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The effect of Milk Thistle extract versus tea on serum iron increase after a meal containing non-haem iron in Hereditary Haemochromatosis: a pilot study

Submission date
28/07/2006

Recruitment status
No longer recruiting

Registration date
12/09/2006

Overall study status
Completed

Last Edited
25/02/2013

Condition category
Nutritional, Metabolic, Endocrine

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

Plain English summary of protocol
Not provided at time of registration

Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
N/A

Study information

Scientific Title

Acronym
MTHH

Study objectives
We hypothesise that consumption of milk thistle extract with a meal containing non-haem iron leads to a reduction in serum iron increase following the meal, due to the formation of iron-silybin complexes that render iron unavailable for mucosal uptake, but the milk-thistle-related reduction in post-prandial serum iron increase is not equal to the tea-related reduction in post-prandial serum iron increase.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved by King's College Hospital REC on 21st April 2006 (reference number 06/Q0703/56).

Study design
Open-intervention pilot study

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Hereditary Haemochromatosis (HH)

Interventions
The treatment intervention will consist of Legalon 140 mg (Madaus GmbH, Germany) milk thistle extract on one occasion with test meal. The comparator intervention will be a tea beverage on one occasion with test meal. The control will be the test meal with water.

All patients will ingest the treatment (Milk Thistle capsule) with a meal, the comparator (tea) with an identical meal and control (the meal alone) on three separate occasions, four to seven days apart, and in a random order. The meal will contain 15.2 mg non-radioactive non-haem iron and will consist of vegetarian shepherd's pie, fruit salad and juice. On each occasion, blood will be drawn once before and once hourly for four hours after the meal, for measurement of total serum iron.

Intervention Type
Drug

Phase
Not Specified

Drug/device/biological/vaccine name(s)
Legalon 140 mg (milk thistle extract)

Primary outcome(s)
Serum iron increase after the test meal on each of three occasions (meal with milk thistle, versus meal with tea, versus meal with water).

Key secondary outcome(s))
Not provided at time of registration

Completion date
16/10/2006

Eligibility

Key inclusion criteria
1. Patients will be homozygous for the C282Y mutation of the HFE gene (the genotype associated with type one hereditary haemochromatosis), and have phenotypic haemochromatosis (identified by raised serum iron levels on diagnosis), as this is the particular group of interest which may benefit from interventions to reduce dietary iron absorption
2. ALL patients will be fully treated (i.e. undergoing phlebotomy to maintain iron stores within the normal range, following on from the removal of primary iron burden at diagnosis), in order to reduce variability in the data as iron absorption varies between fully treated and untreated /newly diagnosed patients
3. Patients will be adults (aged 18 or over), as type one hereditary haemochromatosis presents in adulthood

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 years

Sex
All

Key exclusion criteria
1. Patients with allergy to any foods or medicines will be excluded from participating for their own safety
2. Patients with gastrointestinal diseases which alter gut motility, gut permeability or gastric pH (ulcerative colitis, Crohn's disease, coeliac disease,
gastric ulceration) will also be excluded from participating as these disorders affect gastrointestinal function and, thus, may result in altered iron absorption and confound the results of the study

Date of first enrolment
16/08/2006

Date of final enrolment
16/10/2006

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
Department of Nutrition and Dietetics
London
United Kingdom
SE1 9NH

Sponsor information

Organisation
King's College London (UK)

ROR
https://ror.org/0220mzb33

Funder(s)

Funder type
Charity

Funder Name
This project is funded by the Haemochromatosis Society (UK)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary

Not provided at time of registration

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/10/2010		Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes