

Algorithm for evaluation of secondary amenorrhea

- (1) Pregnancy
- (2) Galactorrhea/ amenorrhea
 - A. if prolactin elevated: repeat, consider causes of prolactin elevation: next step
 - A.1 hypothyroidism
 - A.2 excessive estrogen (granulosa cell tumor)
 - A.3 dopamine antagonists (phenothiazines, aldomet tricyclics)
 - A.4 intensive suckling
 - A.5 stress
 - A.6 hypothalamic lesions (ACTH, GH, thyrotropin secreting tumors, craniopharyngioma)
 - A.7 empty sella, aneurysm
 - B. if prolactin normal: next step
- (3) Hypothyroidism
 - A. if TSH and repeat prolactin are elevated then the patient has hypothyroidism. Treat for hypothyroidism.
 - B. if TSH normal and repeat prolactin elevated, then evaluate sella turcica.
 - B.1 prolactin-secreting adenomas
 - B.1.1 microadenomas < 1 cm
 - macroadenomas > 1 cm
 - B.1.2 initial treatment with bromocriptine
 - B.1.3 macroadenomas may require surgical therapy
 - B.1.4 radiation therapy for non-surgical patients
 - B.1.5 tumor extension may affect vision and other pituitary hormones
- (4) HPO axis evaluation (complete)
 - A. Progestin withdrawal

In an estrogen primed uterus, the addition and withdrawal of a progestin will initiate uterine bleeding. For the uterus to be primed, the HPO axis must function correctly.

 - A.1 medroxyprogesterone acetate 10 mg p.o. for 7 days.
 - A.2 if vaginal bleeding occurs, HPO axis is intact but menstrual cyclicity is absent. Patient has chronic anovulation with estrogen present.

Consider:

 - A.2.1 polycystic ovarian syndrome
 - A.2.2 adrenal disease (Cushings, hyperplasia)

if hirsute)

A.2.3 hyperthyroidism

A.2.4 ovarian tumors (Brenner tumors, teratomas, mucinous/serous cystadenomas, Krukenberg tumors)

A.3 if no withdrawal bleeding occurs, proceed to the next step.

(5) Target organ evaluation (uterus)

A. Estrogen-progestin withdrawal test

In this test, the uterus is first primed with exogenous estrogen, and then a progestin. When the progestin is withdrawn, bleeding should occur if the uterus has an endometrium and a patent cavity and outflow tract.

A.1 failure to bleed following test

Suggests endometrial sclerosis (Asherman's syndrome) partial or complete obliteration of the endometrial cavity
A.1.2 In U.S., almost always secondary to vigorous puerperal or post-abortal curettage in the U.S.

A.1.3 Also seen in women from third world countries resulting from tuberculosis or schistosomiasis.

A. 1,4 Treatment involves lysis of adhesions and high dose estrogen therapy.

A.2 provokes bleeding, next step

(6) HPO Axis Evaluation (tropic): To determine why the uterus fails to prime, an evaluation of the "tropic" end and the "response" end of the HPO axis must be undertaken to determine if the problem lies in the pituitary or hypothalamus. or the ovary.

A. Serum FSH (>40 mIU/ml): ovarian etiology

A.1 pathognomonic of ovarian failure (gonadal dysgenesis)

A.2 if woman is under age 30, perform karyotype

A.2.1 two thirds will have an abnormal karyotype

Patients will have a Turner's or Turner's mosaic makeup with one half absent X chromosome, one half mosaic (45/X; 45,X/46,XX; or 45,X/46,XY)

A.2.1.1 short stature and somatic anomalies

A.2.1.2 rule out renal and cardiovascular anomalies

A.2.1.3 provide estrogen and progestin therapy

A.2.1.4 if Y chromosome exists, remove gonads

A.2.2 one third of patients will have a normal karyotype (pure gonadal dysgenesis) 46XX or 46XY

A.3 Autoimmune disorders

A.4 Infection

A.5 Galactosemia

A.6 provide estrogen and progestin therapy

B. Serum FSH (normal to low)

B.1 PCOS: associated with anovulation, obesity and hirsutism. Determine source of excess androgens/rule out adrenal hyperplasia/hydroxylase deficiency. Consider Cushing syndrome

B.2 Hypothalamus

B.2.1 anorexia nervosa

B.2.1.1 distorted body image, need to diet

B.2.1.2 usually intelligent, compulsive

B.2.1.3 varies in severity

B.2.1.4 treatment is primarily psychiatric through behavior modification

B.2.2 hypothalamic amenorrhea

B.2.2.1 usually due to excess exercise, stress, weight loss

B.2.2.2 usually self-limiting

B.2.2.3 should have re-evaluation

B.2.2.4 consider estrogen/progestin for periodic cycling

B.2.2.4 rare causes include hypothalamic disease, histiocytosis-X, hemosiderosis, sarcoidosis, CNS infection,

References

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