

Frequency of vitamin K deficiency in day 1 was 0% in the vitamin K group, while 24.0% in control group. Vitamin K<sub>2</sub> concentration in breast milk was also high in the vitamin K<sub>2</sub> group ( $10.6 \pm 6.1 \mu\text{g/l}$ ).

Taking 'Nattoh' 40 g/day couldn't elevate vitamin K concentration in breast milk. Maternal administration of vitamin K<sub>2</sub> was effective to improve vitamin K deficiency of newborn infants, especially by the feeding of breast milk. That of vitamin K<sub>1</sub> increased vitamin K<sub>1</sub> concentration in maternal blood (10.3~13.5 ng/ml) and in breast milk (5.53~6.86 ng/ml). But it was not enough to improve low hepa-plastin test of newborn infant.

### 397. Sialic Acid in AFP Sugar Chain and its Clinical Significance in the Differential Diagnosis of Yolk Sac Tumor

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Using *Ricinus communis agglutinin-I* (RCA-I) affinity crossed-line immunoelectrophoresis, terminal carbohydrate molecules of alpha-fetoprotein (AFP) sugar chain was studied in 78 sera, including 58 obtained from the patients with primary hepatic cancer (PHC), 10 from the patients with metastatic hepatic cancer (MHC) and 10 from the patients with yolk sac tumor. Six amniotic fluids obtained between 52 and 120 days of gestation were also examined. Fetal yolk sac, liver and GI tracts obtained from a fetus of 69 days of gestation were shortly incubated in RPMI 1640, and AFP in the culture fluids were also studied. RCA-I non-reactive (NR) subfraction was commonly found in PHC, MHC and yolk sac tumor, while RCA-I strongly-reactive (SR) or weakly-reactive (WR) subfraction was detected in 24 of 58 (41.4%) PHC, 3 of 10 (30.0%) MHC and 6 of 10 (60.0%) yolk sac tumor. In the amniotic fluids or in the culture fluids of fetal tissues, main subfraction was RCA-I NR subfraction, and RCA-I SR or WR subfraction was almost negligible. Since RCA-I is specifically reactive with terminal galactose molecule and not reactive with sialic acid in AFP sugar chain, present findings suggest that terminal galactose in AFP is constantly linked with sialic acid at fetal stage, while asialylated form is also expressed in PHC, MHC or yolk sac tumor, and high incidence of asialylated AFP expression in yolk sac tumor makes a feasible differential diagnosis between AFP-related diseases.

### 398. Analysis of Glycosphingolipids from Human Ovarian Cancer Tissues

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Although many authors have described characteristic changes of glycosphingolipids (GSL) in various cancer tissues, the details of those studies in ovarian cancer tissues are still unknown.

In order to ascertain the molecular characteristics of GSL specific for ovarian cancer tissue, GSL from several types of ovarian cancer (mucinous cystadenocarcinoma, serous cystadenocarcinoma, clear cell carcinoma) and normal ovarian tissues were analyzed chemically and immunologically.

Several characteristic changes in TLC pattern of GSL were observed among them as follows:

(1) In case of mucinous cystadenocarcinoma, a lower R<sub>f</sub> than globosides on TLC was specially observed.

(2) Sulfatides predominantly increased in mucinous and serous cystadenocarcinoma, whereas lactosyl sulfatides increased in clear cell carcinoma.

These data suggest that analysis of GSL in ovarian cancer tissues might be an important approach to detect the new cancer-associated antigen.

### 399. Gonadotropin Receptor and Steroidogenesis in Common Epithelial Ovarian Tumors

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Recently, several reports have indicated that specific receptors for gonadotropin exist in epithelial ovarian tumors, while the biological role of gonadotropin is relatively unknown. Some clinical endocrinopathies have been associated with the ovarian tumors not commonly regarded as steroid-producing ovarian neoplasm. Therefore, in this study, we measured the peripheral and ovarian serum concentrations of estradiol (E<sub>2</sub>) and progesterone (P<sub>4</sub>) in 42 postmenopausal women with ovarian tumors, and evaluated the histological localization of steroid-producing site by immunohistochemical method (PAP method) and the effect of gonadotropin on

steroidogenesis of epithelial ovarian tumors by hCG loading test.

