FIGURE 394-2 Algorithm for the evaluation and treatment of hirsutism. LC/TMS, liquid chromatography/tandem mass spectrometry; SHBG, sex hormone–binding globulin. *(Reproduced with permission from KA Martin et al: Evaluation and treatment of hirsutism in premenopausal women: An endocrine society clinical practice guideline. J Clin Endocrinol Metab 103:1233, 2018.)*

A baseline plasma total testosterone level >12 nmol/L (>3.5 ng/mL) usually indicates an androgen-producing tumor, whereas a level >7 nmol/L (>2 ng/mL) is suggestive of tumor but may also be observed in women with hyperthecosis. A basal DHEAS level >18.5 μmol/L (>7000 μg/L) suggests an adrenal tumor. Although DHEAS has been proposed as a "marker" of predominant adrenal androgen excess, it is not unusual to find modest elevations in DHEAS among women with PCOS. Computed tomography (CT) or magnetic resonance imaging (MRI) should be used to localize an adrenal mass, and ultrasound usually suffices to identify an ovarian mass if clinical evaluation and hormonal levels suggest these possibilities.

PCOS is the most common cause of ovarian androgen excess **(Chap. 392)**. An increased ratio of LH to follicle-stimulating hormone (FSH) is characteristic in carefully studied patients with PCOS. However, because of the pulsatile nature of gonadotropin secretion, a random measurement of LH and FSH may be misleading and is not recommended. Transvaginal ultrasound classically shows enlarged ovaries, increased stroma, and multiple "cysts" in women with PCOS. These so-called cysts are, in fact, preantral and early antral follicles that result from abnormal follicular maturation. "Cystic" ovaries also may be found in women with hypothalamic amenorrhea **(Chap. 392)** and even among women without clinical or laboratory features of PCOS. Thus, ultrasonography is often not needed to diagnose PCOS given its relatively low specificity and its high degree of operator dependence.

Because adrenal androgens are readily suppressed by low doses of glucocorticoids, the dexamethasone androgen-suppression test may broadly distinguish ovarian from adrenal androgen overproduction. A blood sample is obtained before and after the administration of dexamethasone (0.5 mg orally every 6 h for 4 days). An adrenal source is suggested by suppression of unbound testosterone into the normal range; incomplete suppression