Is magnetic resonance imaging useful in the diagnosis of polycystic ovary syndrome in adolescents?

The onset of puberty and the years after menarche are challenging times for adolescents for many reasons. Although polycystic ovary syndrome (PCOS) affects up to 15% of reproductive-age women, symptoms often begin during the teenage years (1). Long-term consequences of untreated PCOS are serious, such as insulin resistance, cardiovascular disease, hyperlipidemia, infertility, endometrial hyperplasia, and endometrial cancer (1–3).

Polycystic ovary syndrome can be a challenge to diagnose in adolescence. Some experts suggest that PCOS should not be diagnosed within 2 years of menarche because of the irregularity of menses as the hypothalamic-pituitary-ovarian axis matures (2, 3). Unlike in adults, imaging is discouraged by the Pediatric Endocrine Society for making the diagnosis of PCOS (3). The diagnosis of PCOS in adolescents is made by demonstrating evidence of hyperandrogenism and irregular menses. The actual diagnosis of PCOS can also be delayed during adolescence while bothersome symptoms are treated. A patient can be identified as "at risk" for developing PCOS and can be counseled on treatment and lifestyle modifications to prevent long-term sequelae of the disease while not being officially diagnosed.

In their article, "Ovarian follicle count by magnetic resonance imaging is greater in adolescents and young adults with polycystic ovary syndrome than in controls," Pereira-Eshraghi et al. (4) suggest that magnetic resonance imaging (MRI) could be a useful tool in diagnosing PCOS in adolescents. They present results from a cross-sectional study where an experimental group of 16 adolescent girls and young women with PCOS was compared with a control group of 15 age-matched and body mass index–matched patients without PCOS. Magnetic resonance imaging and transabdominal pelvic ultrasound were used to evaluate the ovaries, and serum testing was also performed. The investigators report that the follicle number per ovary on MRI was more sensitive than ovarian volume to distinguish patients with PCOS from controls.

Although MRI could be a useful diagnostic tool, it is much more costly than ultrasound. Additionally, for this to be a useful diagnostic tool, radiologists worldwide would need to get additional training in evaluating ovarian morphology. Cost and training aside, one must also consider how a definitive diagnosis of PCOS during adolescences would change the management of PCOS during adolescence or beyond. If a patient at any age presents with symptoms associated with PCOS, the treatment provided to the patient would be in response to a "chief complaint." For example, if an adolescent is bothered by acne but not by oligomenorrhea, combined oral contraceptive pills may be offered but be declined by the patient in favor of a topical acne treatment. If a young woman with symptoms that are consistent with those of PCOS presents with infertility, the primary goal for the patient at that point in time would be ovulation induction; however, the patient would also be counseled on PCOS and long-term sequelae if she were to remain anovulatory after pregnancy.

Lastly, as ultrasound technology also improves, one may perhaps consider using 3-dimensional renderings with transabdominal ultrasound to evaluate ovaries. It may be challenging in patients who are obese; however, perhaps, this less expensive technology could provide similar information at a lower cost. Furthermore, MRI may be useful in patients who are obese, unlike the patients in this study cohort, because the images would be clearer and not limited by body habitus.

Pereira-Eshraghi et al. (4) introduce MRI as a tool in diagnosing PCOS in adolescents; however, further research is needed for MRI to become a standard diagnostic tool in adolescents with PCOS.

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