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Insulin-like growth factor (IGF)-I and IGF-II stimulate progesterone production by human luteal cells: role of IGF-I as mediator of growth hormone action.

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Abstract

OBJECTIVE: To examine the possible direct effect of insulin-like growth factor (IGF)-I and IGF-II on basal and hCG-stimulated P production by cultured human luteal cells. The possible role of IGF-I as mediator of GH action on luteal steroidogenesis also was investigated.

DESIGN: Cultures of human luteal cells from early and midluteal phase.

SETTING: All corpora lutea were obtained from the Obstetrics and Gynecology Department of the Università Cattolica, a public care center.

PATIENTS: Eight nonpregnant women between 35 and 47 years of age underwent surgery for various nonendocrine disorders such as leiomyomatosis.

INTERVENTIONS: Corpora lutea were obtained at the time of hysterectomy.

MAIN OUTCOME MEASURES: Luteal cells were incubated with IGF-I or IGF-II with or without hCG at different concentrations. Growth hormone also was used alone and with an anti-IGF-I-antibody.

RESULTS: We found that IGF-I and IGF-II were able to stimulate directly the P production at all used concentrations and that both of them significantly amplified the steroidogenic hCG effect. Finally, IGF-I was shown to mediate the positive GH action on P synthesis.