

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	☐ Prospectively registered
Registration date 22/05/2012	Overall study status Completed	☐ Protocol
Last Edited 02/10/2015	Condition category Nutritional, Metabolic, Endocrine	☐ Statistical analysis plan
		☒ Results
		☐ Individual participant data

Plain English summary of protocol

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 NAFLD.

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

Protocol serial number
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 objectives
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

Primary study design

Interventional

Study design

Open parallel single-centre trial

Study type(s)

Treatment

Health condition(s) or problem(s) studied

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 normal 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(s)

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

Key secondary outcome(s)

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 9 months 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 questionnaire at baseline and after 6 months of treatment with liraglutide

Completion date

31/12/2012

Eligibility

Key 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 hirsutism, 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 mass index (BMI) 30 - 45
3. No current medical problems

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Adult

Lower age limit

18 Years

Upper age limit

45 Years

Sex

Female

Key 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

Date of first enrolment

24/05/2010

Date of final enrolment

31/12/2012

Locations

Countries of recruitment

United Kingdom

England

Study participating centre

University of Hull

Hull

United Kingdom

HU3 2RW

Sponsor information

Organisation

Hull and East Yorkshire Hospitals NHS Trust (UK)

ROR

<https://ror.org/01b11x021>

Funder(s)

Funder type

University/education

Funder Name

University of Hull - Diabetes Research Fund (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	02/04/2015		Yes	No