Premenopausal Amenorrhea: What's in a Number?

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CASE DESCRIPTION

A 33-year-old nulligravid woman presented to her gynecologist after experiencing 5 months of secondary amenorrhea following discontinuation of oral contraceptives. She had undergone normal puberty and menarche with no significant past medical or surgical history. Her family history was unremarkable other than a brother with developmental delay. On exam she was 165 cm tall and weighed 67 kg, with a body mass index of 24.6 kg/m^2 (reference interval, 18.5–24.9 kg/m^2). She did not display any evidence of hyperandrogenism (hirsutism or acne), and her pelvic exam was normal. A urine pregnancy test was negative. Initial progestin challenge testing (daily oral administration of 10 mg medroxyprogesterone acetate for 7 days) was negative (no bleeding), indicating that the patient was either hypoestrogenic or that she had a uterine outflow abnormality (e.g., uterine scarring) *(1)*. (Progestin challenge testing provides an indirect assessment of serum estradiol concentrations. Due to false positives and negatives associated with progestin challenge testing, as well as the development of assays directly measuring serum estradiol, progestin challenge tests are not routinely used.) A uterine outflow abnormality was deemed to be unlikely given that the patient had normal menses on oral contraceptive pills and she had no history of uterine manipulation or surgery. Her serum prolactin was 8.3 ng/mL (reference interval, 0.2–24.5 ng/mL), her total testosterone (measured by chemiluminescent immunoassay) was 14 ng/dL (reference interval, 14–76 ng/dL), and her free testosterone (measured by liquid chromatography–tandem mass spectrometry) was 0.2 pg/mL (reference interval, 1.3–9.2 pg/mL). Her serum thyroid-stimulating hormone (TSH) was 3.03 μIU/mL (reference interval, 0.36–4.20 μIU/mL) and her follicle-stimulating hormone (FSH) was 57.3 mIU/mL (reference intervals: follicular phase, 2.5–10.2 mIU/mL; midcycle, 3.4–33.4 mIU/mL; luteal phase, 1.5–9.1 mIU/mL; postmenopausal, 23.0–116.3 mIU/mL), confirming a diagnosis of hypergonadotropic hypogonadism.

Reference

1. Practice Committee of American Society for Reproductive Medicine. Current evaluation of amenorrhea. Fertil Steril 2008;90(5 Suppl):S219 –25.

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Questions to Consider
• What are the causes of oligomenorrhea/amenorrhea in women of childbearing age?
• What laboratory tests can be performed to differentiate between the causes of oligomenorrhea/amenorrhea?
• What is the prevalence of primary ovarian insufficiency and how often do these cases have a definitive cause?
• Following diagnosis of primary ovarian insufficiency, what additional laboratory testing might be helpful to guide assisted reproductive techniques?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the January 2014 issue of *Clinical Chemistry*. To view the case and comments online, go to http://www.clinchem.org/content/vol60/issue1 and follow the link to the Clinical Case Study and Commentaries.

Educational Centers

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