$P_4$  and  $E_2$  concentrations of peripheral and ovarian venous blood showed relatively higher values in about 50% of postmenopausal women with ovarian tumor, compared with control postmenopausal women. The localization of  $P_4$  and  $E_2$  was demonstrated immunohistochemically in ovarian stromal cells. Two cases in 6 postmenopausal women with epithelial ovarian tumors responded to hCG loading test (hCG  $10^4$  i.u.  $\times$  3 days).

These results indicate that not a few of epithelial ovarian tumor in postmenopausal women have steroid-producing activity, and that stromal cells might be  $P_4$  and  $E_2$  producing cells. The findings also suggest that the steroidogenesis in a certain epithelial ovarian tumor might be gonadotropin-dependent.

#### 400. Gastric Type Mucin in Mucinous Cystadenoma

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Forty-one cases of mucinous cyst adenoma (MCA) and 11 cases of normal uterine cervix were examined histochemically, employing AB-PAS, HID-AB, GOS reaction, paradoxical ConA staining (PCS), modified PAS method, Grimelius staining. MCA contained abundant neutral mucins and little acid mucins, whereas, in normal cervixes, acid mucins, especially sulfomucins, predominated. 30, 25, 2 and 9 of 41 cases of MCA were positive for GOS reaction, PCS, modified PAS reaction, and Grimelius respectively. These results indicated that MCA frequently contained gastrointestinal type tumor cells. Cervical epithelium, on the other hand, lacked reactivity for PCS, modified PAS reaction and Grimelius staining, although in 8 cases, these epithelia showed weak but definite GOS reactivity. The present study suggested that so-called endocervical type tumor cells of MCA might include tumor cells having properties of gastrointestinal lining cells. The metaplastic theory of histogenesis of MCA should critically re-evaluated.

#### 401. The Expression of ABO (H) Blood Group in Ovarian Carcinoma

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The expression of ABO (H) blood group antigens on 26 benign cystic ovarian tumors, 5 borderline ovarian tumors and 42 ovarian carcinomas was studied by immunohistochemical staining of tissue specimens using an avidin-biotin-peroxidase complex method with monoclonal antibodies.

The results were as follows;

1. The pattern of antigen expression on ovarian carcinomas was different in each histological type.

(1) In mucinous cystadenocarcinoma, appropriate antigen was expressed in 62.5% of them and inappropriate antigen was expressed in 75% of them. And regarding both antigen expression, there was no discernible difference within any clinical stages.

(2) In serous cystadenocarcinoma, appropriate antigen was expressed in 64.7% of them and inappropriate antigen was expressed in 23.5% of them. And the expression of each antigen decreased according as the clinical stage advances.

(3) In mesonephroid cystadenocarcinoma and unclassified carcinoma, well-known as poorly prognosis, almost the expression of ABH antigen could not be seen in any clinical stages.

2. The pattern of antigen expression in carcinogenesis was also different in each histological type.

(1) In mucinous cystoma, the expression of appropriate antigen decreased and inappropriate antigen increased in carcinogenesis.

(2) In serous cystoma, regarding the expression pattern of appropriate and inappropriate antigens, there was no difference in carcinogenesis.

#### 402. Effects of the Tumor Angiogenesis Factor on Proliferation of Endothelial Cells, Fibroblasts, and Squamous Cells

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We previously reported that the tumor angiogenesis factor (TAF) of a molecular weight of about 14,000 was purified from the conditioned medium of HUOCA-II cells (a human ovarian clear cell adenocarcinoma), and neovascularization was detected by bioassay with the use of the chorioallantoic membrane of a chick embryo. For a new growth of blood