The Association for Clinical Biochemistry & Laboratory Medicine

Better Science, Better Testing, Better Care

Summary of Endocrinology Society Guidelines

Title	Evaluation and Treatment of Hirsutism in Premenopausal Women: An Endocrine Society Clinical Practice Guideline.
Journal Reference	Martin KA, Anderson RR, Chang RJ, et al. Evaluation and Treatment of Hirsutism in Premenopausal Women: An Endocrine Society Clinical Practice Guideline. J Clin Endocrinol Metab 2018 Apr 1;103(4):1233-1257.
Date of Review	February 2019
Summary of Condition	**Introduction:** Hirsutism is excessive terminal hair that appears as a male pattern in an androgen-dependent area in women. The Ferriman–Gallwey score is the gold standard tool to evaluate hirsutism. **Aetiology:** The most common cause of hirsutism, due to androgen excess, is polycystic ovarian syndrome (PCOS). Non – Classical Congenital Adrenal Hyperplasia (NCCAH) is less frequent at 4.2% with androgen-secreting tumours being a more rare cause (0.2%). Differential diagnosis must include Cushing's syndrome, acromegaly, hypothyroidism, hyperprolactinemia, exogenous androgens, anabolic steroids or valproate therapy. Idiopathic hirsutism should be considered in women without hyperandrogenemia or other endocrine disorders. **Diagnosis:** The guideline recommends that serum testosterone should be measured in all women with an abnormal hirsutism score. However, NICE guideline recommends there should be no investigations carried out on women with mild hirsutism and those who show no other signs of PCOS or other underlying conditions. If the total serum testosterone is normal, and the patient is symptomatic, the guideline recommends measuring an early morning total and free serum testosterone, ideally by a reliable speciality assay. If NCCAH is suspected, measuring early morning 17-hydroxyprogesterone (17-OHP) in the follicular phase or on a random day, for those with amenorrhea, is recommended. If the hirsute patient has a positive family history of CAH or is from a high-risk ethnic group, screening for NCCAH should be done even if the serum total and free testosterone are normal. **Treatment:** In mild cases oral contraception or direct hair removal can be used. In severe cases anti-androgens can be added.

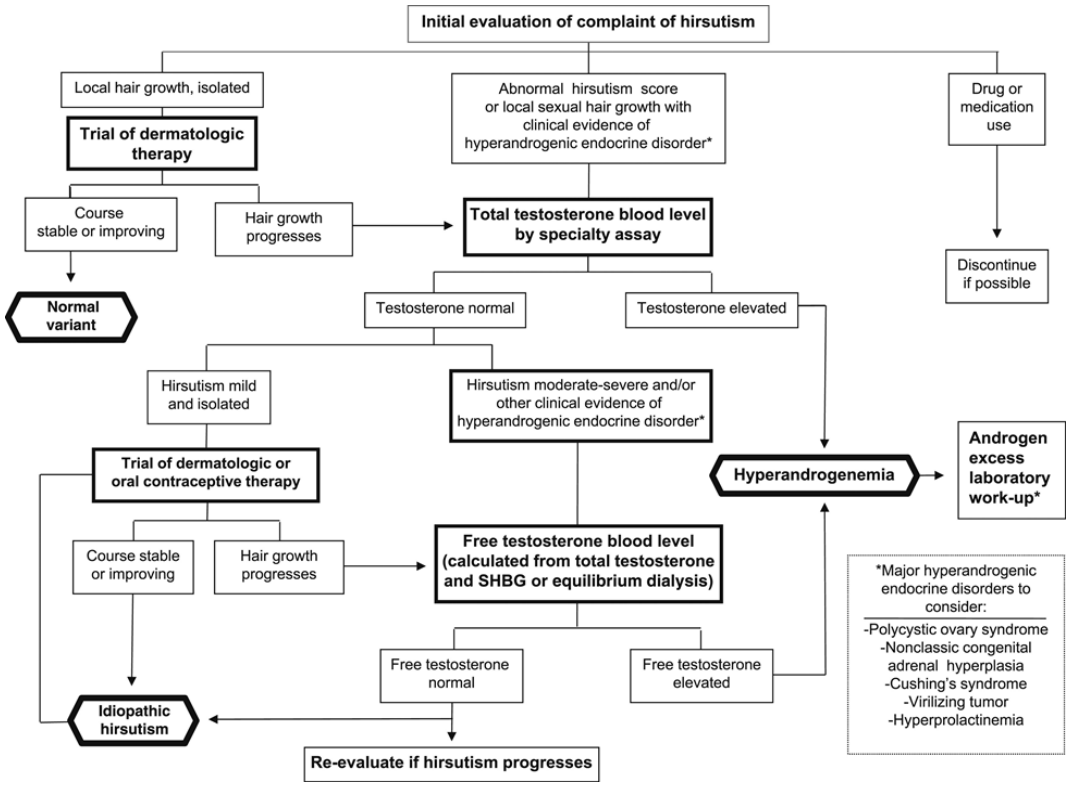

Figure 1. Evaluation and treatment of hirsutism in premenopausal women

Overview of assays	The guideline recognises that automated immunometric assays widely used are generally not suitable to accurately measure testosterone in women. Some direct radioimmunoassays and chemiluminescence assays provide reliable results compared to the new generation of liquid chromatography/mass spectrometry methods. Systematic differences between assays and broad normal ranges derived from populations further complicate the interpretation of testosterone levels in women. The guideline does not recommend measuring salivary or urinary testosterone. NCCAH can be definitively diagnosed if 17-OHP is 1000-1500 ng/dL (30-45 nmol/L) either basally or in response to cosyntropin stimulation testing. Those in the 1000 -1500 ng/dL range should be subject to genetic confirmation. NICE guideline suggests urgent referral to endocrinology if there are clinical features suggestive of an androgen-secreting tumour or the testosterone level is between 6-7 nmol/L. They should also be referred for further investigation if testosterone is >4 nmol/L or there is a raised 17-OHP.
Lab professionals to be made aware	✓ Chemical Pathologist ✓ Clinical Scientist ✓ Biomedical Scientist
Impact on Lab	☐ Moderate

https://www.endocrine.org/guidelines-and-clinical-practice/clinical-practice-guidelines

Please detail the impact of this guideline (Max 150 words)	The guideline has broadened the category of woman who should have their serum testosterone measured by including all women with hirsutism. If the guideline is to be adopted in the UK, an increase number of testosterone requests from primary care would be expected. Healthcare scientists and chemical pathologists should be aware of the limitations of the method used in their laboratories to measure testosterone and free testosterone. As immunometric assays are not suitable to accurately measure testosterone in women, specialty assays like liquid chromatography/mass spectrometry methods are more reliable. A direct assay of serum-free testosterone can also be unreliable. The most reliable method is to calculate the free testosterone concentration from the total testosterone and SHBG concentrations, or as the product of the total testosterone concentration and the fraction of testosterone that is free by equilibrium dialysis or not bound to SHBG.

Impact on Lab

- **None**: This guideline has no impact on the provision of laboratory services
- **Moderate**: This guideline has information that is of relevance to our pathology service and may require review of our current service provision.
- **Important:** This guideline is of direct relevance to our pathology service and will have a direct impact on one or more of the services that we currently offer.

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