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Effect of Ovarian Steroids on the Expression of Progesterone and Estrogen Receptors in the Uterus of Persistent Estrous Rats Given Androgen Neonatally

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Neonatal treatment of female rats with androgen results in a permanent reduction of the uterine responsiveness to deciduogenic stimulus. Uterine response to progesterone (P) and estradiol (E_2) injections supportive of the development of deciduomata was investigated in persistent estrous rats given 0.1 or 1.25mg testosterone propionate neonatally (PE rats) to evaluate the effect of persistent estrus on the uterus.

A single injection of E_2 in association with 3 daily injections of P lessened the P-induced reduction in progesterone receptor (PR) immunostaining of the epithelial and stromal cells in the control rats. By contrast, in PE rats, the E_2 treatment suppressed the appearance of PR in the epithelial cells. Estrogen receptor (ERα) expression in the endometrial cells was higher in PE rats than in the controls during the experimental period. In both PE and control rats, the expression of each receptor after a series of hormonal treatment was largely reflected in proliferation activity detected by BrdU labeling in the endometrial cells. Changes in expressions of EGF, TGF-α and EGF receptor in the endometrial cells after the steroid treatment were less evident compared with those in the PR and ERα expressions.

From these results, it is concluded that uterine response to the steroids via their receptors is markedly affected in PB rats, which is responsible for the lowered uterine sensitivity for decidual response.