Table 1

Diagnostic Criteria for PCOS

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>All three of the following:</td>
<td>At least two of the following:</td>
<td>All three of the following:</td>
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<tr>
<td>› clinical or biochemical evidence of hyperandrogenism</td>
<td>› oligomenorrhea and/or anovulation</td>
<td>› hyperandrogenism (clinical or biochemical)</td>
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<tr>
<td>› oligomenorrhea and/or anovulation</td>
<td>› clinical and/or biochemical signs of hyperandrogenism</td>
<td>› ovarian dysfunction (oligomenorrhea or anovulation and/or polycystic ovarian morphology)</td>
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<tr>
<td>› exclusion of other disorders</td>
<td>› polycystic ovaries</td>
<td>› exclusion of other androgen excess or related disorders</td>
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PCOS can be diagnosed only after the exclusion of related disorders (e.g., severe insulin resistance, androgen-secreting neoplasms, Cushing’s syndrome, hyperprolactinemia and thyroid abnormalities).

PCOS is predominantly a disorder of androgen excess.

NIH = National Institutes of Health
Rotterdam = European Society for Human Reproduction and Embryology and the American Society for Reproductive Medicine
AES = Androgen Excess Society

The NIH criteria were developed first and therefore are most commonly used. The Rotterdam criteria expanded the NIH definition. The AES reviewed all available data and recommended an evidence-based definition.

action equation to calculate free serum testosterone is considered the method of choice, assuming reliable assays are used. The majority of abnormal values are in the form of free testosterone.5

Approximately 25% of patients with PCOS have supranormal levels of dehydroepiandrosterone sulfate (DHEAS), an androgen metabolite. Measurement of other serum androgens has limited diagnostic value. Reliable detection of biochemical hyperandrogenism is not straightforward, and the range for healthy women is broad. It may vary according to ethnicity, body weight and age. Therefore, DHEAS measurement should only be used as an adjuvant for the diagnosis of hyperandrogenic disorders and never as the sole criterion for diagnosis.5 Between 20% and 40% of women diagnosed with PCOS have androgen levels within the normal range, so failure to detect hyperandrogenism should not exclude a diagnosis of PCOS in the presence of other clinical signs.5

Approximately 75% of patients diagnosed with PCOS have clinically evident menstrual dysfunction.7 The major clinical signs of chronic anovulation are oligomenorrhea and amenorrhea. Oligomenorrhea is defined as less than eight episodes of vaginal bleeding per year or cycles that are longer than 35 days. Amenorrhea is a lack of menstruation for at least 3 months without pregnancy. A menstrual history alone is not adequate; regular cycles do not exclude anovulation. To make a determination of menstrual dysfunction, serum progesterone concentration should be measured during the luteal phase of the menstrual cycle. If anovulation is present, the finding may be confirmed with serum prolactin and luteinizing hormone to exclude hypothalamic and pituitary diseases.

Before attributing anovulation to PCOS, consider any form of functional hypothalamic amenorrhea that may be caused by extreme dietary restrictions or exercise. Chronic anovulation is associated with unopposed estrogen stimulation of the endometrium, which can result in endometrial hyperplasia or carcinoma. PCOS is also the most common cause of infertility due to anovulation and often the primary reason a patient seeks medical advice.5

Polycystic ovaries detected by transvaginal ultrasonography may be detected in approximately 75% of women diagnosed with PCOS.5 Polycystic ovaries are identified when at least one ovary is greater than 10 mL or has 12 or more follicles measuring 2 mm to 9 mm in diameter, according to transvaginal ultrasound. Transabdominal ultrasonography with measurement of ovarian volume is only appropriate for adolescent girls because determining the number of follicles via transabdominal ultrasonography is much less reliable in women, especially when they are obese.

Measurement of anti-Müllerian hormone secreted by granulosa cells of developing follicles is emerging as an alternative to ultrasonography because values do not closely correlate with the number of antral follicles. This assay is not valid for women older than 35, but it may be helpful when ultrasonography is inappropriate or unavailable.5 The finding of polycystic ovarian morphology on ultrasound is not unique to the clinical disorder of PCOS. This morphology has been documented in association with other disorders — as well as in 16% to 25% of apparently healthy women with regular cycles.10

Approximately 10% to 30% of women diagnosed with PCOS do not have polycystic ovaries on ultrasound, and the definition of the diagnostic features for polycystic ovaries by ultrasound is controversial.3 Other clinical features of PCOS include obesity, insulin resistance, hyperinsulinism, gonadotropin abnormalities, increased LH levels and increased LH:FSH ratio. These findings are not universally present and are not considered part of the diagnostic criteria for PCOS.3

Obesity is present in at least 30% of women with PCOS, and in some studies the prevalence is as high as 75%.7 PCOS is characterized by an increase in waist circumference (greater than 35 inches), typically known as central obesity. This type of obesity is generally related to insulin resistance, glucose intolerance, dyslipidemia and decreased sex hormone-binding globulin, which increases circulating free testosterone.

Acanthosis nigricans, a hyperpigmentation of the skin, is common in patients