

Effects of prolactin on steroidogenesis by human luteal cells in culture

Abstract:

We have examined the effects of prolactin (PRL) on progesterone (P) and estradiol (E2) synthesis by cells obtained from human corpora lutea of early and midluteal phases. The cells were cultured in the presence or absence of low (200 mIU/l) or high levels (1000 mIU/l) of PRL. Basal P, but not E2 was significantly (P less than 0.05) enhanced by the low level of PRL, whereas the high level of PRL increased P only in midcycle cells during the initial 48 hours of culture. The high PRL dose significantly (P less than 0.05) reduced E2 production in both early and midcycle cells during the initial 48 hours of culture. Both levels of PRL significantly (P less than 0.05) inhibited human chorionic gonadotropin (hCG)-stimulated P and E2 production in early luteal cells. In the midcycle corpora lutea cells, the low dose of PRL enhanced hCG-stimulated P but not E2, whereas the high dose of PRL was inhibitory to both P and E2. The high dose of PRL also inhibited prostaglandin E2 but not 8-bromoadenosine 3':5'-cyclic monophosphate-stimulated P and E2 synthesis. These results demonstrate that PRL has a direct effect on luteal cell steroidogenesis