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Do women with polycystic ovary syndrome have increased cardiovascular risk compared to normal controls and could this risk be reduced by liraglutide?

Submission date
08/05/2012

Recruitment status
No longer recruiting

Registration date
22/05/2012

Overall study status
Completed

Last Edited
02/10/2015

Condition category
Nutritional, Metabolic, Endocrine

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

Plain English Summary
Background and study aims:
Polycystic ovary syndrome (PCOS) is a common condition in women of reproductive age. PCOS is associated with cardiovascular risk through increased insulin resistance. This in turn may lead to increased risk of non-alcoholic fatty liver disease (NAFLD). Both conditions are made worse by obesity. Liraglutide has been shown to reduce weight, but it is unknown if liraglutide improves cardiovascular risk factors in women with PCOS with or without NALFD.

Who can participate?
Two groups of women: 20 with PCOS; 20 age and weight matched normal control subjects.

What does the study involve?
Participants are treated with liraglutide 1.8mg once a day for 6 months followed by metformin 500mg three times a day for 3 months. Study participants will be seen every 3 months. At each visit blood will be taken to measure for insulin resistance, and for clotting and inflammations markers. Artery wall thickness will be measured at baseline and after 6 months treatment with liraglutide.

What are the possible benefits and risks of participating?
There will be no immediate direct benefit to those taking part but the study will improve our understanding of PCOS and the treatment of people with PCOS and fatty liver disease. Most common side effects with metformin and liraglutide use are nausea and diarrhoea. These side effects usually disappear after a few days. There might be some discomfort in blood testing and endothelial function measurement.

Where is the study run from?
Diabetes Research Centre at Hull Royal Infirmary (UK).

When is the study starting and how long is it expected to run for?
May 2010 to December 2012.

Who is funding the study?
Diabetes Research fund, University of Hull (UK).

Who is the main contact?
Professor Stephen L Atkin
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Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
Protocol version 7

Study information

Scientific Title
Are early and late cardiovascular risk markers in women with polycystic ovary syndrome increased with concomitant non-alcoholic steatohepatitis and can this be modified with liraglutide?

Study hypothesis

Intervention with liraglutide significantly improves insulin resistance, carotid intima-media wall thickness (cIMT), platelet and endothelial function in women with PCOS and Non-alcoholic fatty liver disease (NAFLD).

Ethics approval required
Old ethics approval format

Ethics approval(s)
Leeds East Research Ethics Committee, 08/02/2010

Study design
Open parallel single-centre trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Treatment

Participant information sheet
Not available in web format, please use the contact details below to request a patient information sheet

Condition
Polycystic Ovary Syndrome

Interventions
Women with PCOS were diagnosed according to the Rotterdam criteria. Other endocrine disorders with similar presentation were excluded. Normal control women underwent similar tests to rule out any unknown medical problem.

Participants (PCOS and nomal controls) are treated with liraglutide 1.8mg once a day for 6 months followed by metformin 500mg three times a day for 3 months. Study participants will be seen every 3 months during the study.

Intervention Type
Drug

Phase
Not Applicable

Drug/device/biological/vaccine name(s)
Liraglutide, metformin

Primary outcome measure
Improvement in cIMT and platelet function measured at baseline and after 6 months treatment with Liraglutide

Secondary outcome measures
1. Improvement in endothelial function will be measured using EndoPat 2000 at baseline, 3, 6 and 9 months of treatment
2. Liver fibrosis markers were measured at baseline, 3, 6 and 9months of treatment
3. Depression [Centre for Epidemiologic Studies Depression Scale (CES-D)] at baseline and after 6 months of treatment with liraglutide
4. Quality of life will be measured using WHO QoL questionaire at baseline and after 6 months of treatment with liraglutide

Overall study start date
24/05/2010

Overall study end date
31/12/2012

Eligibility

Participant inclusion criteria
For PCOS:
Polycystic ovary syndrome (defined by the Rotterdam criteria) as 2 out of 3 of:
1. Oligo / anovulation
2. Clinical or biochemical evidence of hirsuitism, and/or
3. Polycystic ovaries on ultrasound and the exclusion of other disorders
4. Age 18-45 years

For normal controls:
1. Female, aged 18 - 45
2. Body madd index (BMI) 30 - 45
3. No current medical problems

Participant type(s)
Patient

Age group
Adult

Lower age limit
18 Years

Upper age limit
45 Years

Sex
Female

Target number of participants

40 participants

Participant exclusion criteria
1. Ketoacidosis
2. Severe gastrointestinal disease
3. Hypothyroidism
4. Subjects taking regular medications associated with high risk of hepatotoxicity like isoniazid and methotrexate
5. Not using a reliable method of contraception
6. Patients not allowing disclosure to their GP's
7. History of pancreatitis
8. Heart Failure
9. Chronic renal failure (creatinine clearance less than 60 ml/min or plasma creatinine >150 umol /L)
10. Pregnancy or breastfeeding women
11. Liver function tests >300% reference range normal (eg ALT>90 u/mL)
12. Type 2 diabetes mellitus
13. Acute conditions with the potential to alter renal function such as: dehydration / severe infection / shock / intravascular administration of iodinated contrast

Recruitment start date
24/05/2010

Recruitment end date
31/12/2012

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
University of Hull
Hull
United Kingdom
HU3 2RW

Sponsor information

Organisation
Hull and East Yorkshire Hospitals NHS Trust (UK)

Sponsor details

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Sponsor type
Hospital/treatment centre

Website
http://www.hey.nhs.uk/

ROR
https://ror.org/01b11x021

Funder(s)

Funder type
University/education

Funder Name
University of Hull - Diabetes Research Fund (UK)

Results and Publications

Publication and dissemination plan
Not provided at time of registration

Intention to publish date

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	02/04/2015	Yes	No