

MHPG levels in patients with PCOS were significantly higher than in the controls. There was no statistically significant change in DOPAC between PCOS and control. 3) In those with PCOS, there was no significant correlation between serum LH, testosterone and LH/FSH ratio and plasma MHPG or DOPAC. 4) With regard to the ultrasound classification, plasma MHPG levels of GCP were significantly higher than those of PCP. A possible relationship between plasma CA, in particular adrenergic activity and hormonal disturbances in patients with PCOS showed be considered.

40. Effects of Estradiol (E_2), Dopamine (DA)-agonist and -antagonist on Hypothalamo-anterior Pituitary Dopaminergic System in Rat

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Dopamine (DA) plays an important role in the regulation of prolactin secretion from the anterior pituitary. We previously reported the kinetics of DA in estradiol-induced pituitary adenoma in the female rat. In this study, we investigated the acute effect of Estradiol (E_2), Bromocriptine (BC), Sulpilide (SL) on hypothalamo-anterior pituitary dopaminergic system.

After E_2 (50 μ g), BC (500 μ g) or SL (30 mg) was administered to ovariectomized rat, (1) hypothalamus DA concentration was measured by Alumina elution method; (2) hypothalamus DA turnover rate by using α -methyl-p-tyrosine (tyrosine-hydroxylase inhibitor); and (3) anterior pituitary DA receptor by using [3 H] spiperone as radioligand.

E_2 treatment significantly decreased hypothalamus DA concentration, hypothalamus DA turnover, as well as anterior pituitary DA receptor. These results suggest that E_2 has a direct effect on hypothalamus-anterior pituitary system and long term effect of E_2 may induces prolactin-secreting pituitary adenoma.

The inhibitory effects of BC on hypothalamus DA concentrations, hypothalamus DA turnover and anterior pituitary DA receptor are considered to be secondary to a dopaminergic agonistic action of BC.

41. Effects of Chronic Administration of Gn-RH Analog to the Pituitary and the Ovary

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In order to investigate the mechanism of suppressive influence of Gn-RH analog (Gn-RHa) on gonadal function, effects of long term administration of Gn-RHa on the pituitary and ovary were studied. Sustained releasable Gn-RHa (D-Leu⁶-(des-Gly¹⁰-NH₂) LHRH-EA) of 0.94 mg/rat was administered to immature female rats every 4 weeks.

Chronic administration of Gn-RHa delayed vaginal opening and decreased ovarian weights significantly compared with the control group. Serum LH level transiently increased at 3rd day after Gn-RHa administration and returned to the control level thereafter. Serum FSH was also the same level as the control. Pituitary LH contents transiently decreased at 3rd day and maintained low levels. Gn-RH receptor (Gn-RH-R) of the pituitary markedly decreased to 17.3 ± 2.6 fmol/mg protein (control; 123.2 ± 0.8 , $p < 0.01$) at 7th day and maintained low thereafter. Pituitary LH responses to Gn-RH declined after 7th day of administration. LH/hCG-R in the ovary significantly decreased at 7th day and maintained low thereafter. In hypophysectomized rats treated with Gn-RH, LH/hCG binding of the ovary significantly decreased to 16.5 ± 4.0 fmol/mg protein (control; 45.6 ± 1.2 , $p < 0.01$) at 3rd day. In the present study, Gn-RHa has shown to act directly on the ovary as well as on the pituitary. The long term administration of Gn-RHa is suggested to suppress the ovarian function directly as serum LH and FSH levels did not decrease throughout the treatment.

42. Luteinizing Hormone-releasing Hormone Causes the Inducement of DNA Polymerase α Activity and Sequential DNA Synthesis during Cell Proliferation in Immature Rat Ovaries

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To gain some understanding as to how the luteinizing hormone-releasing hormone (LH-RH) is involved in cell proliferation and division in ovaries, deoxyribonucleic acid (DNA) polymerase activity and DNA content of ovarian follicles from LH-RH-