

**279** Involvement of lipoxygenase pathway on luteal function in human. F.Ichikawa, Y.Yoshimura, M.Shiraki, T.Sawada, S.Kawakami, M.Fukushima, T.Oda\*, T.Ohno\*, Dept. Obst. and Gynec., Fujita-Gakuen Health Univ., Aichi, \*Dept. Obst. and Gynec., Tokyo Dental College, Ichikawa Hospital, Chiba.

The present study was undertaken to assess the effects of the products of the lipoxygenase pathway on steroidogenesis and prostaglandins (PGs) production by human corpora lutea. The luteal cells were cultured with 5-HETE in the presence or absence of hCG at 100 ng/ml for 10 days. The addition of 5-HETE inhibited progesterone (P) production by cultured luteal cells in a dose-related fashion. P production stimulated by exposure to hCG was also reduced significantly in response to 5-HETE. However, 5-HETE affects none of 6-keto-PGF<sub>1</sub>α, PGF<sub>2</sub>α, and PGE<sub>2</sub> by cultured luteal cells. In the second experiment, reaction products of soybean lipoxidase of arachidonic acid (AA-LIP) were added to cultured luteal cells. The addition of AA-LIP at all concentrations tested also reduced P production by cultured luteal cells in the presence or absence of hCG. AA-LIP significantly reduced both basal and hCG-treated 6-keto-PGF<sub>1</sub>α secretion in cultured luteal cells on day 2. The oxidative products of AA affected neither PGE<sub>2</sub> nor PGF<sub>2</sub>α production by cultured luteal cells. These results suggest that the products of the lipoxygenase pathway may be important in the process of regression of human corpora lutea.

**280** Impaired Glucose Tolerance in Patients with Polycystic Ovarian Disease (PCOD). T.Kinoshita, K.Yoshida, A.Hashi, S.Hirata, J.Kato, Dept. Obst. and Gynec., Yamanashi Med. College, Yamanashi.

Fasting insulin concentrations and the insulin response to an oral glucose tolerance test were measured in 15 women with PCOD and 5 weight-matched normal women. The fasting insulin concentrations were not increased in PCOD in comparison to normal women. Insulin response to an oral glucose tolerance test was significantly decreased ( $P < 0.05$ ) in PCOD at 30 min, although 36% of these women had mild impairment of glucose tolerance. The glucose response did not differ between the obese PCOD and those with non obese. No correlations were demonstrated between fasting serum insulin concentration and insulin response at 30 min, and both androstenedione and luteinizing hormone. These findings suggest that 1) Hyperinsulinemia is not feature of PCOD in general. 2) Only obese PCOD have a tendency to be with abnormalities in insulin secretion. 3) It is evident that PCOD represents a inadequately characterized disorder of insulin action and a novel paradigm in which to investigate the relationship between reproductive function and carbohydrate metabolism.

**281** Lipid peroxide levels in ovariectomized female mice and the effect of administration of estrogen and catecholestrogen. Y.Nakagawa, K.Yoshino\*, S.Komura\*, M.Noguchi, M.Ishihara, K.Yagi\*, Dept. Obst. and Gynec., Aichi Med. Univ., Aichi, \*Institute of Applied Biochemistry, Yagi Memorial Park, Gifu.

We previously reported that the intraperitoneal administration of female hormone brought about a decrease in serum and liver lipid peroxide levels in mice. The present study was undertaken to elucidate an antioxidant activity of endogenous estrogens.

When both ovaries of 12- to 13-week-old female mice were removed, a significant increase in serum lipid peroxide levels was observed at 2, 3 and 4 months after the ovariectomy as compared with those of sham-operated control mice. Liver lipid peroxide levels of the ovariectomized mice were also increased at 2, 3 and 4 months after the operation.

The increase in serum and liver lipid peroxide levels induced by ovariectomy was inhibited by the subcutaneous administration of 17β-estradiol or 2-hydroxyestradiol.

These results suggest that female hormone has an important role in the control of lipid peroxide levels *in vivo*.