

Progesterone synthesis by human luteal cells: Modulation by estradiol

Vega, Margarita

Devoto, Luigi

Castro, Olga

Kohen, Paulina

To assess the role of estradiol (E2) upon progesterone (P4) synthesis, a well defined human midluteal cell system was used. A dose-dependent inhibition of P4 synthesis with and without hCG was induced by E2. In addition, E2 had a dose related cumulative effect on pregnenolone as compared with control experiments (2-fold, $P < 0.05$) as well as in hCG-stimulated conditions (3-fold, $P < 0.005$). On the other hand, the concentrations of 20 α -hydroxyprogesterone obtained in all experimental conditions were similar to control values, indicating that the catabolism of P4 was not modified. 3 β -Hydroxysteroid dehydrogenase activity was significantly diminished ($P < 0.05$) in the presence of E2. Finally, the kinetic studies on P4 synthesis from pregnenolone showed a competitive type of inhibition with a K_1 of 2.22×10^{-6} mol/L. These data indicate an inhibition of 3 β -hydroxysteroid dehydrogenase on human corpus luteum by E2. © 1993 by The Endocrine Society.