coma in one patient. Four out of 6 benign tumors were negative on the scan. Two benign tumors having positive scintigrams were giant cell tumors.

Thirty-three scintigrams were obtained in 28 patients on whom metastatic tumors were suspected. As far as the confirmed metastatic lesions were concerned (by other methods such as biopsy) X-ray findings were definitely positive in 21 portions in which 18 were visualized on the scan; and 5 portions were suspicious on X-ray films, in which 4 were positive on the scan. There were 7 portions on which metastatic lesions were finally denied. One of them was positive on the scan as well as on the X-ray film. However, the final diagnosis in this case was compression fracture of lumbar spine. One portion, on which X-ray film was positive but the scan was negative, was simple osteosclerosis of fibula. There was another portion on which X-ray findings were negative and the scan was positive in the sacral and iliac bone areas. We considered that the false positive in this case was probably due to the accumulation of strontium-85 within the intestinal canal.

There were 8 portions of soft part tumors. Three of them were confirmed as having direct bone invasions and the all three were positive on the scan. Four out of 5 portions having no bone invasion were negative on the scan.

One positive case was arthritis and the scintigram was obtained after exploratory operation.

In comparison with the patterns of X-ray findings in cases with malignant bone tumor (including metastatic lesions), 12 out of 16 portions of osteolytic lesions were positive on the scan. All the portions showing osteoplastic pattern (11 portions) or mixed pattern (5 portions) were apparently positive on the scan. In portions with sclerotic pattern (peri-focal sclerosis), 3 out of 4 were negative on the scan. Four out of 5 portions on which X-ray diagnosis was only suspicious of bone tumor (including metastases) showed apparently positive scintigrams.

From our experiences on the bone scintiscanning with strontium-85, it will be possible to say that the malignant bone tumor including metastatic lesions show positive patterns at a high percentage. In contrast with this fact, benign bone tumor has a low tendency in appearing on the scan with the exception of giant cell tumor. When this technique is utilized to soft part tumor it will be possible to detect direct bone invasion at an early stage. Although it is known that inflammatory lesions in bone as well as fracture may have positive patterns on the scan, this technique will be of practical value in detecting bone tumors.

Zinc Metabolism in Malignancy (4)

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We reported previously that zinc content of leukocytes decreased markedly in patients with malignant tumor. In this report we tried to study on its mechanism clinically and experimentally with $^{65}$Zn. 100 μCi of $^{65}$Zn was administered intravenously to the various patients. Thereafter uptakes of leukocytes and erythrocytes were determined after their separation by the sedimenting method using PVP. In erythrocytes uptake began at 1 hour after administration and increased gradually to 7th day, but no difference was observed.

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between cancer and non-cancer patients. In leukocytes uptakes increased rapidly after 3 hours, reached to the maximum in 6 to 24 hours, and decreased thereafter. In this case uptakes in cancer patients were significantly less than those in non-cancer patients.

This was also the case in the animal experiments. 4-Nitroquinoline-N-oxide induced lung cancer was transplanted to the rats sub-cutaneously, and 2 weeks after 50 μCi/100g of 65Zn was intraperitoneally injected. 65Zn uptakes of leukocytes in tumor-bearing rats were less than those of normal rats.

In order to investigate zinc metabolism of mature leukocytes in peripheral blood, 65Zn was added to the medium in the tubes containing blood cells, and after the incubation period 65Zn uptake was determined. There was no difference of uptake of both cells between the normal individuals and cancer patients.

The organ distribution of 65Zn in rats was as follows: uptake of the liver was most and followed the intestine, the pancreas and the spleen etc. In the tumor-bearing rats the liver took up more amount of 65Zn than in normal controls.

Summing up these results, it is assumed that a decrease of zinc content of leukocytes in the cancer patients is due to a decrease of zinc incorporation in the growing process in the bone marrow.

Shifting to the Foetus of RI used for Investigation of Activities of Pregnant Women's Organs

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In case the radioisotope is used on pregnant women, in the domain of obstetrics, for the purpose of diagnosis, its influence not only on these women but the foetus may not be overlooked. To examine the shifting to the foetus of RI, administered to pregnant women is, in this sense, highly significant clinically.

Thus, the present writer undertook to investigate the shifting to the foetus of some radioisotopes, which are frequently administered to pregnant women, and conducted research of the subject matter with a view to obtaining an index to clarify the influence of radioisotope administration on the foetus.

Through the ear veins of white hybrid rabbits, about 3 kg each in weight, in the final stages of pregnancy, 99mTc-albumin 30 μCi, 300 μCi, 3 mCi, R131I-ISA 0.5 μCi, 5 μCi, 100 μCi, 131I-Hippuran 0.6 μCi, 10 μCi, and 50 μCi, respectively, were injected venously and, by the incision of the womb of each rabbit through the passing of time, the foetus was taken out, and, then, the radioactivity of the organs of the parent rabbits was determined by using a γ-scintillation counter.

From each such experiment, it was known that, even if radioisotopes of such low concentration were used as are now practically used on the human body, the various regions of the foetus would be affected by radioactive substances to about the same proportions as would result from the administration of high-concentration radioisotopes.

Since the amounts used were extremely small, it was impossible, 24 hours after the administration, to measure such movement to various corporal regions. No matter how short the duration of exposure was, it could not be held that the foetus was remained entirely unaffected, so far as the present experiments were concerned.

When it is deemed unavoidable to use