328 Changes in bone mineral density determined by DEXA and bone metabolism in oophorectomized women —its longitudinal study. M. Sasaki, S. Hirata, T. Kinoshita, T. Yasumizu, J. Kato. Dept. Obst. and Gynec., Yamanashi Med. College, Yamanashi.

The role of oophorectomy in the development of osteoporosis was studied prospectively in 14 premenopausal women (3 benign and 11 malignant cases). Accurate and precise bone mineral density (BMD) measurements were performed by dual energy X-ray absorptiometry (DEXA) using a QDR-1000 (Hologic Inc.) before and every 3～6 months after operation. Longitudinal changes in BMD were shown as $Y = -0.51X + 99.3$ ($p < 0.001$) in lumbar spine (L2 − L4) and $Y = -0.63X + 100.2$ ($p < 0.001$) in femoral neck (X ; months, Y ; % BMD, $X \leqq 24$). Plasma osteocalcin, alkaline phosphatase concentrations, and urinary hydroxyproline creatinine ratio increased after operation, while plasma total calcium, phosphate, intact PTH, calcitonin, and urinary calcium creatinine ratio did not change. In conclusion, our longitudinal study showed that premenopausal oophorectomy caused linear bone loss and high turnover in bone metabolism.

329 Effects of ovarian function on bone mineral contents and parameters related to calcium metabolism. T. Hirano, T. Uemura, H. Sakakibara, I. Gorai, K. Shirasu and H. Minaguchi, Dept. Obst. and Gynec., Yokohama City University School of Medicine, Yokohama.

Bone mineral densities and parameters related to calcium metabolism were examined in patients with 2nd grade amenorrhea and in patients treated with GnRHanolog, and factors related with bone mineral loss were investigated. Bone mineral dencities (BMD) of spines ($L_2$-$L_4$) in 36 patients with 2nd grade amenorrhea were examined by Dual Energy X-ray Absorptiometry( Norland).

BMD in patients with 2nd grade amenorrhea (mean 0.85g/cm$^2$) was significantly lower than that in the control (1.06, N=21), though no difference was observed between the two groups regarding ages, height, weight and body mass index. Serum osteocalcin and alkaline phosphatase were elevated in the 2nd grade group. Among the 2nd grade amenorrhea group patients with primary amenorrhea and amenorrhea due to weight loss showed lower BMD. The factors related to BMD were ages of onset of amenorrhea and duration of amenorrhea. In patients more than 20 year-old, BMD increased after E/P treatment less than in patients under 20 year-old. From these data, pateints with 2nd grade amenorrhea were required to be treated early and intensively.

330 Influence of oophorectomy on bone mineral status. Y.Seimiya, J.T.Chen, K.Hasumi, K.Masubuchi, M.Shiraki*, C.Aoki, M.Matsuura**, Dept.of Gynec., Cancer Institute Hosp., Tokyo, *Dept.of Lab.Med.and Endocrinology Section, Tokyo Metropolitan Geriatric Hosp., Tokyo, **Teijin Co.Ltd.Tokyo.

Bone mineral status was assessed compartively between subjects with artificial menopause by oophorectomy (OVX) and hysterectomized subjects (HX). From 1986 to 1989, a total of 98 subjects were randomly selected (OVX:n=36;HX:n=62). In these cases, bone mineral status was assessed on vertebral X-ray pictures, X-ray pictures of the hands and DEXA. The incidence of vertabral compression fractures as judged in accordance with a modification of FA method's criterion is 8.1% and 3.0% in OVX and HX group, respectively.

A significant decrease in bone mineral content was noted for metacarpal cortical bone and lumber vertabrae in OVX group, compared with HX group. In conclusion, all densitometric parameters measured decreased by about 10% in OVX group in 2 years after operation, compaired with HX group.