July
Urinary Steroid Profiles
In two articles, Kodama and co-workers (Aichi Cancer Center Research Institute, Nagoya, Japan) present the urinary steroid profiles of female cancer patients. It is well known that the incidence of breast cancer constantly rises with age, whereas cervical cancer incidence declines after menopause. It is also known that cervical cancer is rare among virgins, but that they have a high incidence of breast cancer.

In Patients With Breast Cancer
Evidence is offered that abnormal aging processes and depressed corpus luteum function are associated with the presence of breast cancer. In both premenopausal and postmenopausal women, the ratio of androsterone to tetrahydrocortisol (an index of the aging process) was significantly lower in patients with breast cancer than in normal controls. Thus the ratio of these steroids may be a measure of breast cancer risk.

Disproportionately low excretion levels of pregnanediol and pregnanetriol were also noted in breast cancer patients. Low levels of these hormones, which cause a delay or failure of ovulation, are consistent with the observation of a reduced birth rate in patients with breast cancer as compared with normal controls.

In Patients With Cervical Cancer
In premenopausal patients, excretion of 13 neutral steroids was reduced; only tetrahydrocortisol excretion was similar to that of controls. In postmenopausal patients, androsterone and 11-ketoandrosterone excretions were significantly lower than in controls.

The premenopausal patients with cervical cancer had normal ovulation times despite reduced excretion of all menstruation-dependent steroids, and the rate of parturition was statistically indistinguishable from that of healthy controls. Comparison of cervical cancer patients with those having breast cancer in the age range of 20-50 years revealed that more cervical cancer patients had delayed menstrual cycles, indicating an abnormal function of the hypothalamus-pituitary axis. The implication of a developmental disturbance in the genesis of cervical cancer is based on the observed changes in steroid excretion.

In Israeli Women With Breast Cancer
Gross and co-workers (Hebrew...
University-Hadassah Medical School, Jerusalem, Israel) explored the correlation between the marked variation in breast cancer incidence among the major ethnic groups of women living in Israel and certain personal and hormonal parameters. A sample of 300 postmenopausal Israeli women (50-59 years of age) was stratified by ethnic origin (European, North African, Middle-Eastern, and Yemenite) and by period of immigration (before and after 1953-1954). Urine collections made over a two-year period were tested for steroid excretion. The results of the study reconfirmed the difference between groups at high and low risk for breast cancer for such parameters as age at first delivery, number of pregnancies, height, and body weight. The differences in hormone profiles were also significant for the two risk groups. The most important finding was that the excretion of estriol is significantly lower in population groups having a high incidence of breast disease, confirming the observation of others that estrogen profiles differ in high and low risk groups.

In population groups, differences that parallel breast cancer morbidity must be interpreted cautiously. The variation in estrogen excretion may be caused by either genetic or environmental factors, or both. Any attempt to delineate the nature of environmental factors is still speculative. Possibly the varying nutritional habits among the ethnic groups are related to a difference in metabolic pathways. However, further investigation is necessary.

Down's Syndrome

Radiosensitivity of Cell Cultures

Certain chromosome abnormalities are known to be associated with high risk of cancer. This fact led Huang and associates (Roswell Park Memorial Institute, Buffalo, New York) to compare the radiosensitivity of cell cultures derived from the peripheral blood of patients suffering from Down's syndrome with the radiosensitivity of hematopoietic cell lines from healthy subjects. Using cobalt 60, they irradiated the cultures with 100, 150, 300, and 500 rads and then harvested them for cell counts and chromosome aberration studies every 12 hours for 72 hours.

At each dose and time interval, all the cell lines—both those from the normal group and those from patients with Down's syndrome—had inhibited growth and increased aberration of chromosomes. No significant differences in effects were noted between the two groups. Radiation dosage caused the largest amount of chromosome aberration, followed by post-radiation duration and variation in the individual cell lines. There was no apparent significant difference in radiosensitivity between normal cell lines and those from patients with Down's syndrome.

Treatment With Mitomycin C and Caffeine

In a second study of the response of hematopoietic cell lines derived from normal persons and patients with Down's syndrome, Banerjee et al. (Roswell Park Memorial Institute, Buffalo, New York) used mitomycin C and caffeine to treat the cell cultures. They noted an increased rate of chromosome aberrations in all the treated cultures, the extent of aberrations being correlated with dose and duration. No difference in sensitivity was found between the normal and abnormal cultures. Cell viability was severely reduced by mitomycin C, but none of the cultures showed a difference in the rate of reduction of viable cells. Mitosis was more inhibited in the cell lines derived from Down's syndrome than in the normal cell lines.