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Metabolism after surgery

Submission date 30/01/2017	**Recruitment status** Stopped	[ ] Prospectively registered [ ] Protocol
Registration date 03/02/2017	**Overall study status** Stopped	[ ] Statistical analysis plan [ ] Results
Last Edited 16/01/2020	**Condition category** Surgery	[ ] Individual participant data [ ] Record updated in last year

Plain English summary of protocol

Background and study aims
It is widely acknowledged that surgery on the gastrointestinal tract (gut), particularly the stomach and oesophagus (gullet), changes the way the body senses and processes food. While undergoing these procedures can prove beneficial, in many cases patients suffer problematic symptoms after surgery. These particularly include the “dumping syndrome”, where a person may feel flushed, faint or even pass out after a meal. Some believe that these symptoms are caused by an overactive response of certain cells in the lining of the gut to food. These cells produce chemical signals (hormones) which would normally tell the body how much food has been eaten, and how to deal with it. When too much of one of these hormones is produced, the body can react badly and make someone unwell. This study aims to understand what hormones are altered by surgery, why this happens and how the impact of this problem in people can be reduced in people who have had surgery on their gastrointestinal tract.

Who can participate?
Healthy volunteers, and adults who have undergone, or are due to undergo, surgery to remove all or part of the stomach or oesophagus.

What does the study involve?
All participants are asked to complete questionnaires and attend for a sugar drink test, during which their blood sugar levels are monitored by taking ans testing blood samples. Smaller groups of participants who have had surgery are invited to participate in more detailed studies, including identification and treatment of altered levels of bacteria in the small intestine, continuous glucose monitoring (continuously measuring blood sugar levels using a special device that is worn on the body) in the community and collection of tissue biopsies (samples) during surgery or subsequent endoscopy.

What are the possible benefits and risks of taking part?
After surgery, patients will benefit from having the opportunity to explore their altered eating habits and associated symptoms in a controlled environment. This is a very poorly understood field, and it is hoped that by defining the problems experienced by this group researchers can start to explore novel treatment strategies in the future. There are rare risks associated with taking part, during the glucose tolerance test there is a risk of feeling unwell and transient low blood sugar levels, endoscopy carries risks of bleeding or damage to the bowel but these are both very unlikely.

Where is this study run from?
Addenbrooke’s Hospital (UK)

When is the study starting and how long is it expected to run for?
July 206 to October 2021

Who is funding the study:
1. National Institute of Health Research (UK)
2. Wellcome Trust (UK)
3. Medical Research Council (UK)

Who is the main contact?
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Contact information

Type(s)
Public

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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number
NCT02836353

Secondary identifying numbers
33469

Study information

Scientific Title
The metabolic consequences of gastrointestinal surgery

Study objectives
The aim of this study is to evaluate the the metabolic consequences of surgery, define new approaches to the diagnosis and management of dumping syndrome, and improve knowledge of human gastrointestinal and metabolic physiology.

Ethics approval required
Old ethics approval format

Ethics approval(s)
East of England – Cambridge South REC, 28/11/2016, ref: 16/EE/0338

Study design
Non-randomised; Both; Design type: Treatment, Drug, Cohort study

Primary study design
Interventional

Secondary study design
Non randomised study

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet
See additional files

Health condition(s) or problem(s) studied
Gastrointestinal surgery

Interventions
A cohort of patients who have undergone surgery on the stomach or oesophagus will be recruited to undergo cognitive (questionnaire) and metabolic (oral glucose tolerance test) assessment. If recruited within two years of surgery, the participant will complete questionnaires at 3, 6, 12 and 24 months post-surgery. If greater than two years post-surgery participants will complete a single assessment.

A subset of up to 15 participants identified with small intestinal bacterial overgrowth on hydrogen / methane breath testing will be treated with Rifaximin 400mg TDS for 7 days and then have a repeat oral glucose tolerance test. This is an open label study to assess the effect of treatment of bacterial overgrowth (common in this group) on secretion of gut derived hormones and metabolic indices / glucose metabolism.

