Leuprolide acetate-stimulated androgen response during female puberty

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Resumen

BackgroundA physiological increase in androgen levels occurs during adolescence. Measuring androgen concentrations is the best method to distinguish normal evolution processes from hyperandrogenic disorders.

HypothesisThe increase in circulating androgens during puberty is inversely associated with insulin sensitivity in normal weight girls.

ObjectiveTo assess circulating levels of ovarian androgens and anti-Mullerian hormone (AMH) at baseline and after GnRH analogue (GnRH-a) stimulation in normal pubertal girls across different Tanner stages. We also studied the association between this response and insulin sensitivity.

DesignProspective study of healthy girls (6-12years) from the local community (n=63).

MethodsTanner I (n=23) subjects were assessed cross-sectionally, and Tanner II girls (n=40) were evaluated every 6months until they reached Tanner V. Early morning dehydroepiandrosterone sulphate (DHEA-S), AMH, sex hormone-binding globulin (SHBG), androstenedione, glucose and insulin levels were measured. A GnRH-a test (500g/m(2); sc) and oral glucose intolerance test (OGTT) were performed. Differences throughout puberty were evaluated.

ResultsBasal and/or stimulated Testosterone DHEA-S and 17-hydroxyprogesterone (17OHP) were inversely associated with insulin sensitivity (WIBSI) from the beginning of puberty, whereas androstenedione was directly associated with gonadotrophins. AMH was inversely associated with basal and stimulated gonadotrophins and directly with insulin area under the curve (AUC) only in the early stages of puberty. 17OHP and testosterone responsiveness increased significantly during puberty in all subjects, whereas testosterone levels changed less consistently. This pattern of ovarian-steroidogenic response was most evident during mid- and

late puberty. Moreover, during late puberty only, basal 17OHP, testosterone and DHEA-S were positively associated with gonadotrophins.

ConclusionIn normal nonobese girls born appropriate for gestational age, androgen synthesis was associated with insulin sensitivity in early puberty and with LH only in late puberty.

Palabras clave

KeyWords Plus:POLYCYSTIC-OVARY-SYNDROME; LUTEINIZING-HORMONE; ADOLESCENT GIRLS; OBESE CHILDREN; THECA CELLS; WEIGHT-LOSS; INSULIN; SERUM;HYPERANDROGENEMIA; SENSITIVITY

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