



Fertility & Surgical Associates of California

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Update on POLYCYSTIC OVARY SYNDROME (PCOS) Ashim Kumar, M.D.

Epidemiology

There is a high likelihood of evaluating a patient with PCOS in your daily practice. It affects approximately 5-10% of all reproductive-age women. The signs and symptoms begin at menarche and continue to menopause.

Presenting Symptoms

Women with PCOS are likely to present with complaints of irregular menses, signs of androgen excess including hirsutism or acne, and infertility. These women also may complain of difficulty in losing or maintaining weight loss. Family history is often significant for sisters and/or mother with similar symptoms and for NIDDM.

In the first year or two after menarche, it is common for an adolescent to have anovulatory cycles as the hypothalamic-pituitary-ovarian axis matures. In an effort to regulate their menstrual cycles, many of these patients are started on oral contraceptive pills (OCP's). Thus, the diagnosis of PCOS may be delayed. If the irregular or anovulatory menstrual cycles are accompanied by hirsutism or obesity, it is worthwhile to evaluate the patient for PCOS.

Diagnosis

The diagnosis of PCOS is mainly clinical, although androgen levels (e.g. total or free testosterone and DHEAS) and ultrasonography may be useful. The presence of two out of the three criteria : oligo-ovulation, signs or symptoms of hyperandrogenism (hirsutism or elevated androgens), or polycystic ovaries on ultrasonography after the exclusion of other diseases such as Cushing's syndrome or late-onset adrenal hyperplasia is sufficient for diagnosis of PCOS as determined by the 2003 Rotterdam Consensus Conference.

Treatment

Metformin may emerge as the first-line drug for the treatment of PCOS. There is now sufficient data to suggest that most women with PCOS (regardless of insulin resistance) may be started on metformin to alleviate the cycle of hyperinsulinemia and hyperandrogenemia. For those desiring pregnancy, a three to six month course of metformin has been shown to be comparable, if not superior, to clomiphene citrate in select patients. Referral to a Reproductive Endocrinologist should be considered after 3-4 months of metformin or clomiphene citrate or earlier if the patient is greater than 35 years of age. For those who do not desire to conceive, the addition of OCP's will improve menstrual cyclicity and decrease free androgen levels. Spirolactone, a diuretic with anti-androgenic properties, can be added for significant hirsutism (but should be used only in conjunction with contraceptives due to potential feminization of male fetuses). A yearly evaluation of cholesterol and lipids may be advisable as high androgen levels can negatively impact cardiovascular risk factors.

Signs & Symptoms	Oligomenorrhea or Amenorrhea Hirsutism Infertility	+/- obesity Hirsute women who report regular menses may be anovulatory
Diagnosis	2 of 3 of the following: - Oligo-ovulation or anovulation - Evidence of hyperandrogenism - Hirsutism/acne or - Elevated testosterone (free or total) or DHEAS - Polycystic ovaries on ultrasonography	Rule out: - Hypo/hyperthyroidism - Hyperprolactinemia - Cushing's Syndrome - Late-onset adrenal hyperplasia - Ovarian or adrenal tumor
Treatment	- Metformin (1500mg to 2000mg in divided doses) - OCP's (any 30 or 35 mcg monophasic) - Spironolactone (50-100mg bid) - Clomiphene citrate (50-150mg on day 3-7 of menses)	- Spironolactone should be only used in conjunction with OCP's - Refer for fertility if unable to conceive after 3-6 months on metformin or clomiphene citrate
Monitor	BMI Insulin Resistance/DM Cholesterol/Lipids	- Check electrolytes if on spironolactone

Pertinent Articles (please call or email for a copy of the article)

Palomba S, Orio F Jr, Falbo A, et al. Prospective parallel randomized, double-blind, double-dummy controlled clinical trial comparing clomiphene citrate and metformin as the first-line treatment for ovulation induction in nonobese anovulatory women with polycystic ovary syndrome. *J Clin Endocrinol Metab.* 2005 Jul;90(7):4068-74.

Fleming R, Hopkinson ZE, Wallace AN, et al. Ovarian function and metabolic factors in women with oligomenorrhea treated with metformin in a randomized double blind placebo-controlled trial. *J Clin Endocrinol Metab* 2002;87:569-74.

Nestler JE, Jakubowicz DJ, Evans WS, Pasquali R. Effects of metformin on spontaneous and clomiphene-induced ovulation in the polycystic ovary syndrome. *N Engl J Med.* 1998;338:1876-80.



Polycystic ovaries on ultrasonography



Hirsute Chin

Dr. Ashim Kumar (DrKumar@fertilityassociates.com) completed a fellowship at University of California at Los Angeles and Cedars-Sinai Medical Center in Reproductive Endocrinology and Infertility. PCOS is a significant focus of his research and clinical practice. Please do not hesitate to call or email if you have any questions or concerns regarding a patient with PCOS, infertility or reproductive endocrinology.

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