

**337** Hormonal change of the climacteric hot flash. T.Kimura, A.Shimizu, T.Akamatsu\*, H.Araki, \*Dept.Obst.and Gynec.Showa Univ.Sch.Med.,Tokyo.

Studies were performed on the change of hormone (H) levels at the onset of hot flash (HF) and after the HF. Fourteen women with frequent HF were studied after surgical or natural menopause and premenopause. Serum FSH, LH, prolactin (PRL), ACTH, TSH, free (F) and conjugated (C) DHA (DHA-F, DHA-C), androstendione ( $\Delta^4A$ ), testosterone (T), F and C androstenediol ( $\Delta^5AD-F$ ,  $\Delta^5AD-C$ ), cortisol and estradiol ( $E_2$ ) were measured by RIA. Patients were divided into the higher gonadotropin group (HGG) and the lower gonadotropin group (LGG). In the HGG (80 mIU/ml or more FSH, LH), mean FSH was 102.3 mIU/ml and mean LH was 111.3 mIU/ml (6 cases, average age; 50 years old). In the LGG (less than 80 mIU/ml FSH, LH), mean FSH was 30.7 mIU/ml and mean LH was 40.2 mIU/ml (8 cases, average age; 44 years old). When comparing H values of the 2 groups,  $\Delta^4A$  ( $p<0.01$ ), DHA-F ( $p<0.05$ ) and  $E_2$  ( $p<0.05$ ) in the HGG were significantly lower than those in the LGG. In the HGG, DHA-F (170%),  $\Delta^5AD-F$  (150%) and cortisol (197%) were significantly higher at the onset of HF than after the HF. In the LGG,  $E_2$  tended to decrease at the onset of HF. These results suggested that acceleration of adrenal function may occur by HF in the HGG. In the LGG, a momentary decrease of  $E_2$  was observed at the onset of HF.

**338** Changes of adrenal function with age in ovariectomized women. T.Akamatsu, H.Chiba, H.Kamiyama, H.Saito, T.Yanaihara, Dept.Obst.and Gynec., Showa Univ. Sch. Med., Tokyo

To study the changes of the function of adrenal cortex with age, reproductive aged (group I, 29-39 years old, n=6) and postmenopausal aged (group II, 52-76 years old, n=9) women were subjected to the study and peripheral steroid levels were measured before and after ovariectomy. Rapid ACTH stimulation test was also performed 2 weeks after ovariectomy. Serum levels of cortisol (F), pregnenolone ( $P_5$ ),  $17\alpha OH-P_5$  ( $17P_5$ ), progesterone (P),  $17\alpha OH-P$  ( $17P$ ), androstenedione (A), dehydroepiandrosterone (DHA) and DHA-sulfate (DHA-S) were measured by RIA. Except for DHA-S and F, basal steroid levels decreased after ovariectomy in group I, reaching to the levels of group II. Good response of these steroids to ACTH was observed in both groups suggesting that the adrenal production of  $P_5$ ,  $17P_5$ , P and  $17P$  was maintained. However, response of F, DHA and A were significantly lower in group II than that of group I. From the results, characteristic changes of adrenal function with age were demonstrated.

**339** Characteristic of ovarian steroid enzyme activities in postmenopause H.Kamiyama, K.Hirato, T.Akamatsu, H.Saitoh, T.Yanaihara, Dept.Obst. and Gynec., Showa Univ. Sch. Med., Tokyo

In order to study the steroid metabolism in postmenopausal human ovary,  $3\beta$ -hydroxy steroid dehydrogenase ( $3\beta$ -HSD),  $17\alpha$ -hydroxylase ( $17Hy$ ),  $C_{17-20}$  lyase, 20-hydroxy steroid dehydrogenase ( $20$ -HSD),  $17\beta$ -hydroxy steroid dehydrogenase ( $17\beta$ -HSD) and Aromatase (A) activities in ovarian tissue were examined. Tissue were obtained at gynecological laparotomy from postmenopausal women (54-72 yr.) more than 5 years after menopause, and the enzyme activities were compared with those in women with menstruation (30-47 yr.). 800G supernatant of ovarian tissue was used for the enzyme. Enzyme activities were measured by the conversion of  $^{14}C$ -labeled pregnenolone, progesterone (P),  $17\alpha$ -hydroxy P and androstenedione to the amount of the corresponding labeled products. Remarkable reduction of  $3\beta$ -HSD,  $17Hy$ ,  $C_{17-20}$  lyase, and A activities was noticed, while, the activities of  $17\beta$ -HSD and  $20\alpha$ -HSD were maintained in postmenopausal ovary. In addition, the activities of  $20\alpha$ - and  $20\beta$ -HSD in postmenopausal ovary were firstly demonstrated and were found to be localized in cytosol or microsomal fraction. Characteristic changes of ovarian steroid enzyme activities with age were demonstrated.