17

Effects of follicular fluid (FF) peptides on steroid secretion of perfused ovaries.
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FF is shown to contain both stimulators and inhibitors of ovarian steroid secretion, which themselves are of nonsteroidal nature. By successive chromatography on Sephadex G50, G 10 and DEAE-Biogel we obtained from human and bovine FF 2 fractions, one of molecular mass of approx. 25.000 d(big inhibin) and one with a mass <2.000 d (small inhibin). We have examined the effect of both inhibitors on the steroid secretion of isolated perfused bovine ovaries. The medium contained 1 µg pregnenolone as steroid precursor per 100 ml. Perfusion was done in 3 successive 1h periods, the first being the control followed by the ones containing the test samples (1 and 3 mg/100 ml). The steroid levels were measured by RIA and GC-MS. By big inhibin the secretion of progesterone, androstenedione and testosterone increased dose dependently more than twofold; E_2 in only follicle bearing ovaries increased by 25%, whereas in C.l.bearing ovaries the increase was threefold. Small inhibin stimulated P secretion up to threefold only in follicle, but not in C.l.bearing ovaries. Androstenedione, DHEA and E_1 were reduced by about 50%; the effect on E_2 was inconsistant. The data indicate that the effects of the active fractions depend not only on the physiological stage of the follicle but also on the stage of purity of the fractions. In the latest studies we have successfully separated the stimulatory from the inhibitory activity of the big inhibin by orange A chromatography.This study suggests that the nonsteroidal factors (peptides) produced by the ovary do play also a significant local role in regulating ovarian steroidogenesis during the cycle.

18

EFFECTS OF STEROID HORMONES ON SOLUBLE CYCLIC NUCLEOTIDE PHOSPHODIESTERASE (PDE) ACTIVITY IN THE HUMAN PREGNANT MYOMETRIUM. M.J. LEROY and F. FERRE - U. 166 INSERM, Endocrinologie de la Reproduction, Maternité Baudelocque, Paris (France)

Cyclic nucleotides can modulate the contractile behaviour in uterine smooth muscle. One of the biochemical sites of action of steroids is the cAMP messenger system. In pregnant human myometrium, most of the cyclic nucleotide PDE activity ($\simeq$ 80 %) was found in the cytosolic fraction. Soluble PDE activity was characterized in the myometrial longitudinal layer which contains a high proportion of smooth muscle cells. This layer presents, at the end of pregnancy, similar contractile properties to those of the whole myometrium during labor. As in the homogenate, PDE activities exhibited non-linear kinetic patterns towards both substrates : cAMP and cGMP. Their sensitivities to progesterone, medroxyprogesterone acetate, RU 38486, estradiol-17β and diethylstilbestrol were tested in high affinity conditions. Progesterone and RU 38486 only displayed a biphasic dose-dependent effect on soluble cAMP PDE activity ; progesterone being more effective. Pharmacological concentrations (10^{-5}-10^{-4}M) of progesterone and RU 38486 inhibited cAMP PDE , more physiological concentrations (10^{-9}-10^{-6}M) stimulated the enzymatic activity. Inhibitory effects on cAMP PDE were also obtained with high concentrations of medroxyprogesterone acetate and diethylstilbestrol but not with estradiol-17β. This inhibitory effect was recovered on cGMP PDE activity with high concentrations of these five compounds, whereas no stimulation was observed with lower concentrations. Our previous studies provide evidence that soluble myometrial PDE represents a complex enzymatic system and that every molecular form is independently controlled. These results, suggesting a control of cyclic nucleotide degradation process by steroids, lead us to specify the mechanism of steroid action on each of these isolated forms.