

MEDICAL PHYSIOLOGY

Endocrinology Conference 2 - Quiz 9A

March 7, 2001

1. Define primary and secondary amenorrhea.

Secondary amenorrhea - cessation of menstruation for six months or longer

Primary amenorrhea - a condition in which menstruation has never occurred

2. How can adrenal dysfunction be associated with amenorrhea?

Cushing's disease and defects in the 21-hydroxylase gene can be associated with amenorrhea. Both can result in excessive adrenal androgen production. Androgens can effectively suppressive the hypothalamic-pituitary axis and can promote follicular atresia. Leading to reduced gonadotropin production and destruction of the source of ovarian estrogens, resulting in a failure to stimulate uterine development.

3. In the patient described in the case study, what three pieces of diagnostic information suggested that there was a problem with estrogen bioavailability?

Small uterus
Failure of progesterone withdrawal test
Low serum estradiol levels

4. Why was the patient treated with oral contraceptives?

The patient was given oral contraceptives to determine whether her uterus could respond to ovarian steroid hormones. The oral contraceptives also potentially have a beneficial effect of preventing bone disease.

5. If untreated would this patient have a higher risk for bone disease or uterine cancer?

Bone disease.

MEDICAL PHYSIOLOGY

Endocrinology Conference 2 - Quiz 9B

March 8, 2001

1. How can abnormalities in prolactin biosynthesis be associated with amenorrhea?

Excessive prolactin, hyperprolactinemia, is associated with amenorrhea. High levels of PRL inhibit GnRH production, they also inhibit steroid biosynthesis in the ovary.

2. What is the purpose of the progesterone withdrawal test?

If the patient's uterus is exposed to endogenous estrogens the endometrium will be stimulated and will be responsive to progestins. Progesterone will stimulate further growth and vascularization of the endometrium. In a normal individual withdrawal of progesterone will cause menstruation. This patient did not respond suggesting that endogenous estrogens had not stimulated the uterus. The test will also not be positive in a pregnant woman because of progesterone production by the placenta.

3. 3. In the patient described in the case study, what diagnostic information suggested that there was NOT a problem with hyperandrogenism? How can elevated serum androgen cause amenorrhea?

Absence of virilization.

Excessive androgens can effectively suppressive the hypothalamic-pituitary axis and can promote follicular atresia. Leading to reduced gonadotropin production and destruction of the source of ovarian estrogens, resulting in a failure to stimulate the uterus.

4. Why was the patient treated with gonadotropins?

Gonadotropin therapy was prescribed because the patient wanted to become pregnant. Gonadotropin therapy was used to stimulate follicular development and ovulation. The oral contraceptives are capable of mimicking ovarian steroid action but they are not capable of stimulating ovulation.

5. Would clomiphene citrate serve as a useful method of treating the patient's infertility? Explain your answer.

Clomiphene citrate is an antiestrogen. Clomiphene citrate is often used to stimulate gonadotropin secretion via interference with the negative feedback effects of estrogen. Clomiphene citrate is not likely to be effective in the patient because estrogen levels are low and excessive estrogen negative feedback is not likely the cause of the low gonadotropin levels.