

Coursework

Student's Name

Institutional Affiliation



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For a female patient who suffers from overweight and presents to the nurse with hirsutism, anovulation, oligomenorrhea, occasional amenorrhea, and elevated luteinizing hormone and androgen, a differential diagnosis must necessarily include polycystic ovarian syndrome (PCOS), hyperandrogenism, hyperthyroidism, and pituitary adenoma (tumor). To begin with, the likelihood of PCOS and hyperandrogenism should be considered, since they frequently accompany one another. The diagnosis of hyperandrogenism requires a thorough analysis of the patient's physical appearance, weight and height, adiposity, hirsutism, voice deepening, and so on. Serum levels of androgens should be measured. Caution should be taken when selecting the most relevant method for measuring total serum testosterone: Meek et al. criticize the use of automatic immunoassays, which overestimate the levels of testosterone in female patients. Unfortunately, the use of mass spectrometry for measuring testosterone concentrations is rare and costly. This being said, the nurse should be particularly attentive to the family history, symptoms, and complaints reported by the female patient during her visit.

Hyperandrogenism should be differentiated from PCOS, although the two disorders often go side by side. Like hyperandrogenism, PCOS is associated with disruptions in the normal menstrual cycle, acne, hirsutism, and obesity. Simultaneously, it is polycystic ovaries that often cause hyperandrogenism and associated symptoms in women of reproductive age. In fact, for PCOS to be diagnosed, both

hyperandrogenism and polycystic ovaries should be present. The PCOS diagnosis is confirmed only in the presence of the two out of the three following criteria: (1) menstrual irregularities such as anovulation or oligomenorrhea; (2) biochemical or clinical signs of hyperandrogenism; and (3) ultrasonography showing polycystic ovaries. For the patient who presents with the clinical features of hyperandrogenism, the diagnosis of PCOS can be confirmed or ruled out only with the results of ultrasonography.

Neither hyperandrogenism nor PCOS develops overnight. Their onset and progress are slow and gradual. Consequently, if the patient reports abrupt changes in her menstrual cycle, which are also accompanied by a deepening voice, unexpected hirsutism, acne, alopecia, and similar symptoms, the nurse should suspect pituitary tumor. Its differential diagnosis will also include classical hyperthyroidism. Here, the nurse should measure the patient's serum thyroid-stimulating hormone (TSH). Its normal levels range between 0.35 and 5.5 mIU/L. In case of elevated TSH, serum levels of free thyroxin (FT4) should also be tested. Magnetic resonance imaging will be critical for differentiating hyperthyroidism from pituitary adenomas. The results may reveal the presence of a tumor and help estimate its size and the involvement of the neighboring tissues. Any lesion that is larger than 10 mm in diameter will be diagnosed as macroadenoma. The treatment prescribed will vary, depending on the type and size of the tumor.

As for the 32-year-old patient who presents to the nurse with the classical symptoms of hyperandrogenism, no information as to whether she underwent ultrasonography has been provided. Without it, the nurse

cannot confirm that the patient has polycystic ovaries. Consequently, hyperandrogenism remains the primary diagnosis. Taking into account the symptomatology of the patient's disease and her preference for having one medication to mitigate these symptoms, it would be reasonable to prescribe oral contraceptives, which may or may not contain antiandrogens. Combined oral contraceptives have proved to be the firstline of treatment in female patients with hyperandrogenism. They provide numerous advantages to women, who need to have the levels of their serum androgens reduced. Besides, oral contraceptives are the medication of choice among women who do not want to conceive. The female patient is sexually active and does not plan pregnancy in the nearest future, which is why she could greatly benefit from using the proposed medications.

The mechanism of action of oral contraceptive pills is quite straightforward. They "reduce hyperandrogenism by promoting direct negative feedback on LH secretion, which results in decreased ovarian synthesis of androgens". Furthermore, combined oral contraceptives reduce the levels of free circulating androgens in the patient's blood, by inducing the production of hormone-binding globulin in liver. As of today, the most promising in terms of treating hyperandrogenism are the oral contraceptives containing ethinyl estradiol and drospirenone. Long-term treatment with combined oral contraceptives leads to tangible reductions in serum androgens. They are more effective than singlecomponent contraceptives and lead to fewer side effects.

The patient will be prescribed Yasmin, a combined oral contraceptive that contains both ethinyl estradiol and drospirenone. It was approved by the

U.S. Food and Drug Administration in 2001. The patient will have to take one pill daily, on the same time of the day. She will have to take 21 yellow tablets corresponding to the 21 days of her menstrual cycle, followed by 7 white tablets that do not contain hormones. The treatment will cover at least 6 months. In 6 months, the patient will have to present for a physical and biochemical examination. She will be advised to quit smoking, since it increases the risks of severe cardiovascular reactions in women who take oral contraceptives. Upon her next visit, the patient will also undergo a thorough cardiovascular examination to minimize the risks of adverse effects due to the use of hormones.