

Management of PCOS

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The Rotterdam 2004 Consensus Workshop (Revised 2003) proposed that PCOS is a syndrome of ovarian dysfunction, and recommended that two of the following criteria should be present to establish the diagnosis: 1) chronic oligo or anovulation for more than 6 months 2) clinical and/or biochemical evidence of hyperandrogenism, and 3) polycystic ovaries in ultrasound. Other disorders that mimic PCOS phenotype should be excluded (1).

The polycystic ovary syndrome (PCOS) in a teenager is characterized by irregular menstrual cycles, generally less than six menses per year, and by clinical or biochemical features of hyperandrogenism. More than 50 % of PCOS patients have the metabolic syndrome, including obesity, insulin resistance and dyslipidemia (2). Although PCOS is a common disorder, the diagnosis may be overlooked during adolescence, as irregular menses with anovulatory cycles, obesity and acne are frequent in adolescent women.

According to the androgen overexposure hypothesis, PCOS may have its origin already in fetal life, but becomes clinically manifest during adolescence with maturation of the hypothalamic-pituitary-ovarian axis (3). The incidence of PCOS among adolescents is estimated to be 11-26 % (4) and about 50 % of the patients are overweight. The pathophysiology of PCOS is still uncertain, although there is evidence that both genetic and environmental factors may play a role, resulting in ovarian hyperandrogenism and impaired insulin sensitivity (5-9).

The spectrum of PCOS phenotype is wide, including women with no evidence of clinical and biochemical hyperandrogenism despite dysfunctional polycystic ovaries. Some adolescent PCOS patients may have normal androgen levels (10) with moderate hirsutism compared to adults (11). Insulin resistance plays an important role in PCOS pathophysiology. During puberty, insulin sensitivity is decreased causing increased secretion of insulin(4).

Treatment of PCOS is symptomatic. Lifestyle changes are a first-line intervention in obese adolescents with PCOS (12). Glucose intolerance can be managed by diet and exercise, and appropriate weight control. Metformin improves insulin sensitivity and glucose metabolism (13), and ameliorates hyperandrogenism and irregular menses in adolescents (14, 15). Metformin is also beneficial in normalizing the lipid profile (16).

Metformin has been administered at doses varying from 1.5 mg to 2.5 mg/day and it is generally divided into two to three doses. Mild side-effects such as gastrointestinal

symptoms (nausea, metallic taste in the mouth and changes in bowel movement frequency) occur in about 5-10 % of cases, but the drug is well tolerated if the dose is increased gradually. Its most feared complication is lactic acidosis which is fortunately very rare and almost always related to coexistent hypoxic conditions, which are contraindications for metformin therapy (17-19). However, questions about how long the treatment should be continued and long-term safety remain to be answered. Ibanez et al. have reported that the beneficial effects are lost soon after treatment is discontinued (16). It is important to take care of contraception in metformin users because of improvement of ovulatory function (20).

Other treatment options used in PCOS are spironolactone and contraceptive pills. Spironolactone is very rarely used in adolescence. PCOS patients with acne and hirsutism may benefit of combined contraceptive pills, especially those containing cyproterone acetate. (21). Insulin sensitizers, glitazones, improve insulin resistance, but their use and safety in adolescents is not known.

As a conclusion PCOS is common in adolescents and should be considered in an adolescent with irregular menses and excess weight. The metabolic syndrome is a common feature of PCOS. Testing for glucose intolerance and dyslipidemia is required, particularly in the presence of obesity. Lifestyle changes are the first line intervention in young overweight women with PCOS. Management of the PCOS adolescent with metformin is beneficial and well tolerated, but the longer term effects are not yet established. It appears that PCOS is a lifelong condition. Consequently, patients should be carefully monitored during adolescence and thereafter in adulthood (22).

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