deposition of the label in the glandular and proliferative tissues, an increase in the contrast of tumor to thyroid ratio due to a wide variety of ^{201}Tl-uptake in the thyroid tissue, and the improvement of image due to a marked decrease of ^{201}Tl within cervical blood pool may be pointed out.

The accumulation into inflammatory focus was greater with ^{67}Ga in the ratio to muscle, while the ratio to blood was greater with ^{201}Tl.

Tumor Scintigraphy with Tl-201 Chloride

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We studied tumor scintigraphy using various nuclides and reported on various occasion. We attended to Tl-201 chloride which developed for myocardial perfusion agent and tried to lablled it to Bleomycin. But the labelling arrived at unsatisfactory result. We noticed that Tl-201 chloride was tumor affinity agent and used in clinical study. We obtained satisfactory result in tumor scintigram with Tl-201 chloride.

Before clincial application, the uptake of Tl-201 chloride in rat Ehrlich's ascites carcinoma implants was investigated in a pilot study. The animals were injected with 10 μCi of Tl-201 chloride intravenously via a tail vein and sacrificed 10, 30, 60 min 4 hrs after injection. The Tl-201 chloride concentration in tumor, liver, myocardium, pancreas, spleen, kidney and blood was determined.

In clinically, we injected a 2 mCi dose of Tl-201 chlorides into cubital vein of the patients with malignant neoplasm such as lung cancer, malignant struma, brain tumor, gastric cancer, malignant lymphoma, and skin cancer. A total of 91 cases were performed scintigram immediately, 1, 2, 3, 4, 6 and 24 hrs after injection. In certain cases, we carried out scintigraphy with Ga-67 citrate and Hg-197 chloride for the comparison with Tl-201 chloride.

The following result are obtained.

1) The Tl-201 chloride concentration rate in tumor tissues was about 1% per total injected dose in experimental animals. This rate is not so different comparing with Ga-67 citrate and Hg-197 chloride.

2) The positive rate in scintigram is 74.2% in all cases with malignant neoplasm. Especially, the high average were obtained in malignant struma and lung cancer.

3) Tumor scintigraphy was able to practise immediately after injection.

4) Comparing with the image of Ga-67 citrate and Hg-197 chloride, we experienced some cases that the image of Tl-201 chloride was better than of Ga-67 citrate or Hg-197 chloride.

^{201}TlCl for Head and Neck Fumor Scanning

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Studies and development of radiopharmacenticals having affinity for malignant tumors are being carried on, but we have no satisfacotry drug at present. We used ^{201}Tl-Chloride for the purpose of treating 11 cases of cephalocervical tumors and made a scanning study. The results are presented here.

Each patient was intravenously given 2mCi