrombin IgG/A/M), celiac specific antibodies (tissue transglutaminase IgA/G, gliadin IgA, endomysium IgA)) and hemorheologic tests (erythrocyte aggregation and deformability, viscosity of whole blood and plasma). After preparation, remaining samples (whole blood and plasma) will be stored in the Biobank of Institute for Translational Medicine, University of Pécs at -80°C.
3. Mid-stream urine will be collected and stored at -80°C until processing. After preparation (centrifugation, solid-phase extraction, lyophilisation), gluten immunogenic peptides will be detected by commercial ELISA (Biomedal, Spain).

Intervention Type
Not Specified

Primary outcome(s)
Hemorheologic test results including erythrocyte deformability and aggregation and viscosity of whole blood and plasma
The measurement of laboratory parameters will be done on the day of recruitment.

Key secondary outcome(s)
Risk of arterial and venous thrombosis (determined by clinical and laboratory measures on the day of recruitment)

Completion date

01/10/2020

Eligibility

Key inclusion criteria
CD patients
1. Newly diagnosed or followed-up patients (with or without adhering to a gluten-free diet (GFD)
2. Aged ≥18 years
3. Diagnosis should meet the current guidelines (ESPHGAN, American College of Gastroenterology)

IBD patients
1. Newly diagnosed and followed-up patients
2. Aged ≥18 years
3. Diagnosis should meet the current guidelines (ECCO)

Non-CD, non-IBD controls
1. Aged ≥18 years
2. Celiac disease excluded (lack of symptoms and negative celiac-specific serology)
3. IBD excluded (lack of clinical, biochemical, endoscopic or radiologic signs of the disease)

Participant type(s)
Mixed

Healthy volunteers allowed
No

Age group
Mixed

Lower age limit
18 Years

Upper age limit
120 Years

Sex
All

Total final enrolment
212

Key exclusion criteria
1. Estimated glomerular filtration rate calculated with CKD-EPI formula <60 ml/min/1.73 m2 (CKD Stage 3 or more severe kidney failure)
2. Liver cirrhosis (Child-Pugh class B/C)
3. Heart failure (NYHA class III/IV)
4. Malignant diseases (except for cured cases)
5. Acute diseases within 2 weeks of sampling
6. Patients unable to understand the essentials of the informed consent

Date of first enrolment
01/05/2018

Date of final enrolment
01/07/2019

Locations

Countries of recruitment
Hungary

Study participating centre
Division of Gastroenterology, 1st Department of Internal Medicine, University of Pécs
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Sponsor information

Organisation
Centre for Translational Medicine

ROR
https://ror.org/037b5pv06

Funder(s)

Funder type
Government

Funder Name
This project is supported BY the ÚNKP-17-3-II New National Excellence Program of the Ministry of Human Capacities and by Hungarian Academy of Sciences (Momentum Grant)

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

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		01/11/2020	23/11/2021	Yes	No
Results article		22/06/2025	31/07/2026	Yes	No
Protocol article	protocol	23/03/2019	09/04/2020	Yes	No
Abstract results	Abstract P2052; UEG - United European Gastroenterology Week 2019 Poster Presentations	01/10/2019	11/07/2023	No	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes