Polycystic Ovary Syndrome in Adolescent Patients: Diagnosis and Treatment Options

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Polycystic Ovary Syndrome

Polycystic ovary syndrome (PCOS) is an endocrine system disorder affecting one in 10 women of childbearing age, causing a hormonal imbalance and metabolism problems that may affect their overall health and appearance. PCOS is also a common and treatable cause of infertility.

Diagnosing PCOS in Adolescents

Despite the fact that polycystic ovary syndrome is a common disorder, controversy still exists regarding diagnosing this disorder in adolescents where normal pubertal events can overlap with the PCOS phenotype.

Three diagnostic guidelines exist for PCOS in adult women; each using a combination of the following diagnostic criteria: androgen excess, ovarian dysfunction and polycystic ovarian morphology (PCOM).

For adolescents, a recent consensus concluded that ovarian imaging can be deferred during the diagnostic evaluation of PCOS until high-quality data for PCOM are available. The diagnosis in adolescents currently hinges on evidence of androgen excess and ovulatory dysfunction:

1. **Androgen Excess:**
    a. Moderate to severe hirsutism and persistent acne unresponsive to topical therapy are clinical evidence of potential androgen excess in the adolescent.
    b. Biochemical androgen excess is best evidenced by persistent elevation of serum total and/or free testosterone level.
2. **Ovulatory Dysfunction:** Recommended evidence of ovulatory dysfunction includes:
    a. Consecutive menstrual intervals >90 days even in the first year after menstrual onset;
    b. Menstrual intervals persistently <21 days or >45 days two or more years after menarche; and
    c. Lack of menses by 15 years or 2-3 years after breast budding.

Providing a diagnostic label of PCOS is not necessary to effectively manage adolescent girls with PCOS features. Current guidelines recommend identification and treatment of PCOS manifestations in adolescents even in the absence of a definitive diagnosis.

PCOS Treatment Options

The most commonly used treatment options include oral contraceptive pills (OCPs) and metformin. For acne associated with PCOS, a variety of treatment options exist such as topical and oral medications.

Oral Contraceptive Pills (OCPs):

- Interfere with the Hypothalamic-Pituitary-Ovarian axis, suppressing endogenous ovarian function and thus also minimizing androgen secretion by the ovary.

- Increase Sex Hormone Binding Globulin (SHBG), which binds up and decreases free testosterone levels. These effects all help decrease the hyperandrogenemia.

OF NOTE: Any estrogen-containing medication can also increase venous thromboembolic event risk. Patients should be properly screened and counseled, particularly if there is a family history of blood clots or breast cancer, or a personal history of smoking, or migraines with aura.

Metformin:

- Is generally accepted to be an insulin sensitizer, allowing the body to utilize insulin more effectively and thus "treat" the insulin resistance believed to contribute to PCOS signs and symptoms.

OF NOTE: Gastrointestinal side effects are very common, and patients must be counseled on how to best avoid and manage the side effects. This involves proper dosing protocols.

Spironolactone:

- Is a competitive androgen receptor antagonist with diuretic effects (potassium-sparing).
- Is typically used as an adjunct to OCPs in helping ease the hyperandrogen symptoms.

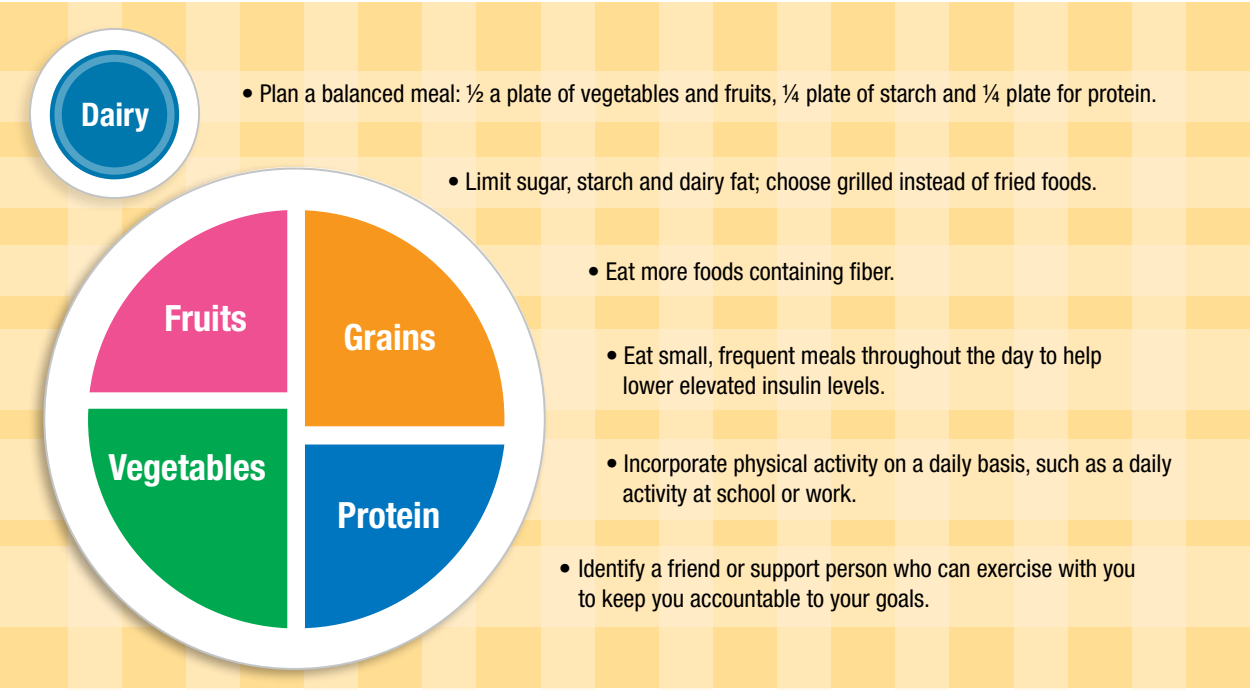
OF NOTE: Spironolactone is not as commonly used, partly because it is a weak androgen blocker, but also due to its teratogenicity. It also has potential side effects, including electrolyte disturbances (such as hyperkalemia) which must be monitored.

According to a meta-analysis in Pediatrics comparing OCPs and metformin in PCOS, OCPs appear to be better suited to improve acne and menstrual cycle irregularities, whereas metformin was found to be more effective in decreasing BMI and improving lipid measures. Both treatment modalities appeared to have similar impact on hirsutism. The clinical decision on whether to treat with OCPs and/or metformin must integrate patient values and preferences as well as possible side effect concerns.

Lifestyle Changes:

Lifestyle changes through healthy diet and exercise can help treat PCOS. As little as 5% weight loss can help improve cardiovascular health and improve insulin use.

Tips to offer patients:



Source: ChooseMyPlate.gov

Long Term Considerations for Patients

For women with PCOS, consideration should be given to contraception, fertility, risk for endometrial hyperplasia and endometrial cancer, and potential endocrine-related conditions.

Contraception

- Ovulation rates will likely improve with PCOS treatment, thus an assessment of contraceptive needs is paramount.
- Women with PCOS who are sexually active and do not desire pregnancy should use a form of contraception.

Fertility

- Managing insulin levels and obtaining a healthy weight is helpful to increase the chance of successful ovulation. In some cases medications may be used to induce ovulation.
- While some women with PCOS have difficulty conceiving, some women have no difficulty at all.
- Following with an obstetrician/gynecologist is necessary.
- Preconception counseling should focus on obtaining a healthy weight, regular exercise, and tobacco/alcohol/drug cessation.

Endometrial Hyperplasia/Malignancy

- The risk of endometrial hyperplasia and/or endometrial cancer is increased in women who do not regularly ovulate.
- PCOS treatment is multidimensional and should have a component focused on reducing the risk of endometrial hyperplasia and malignancy.
- Abnormal uterine bleeding should be evaluated.

Endocrine Considerations

- Regular follow-up is important.
- Screen regularly for diabetes, metabolic syndrome, lipid disorders, and cardiovascular disease.

Referrals and Consultations

Online: **NationwideChildrens.org**
Phone: **(614) 722-6200** or **(877) 722-6220** | Fax: **(614) 722-4000**
Physician Direct Connect Line for 24-hour urgent physician consultations:
(614) 355-0221 or **(877) 355-0221**.

Laboratory Testing and Pathology Consultations

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