Leuprolide acetate-stimulated androgen response during female puberty

Por: Hernandez, MI (Hernandez, Maria Isabel)\(^1\); Martinez-Aguayo, A (Martinez-Aguayo, Alejandro)\(^2\); Cavada, G (Cavada, Gabriel)\(^{3,4}\); Avila, A (Avila, Alejandra)\(^1\); Iniguez, G (Iniguez, German)\(^1\); Mericq, V (Mericq, Veronica)\(^1\)

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Resumen

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

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

Objective To 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.

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

Methods Tanner I (n=23) subjects were assessed cross-sectionally, and Tanner II girls (n=40) were evaluated every 6 months 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.

Results Basal 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.

Conclusion In 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

**Información del autor**

Dirección para petición de copias: Mericq, V (autor para petición de copias)

Univ Chile, Maternal & Child Res Inst, Sch Med, POB 226-3, Santiago, Chile.

**Direcciones:**

[ 2 ] Univ Chile, Pontificia Univ Catol Chile, Fac Med, Paediat Div, Santiago, Chile
[ 3 ] Univ Chile, Dept Publ Hlth, Santiago, Chile
[ 4 ] Univ Los Andes, Santiago, Chile

**Direcciones de correo electrónico:** vmericq@med.uchile.cl

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