

Polycystic Ovarian Syndrome

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- Definition
- Prevalence
- Aetiology
- Pathophysiology
 - Short and long term
- Diagnosis
- Treatment
 - Menstrual irregularity
 - Infertility
 - Hirsutism

Definition

- UK
 - Ovaries of polycystic morphology (PCO) plus irregular cycles and/or hyperandrogenism (clinical or biochemical)
- USA
 - Irregular cycles plus biochemical hyperandrogenism

Definition

- ESHRE / ASRM 2003 Consensus (Hum Rep 2004)

- Oligo- and/or anovulation
- Clinical and/or biochemical signs of hyperandrogenism
- Polycystic ovaries

and exclusion of other aetiologies (CAH, androgen-secreting tumours, Cushings)

Prevalence

- ~22% 'normal' women PCO
- ~5-10% women PCOS
- ~25-50% fertility patients PCO

Aetiology

- Insulin resistance
 - Most PCOS raised insulin with normal glucose (lean or obese)
 - Weight. PCO → PCOS
- Raised insulin levels can
 - Inhibit ovulation
 - Cause hyperandrogenism. Ovary and liver.
 - Raise plasma triglyceride/LDL and reduce HDL

Aetiology- Genetics

- Familial component
- Studies hampered by lack of definition
- ?Dominant inheritance

- ?abnormalities with genes
 - involved with steroidogenesis (*CYP11a*)
 - coding for insulin receptors (*INSR*)
 - Family history of Type II DM

Pathophysiology

- Short Term
 - Obesity
 - Irregular menstruation
 - Infertility
 - Hyperandrogenism

Pathophysiology

- Long term
 - Endometrial carcinoma
 - Withdrawal bleeds
 - Diabetes
 - Gestational
 - Type II
 - Cardiovascular disease
 - Suspected not proven

Diagnosis

- History and examination
- Pelvic ultrasound scan
- Serum testosterone
 - Normal below ~3.0 nmol/l
 - >5.0 check 17-OH Progesterone at 09:00 in follicular phase and refer
- LH and FSH
- TFT and Prolactin if irregular cycles

Treatment

- Symptom based
 1. Menstrual irregularity
 2. Infertility secondary to anovulation
 - Weight
 - Clomifene citrate
 - Gonadotropins
 - Assisted conception
 - IVF
 - IVM
 - Laparoscopic ovarian diathermy
 1. Hyperandrogenism

Treatment

- Weight loss
 - Reduces insulin levels
 - >5% of body weight often resolves symptoms
 - Can be difficult for PCOS patients

Menstrual Irregularity

- Combined oral contraceptive pill
 - ?Yasmin (drospirenone, derivative of spironolactone)
- Mirena
- Progestagen withdrawal bleeds
 - (amenorrhoeic patients are oestrogenised)

Anovulatory infertility

- Weight loss
- Clomifene citrate (or tamoxifen)
 - Anti-oestrogen
 - Pituitary and ovary
 - 50mg day 2-6
 - PCO risk factor for excessive response
 - Ovarian hyperstimulation syndrome
 - Multiple pregnancy (NICE Grade B)
 - Ultrasound monitoring (NICE GPP)
 - Initially prescribe in fertility clinics

Anovulatory infertility

- Clomifene
 - Ovulation induced 70-85% women
 - 40-50% conceive
 - 6 to 12 months treatment
 - NICE- add IUI after 6 cycles (Grade A)
 - Cancer concerns
 - Pituitary enlargement
- ‘Clomifene resistant’

Anovulatory infertility

- Gonadotropin ovulation induction
 - Clomifene resistant
 - Urinary vs recombinant
 - Timed intercourse or IUI
 - Ultrasound monitoring
 - OHSS and multiple pregnancy risk
 - Step-up regimens

Anovulatory infertility

- Laparoscopic ovarian diathermy (LOD)
 - ‘Clomifene resistant’
 - Replaced wedge resection
 - Cumulative conception rates
 - 50% at 12 months
 - 70% at 24 months
 - In RCT’s similar to gonadotropin ovulation induction. Patients prefer. Long term.
 - Mono-ovular ovulation
 - Risks

Anovulatory infertility

- Metformin

Anovulatory infertility

- Assisted conception
 - In-vitro fertilisation
 - Indications include
 - Persistent anovulation
 - No conception after ovulation induction x12

Anovulatory infertility

- IVF
 - Pituitary suppression
 - Ovarian stimulation
 - OHSS
 - Brittle response
 - Oocyte collection
 - Embryo transfer
 - Live birth rate 25% per cycle
 - NHS funding

Anovulatory infertility

- In-vitro maturation (IVM) of oocytes
- Lower live birth rate but less costs and risks
- Not currently licensed in UK.....

Treatment of Hyperandrogenism

- Weight loss
- Oral contraceptive pill
- Antiandrogens
 - Cyproterone acetate, Dianette
 - Spironolactone
 - Flutamide, Finasteride
- Metformin
- 6 to 9 months
- Cosmetic treatments

Metformin

- Reduces insulin levels
- In anovulatory PCOS:
 - Ovulation in 78-96% patients
 - Metformin + clomifene in resistant patients
 - Before and during gonadotropin stimulation
 - ?Reduces miscarriage and GDM rate
 - ?First or second line treatment
- Hirsutism
- Weight loss

Metformin

- Gastrointestinal side-effects
- HSG imaging
- Lactic acidosis
 - Check renal function prior
- ???? Long term benefits
- ???? Place in treatment algorithm

Oxford PCOS Clinic

- Nuffield Department of Obstetrics and Gynaecology
- Every 5 weeks
- Multidisciplinary team
- All women ultrasound, FG score, and bloods then treatment initiation and review
- Visits and/or referrals welcome

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Thankyou