A subset of up to 15 participants identified with severe metabolic complications of surgery and deranged gut hormone secretion will receive a single dose of 50 micrograms of subcutaneous octreotide immediately prior to a repeat glucose tolerance test to assess the effects of gut hormone suppression on metabolic indices and glucose metabolism.

Intervention Type
Other

Primary outcome measure
Plasma glucose is measured by the hexokinase method at 15, 30, 45, 60, 90, 120, 150 and 180 minutes post 50g glucose tolerance test.

Secondary outcome measures
1. Plasma Insulin is measured by sandwich ELISA at 15, 30, 45, 60, 90, 120, 150 and 180 minutes post 50g glucose tolerance test
2. Plasma total GLP-1 is measured by MSD sandwich ELISA at 15, 30, 45, 60, 90, 120, 150 and 180 minutes post 50g glucose tolerance test
3. Hunger and fullness are measured by visual analogue scales (range 0-100) at 15, 30, 45, 60, 90, 120, 150 and 180 minutes post 50g glucose tolerance test

Overall study start date
07/07/2016

Completion date
01/10/2021

Reason abandoned (if study stopped)
Objectives no longer viable

Eligibility

Key inclusion criteria
1. Aged 18 years and over
2. Capacity to give voluntary informed consent
3. Undergone, or have planned within the next 12 months, surgery including removal of all or part of the stomach or oesophagus; or be a carrier of a genetic mutation conferring a high risk of requiring a future prophylactic gastrectomy

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Sex
Both

Target number of participants
Planned Sample Size: 200; UK Sample Size: 200

Key exclusion criteria
All participants:
1. Aged under 18 years
2. Recent history of untreated anaemia
3. Lack capacity to read and retain information about the study
4. Communication issues which prevent accurate understanding of the study rationale and requirements

Post-operative participants:
1. Recurrent gastric or oesophageal cancer

Participants for endoscopy:
1. Contraindication to upper gastrointestinal endoscopy
2. Taking medication that would pose a significant risk of haemorrhage after biopsy (e.g. Clopidogrel, Warfarin, Dipyridamole, novel oral antigoagulants, therapeutic dose heparin)
3. Significant medical comorbidity that may be adversely effected by endoscopy or sedation (e.g. unstable ischaemic heart disease, significant respiratory impairment)

Participants for physiological challenge with antibiotics or Somatostatin analogue:
1. Known allergy to the proposed agent
2. Received a course of antibiotics in the preceding two months
3. Suffer from a known illness that may be exacerbated by the proposed agent
4. Be on medication which interacts with the proposed agent

Date of first enrolment
16/01/2017

Date of final enrolment
01/10/2020

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
Addenbrooke's Hospital
Hills Road
Cambridge
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Sponsor information

Organisation
Cambridge University Hospitals NHS Foundation Trust

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Sponsor type
Hospital/treatment centre

ROR
https://ror.org/04v54gj93

Funder(s)

Funder type
Government

Funder Name
National Institute for Health Research

Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Funder Name
Wellcome Trust

Alternative Name(s)

Funding Body Type
Private sector organisation

Funding Body Subtype
International organizations

Location
United Kingdom

Funder Name
Medical Research Council

Alternative Name(s)
Medical Research Council (United Kingdom), UK Medical Research Council, MRC

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Publication and dissemination plan
Planned publication in a high-impact peer reviewed journal: interim findings 2018, final findings 2022.

Intention to publish date
31/12/2022

Individual participant data (IPD) sharing plan
The datasets generated and/or analysed during the current study during this study will be included in the subsequent results publication - it is anticipated that full datasets will be made available through the University of Cambridge data repository.

IPD sharing plan summary
Stored in repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet	version V3	11/11/2016	03/02/2017	No	Yes
Participant information sheet	version V2	19/09/2016	03/02/2017	No	Yes
HRA research summary			28/06/2023	No	No