ISRCTN45546616 https://doi.org/10.1186/ISRCTN45546616

Comparison of two therapies for hyperandrogenism in girls

Submission date	Recruitment status
15/01/2010	No longer recruiting
Registration date	**Overall study status**
06/04/2010	Completed
Last Edited	**Condition category**
08/07/2013	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

Contact name
Prof Lourdes Ibáñez

Contact details
Hospital Sant Joan de Déu, University of Barcelona
Esplugues, Barcelona
Spain
08950

Additional identifiers

EudraCT/CTIS number

IRAS number

ClinicalTrials.gov number

Secondary identifying numbers
PI09/90444

Study information

Scientific Title

Ethynil-estradiol cyproterone acetate versus low-dose metformin-flutamide-pioglitazone in girls with hyperinsulinemic androgen excess: effects on parameters of chronic inflammation, and on risk factors for type 2 diabetes and cardiovascular disease

Acronym
DIO

Study objectives
Low-dose metformin-flutamide-pioglitazone will prove to be superior to ethynil-estradiol-cyproterone acetate in improving chronic inflammation and risk factors for type 2 diabetes and cardiovascular disease

Please note that as of 08/02/2011 the study has been updated. The study design of this trial has changed from a "Randomised 2 arm double blind active controlled parallel group trial" to a "Randomised 2 arm open-labeled active controlled parallel group trial".

Ethics approval required
Old ethics approval format

Ethics approval(s)
CEIC Fundacio Sant Joan de Déu approved on the 7th of October 2009

Study design
Randomised 2 arm open-labeled active controlled parallel group trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Hospital

Study type(s)
Prevention

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

Health condition(s) or problem(s) studied
Hyperinsulinemic ovarian androgen excess

Interventions
Current interventions as of 08/02/2011:
Adolescents with androgen excess will be allocated to treatment with metformin-flutamide-pioglitazone or ethynil-estradiol-cyproterone acetate over 18 months.

Auxology, blood counts, liver and renal functions, endocrine-metabolic parameters (fasting blood) and body composition will be measured at 0 and 18 mo and at 6 mo after treatment stop

Previous interventions:
Adolescents with androgen excess will be allocated to treatment with metformin-flutamide-pioglitazone or ethynil-estradiol-cyproterone acetate over 12 months.

Auxology, blood counts, liver and renal functions, endocrine-metabolic parameters (fasting blood) and body composition will be measured at 0 and 12 mo and at 6 mo after treatment stop.

Intervention Type
Drug

Phase
Not Specified

Drug/device/biological/vaccine name(s)
Ethynil-estradiol cyproterone acetate, metformin-flutamide-pioglitazone

Primary outcome measure
1. Insulin sensitivity measured by Homeostasis Model Assessment (HOMA)
2. Insulin
3. Abdominal fat measured by Dual Energy X-Ray Absorptiometry (DXA)
4. Abdominal visceral fat and intrahepatic lipid content
5. Intermuscular Adipose Tissue (IMAT) measured by Magnetic Resonance (MR)
6. Carotid intima media thickness (IMT) measured by Doppler sonography

Secondary outcome measures
1. Hirsutism measured by Ferriman & Gallwey score
2. Androgens
3. Triglycerides
4. Ultrasensitive C-reactive protein
5. Neutrophile/lymphocyte ratio
6. High molecular weight adiponectin
7. Changes in the size, number, and distribution of adipocytes determined by subcutaneous adipose tissue biopsy

Overall study start date
01/02/2010

Completion date
05/11/2011

Eligibility

Key inclusion criteria
1. Adolescent girls (14-17 yr)
2. Two or more yr beyond menarche
3. BMI less than the 97th centile for age
4. Clinical and biochemical signs of androgen excess (hirsutism [Ferriman & Gallwey score >8] and /or acne and/or menstrual irregularities)

5. Total testosterone >60 ng/dL and/or free androgen index >5
6. Hyperinsulinism: fasting insulin >15 uU/mL; glucose/insulin ratio <7, or peak insulin after an OGTT >100 uU/mL

Participant type(s)
Patient

Age group
Child

Lower age limit
14 Years

Upper age limit
17 Years

Sex
Female

Target number of participants
46

Key exclusion criteria
1. Pregnancy or pregnancy risk
2. Late-onset congenital adrenal hyperplasia due to 21-OH deficiency
3. Hyperprolactinemia
4. Cushing's syndrome
5. Hypothyroidism
6. Abnormal liver or kidney function, Creatine Phosphokinase (CPK) or Lactate Dehydrogenase (LDH)
6. Diabetes or impaired glucose tolerance
7. Cutaneous allergies
8. Treatment with anti-androgens, estroprogestagens, or medications interfering with lipid and carbohydrate metabolism during the previous 6 mo
9. Bacterial infections
10. Inflammatory intestinal conditions

Date of first enrolment
01/02/2010

Date of final enrolment
05/11/2011

Locations

Countries of recruitment
Spain

Study participating centre

Hospital Sant Joan de Déu, University of Barcelona
Esplugues, Barcelona
Spain
08950

Sponsor information

Organisation
Hospital Sant Joan de Déu (Spain)

Sponsor details
University of Barcelona.
Passeig de Sant Joan de Déu, 2
Esplugues
Barcelona
Spain
08950

Sponsor type
Hospital/treatment centre

ROR
https://ror.org/001jx2139

Funder(s)

Funder type
Hospital/treatment centre

Funder Name
Instituto de Salud Carlos III (Spain) (ref: PI09/90444)

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	01/11/2011		Yes	No
Results article	results	01/10/2012		Yes	No
Results article	results	01/05/2013		Yes	No