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SIGNIFICANCE OF Ga-67 SCINTIGRAPHY IN RENAL CELL CARCINOMA.

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In general, an application of the Ga-67 scan to renal cell carcinoma is limited because of the relatively poor accumulation of gallium in the primary renal tumor. However, in some cases of renal cell carcinoma high Ga accumulation is noticed in the kidney. This study clarifies the characteristics of Ga accumulation in the kidney in relation to the tumor stage and grade or clinical laboratory data.
A frontal tomographic whole body Ga-67 scan was performed on 53 patients with renal cell carcinoma successively confirmed by operation. Positive Ga uptake by the kidney in 27 patients(51%) correlated well to the clinicopathologically higher grade and stage of the tumor and with abnormal values in prognostic indexes in the blood such as erythrocyte sedimentation rate, CRP, α_2-globulin, ferritin and copper.
During the follow-up period of 2 to 55 mos, 10 patients are alive(5 without tumor, 5 with tumor) and 17 died in the Ga positive group, while in the Ga negative group, only 2 patients died and 24 are alive(17 without tumor, 7 with tumor).
Thus, since the sensitivity of Ga-67 scan is low and the specificity is high, the positive Ga uptake is indicative of an ominous clinical course and shorter survival in patients with renal cell carcinoma.

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ESTIMATION OF SPREAD AND LYMPHNODE METASTASIS OF STOMACH CANCER WITH Ga-67 SCINTIGRAPHY.

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We tried to estimate the depth of wall invasion and the lymphnode metastasis of the stomach cancer, with Ga-67 citrate scintigraphy and Tc-99m Sn-colloid liver scintigraphy about 71 cases, before the operation, comparing with the histological stages of the resected specimens and the pathological findings by the inspection during the abdominal operation. 18 in 71 cases showed the abnormal accumulation of Ga-67 citrate in the epigastric region (25%); the intense accumulation was observed in Borrmann group II and III, but no accumulation in Borrmann group IV. Ga-67-citrate was more accumulated in the differentiated cancer than undifferentiated cancer. The frequency of Ga-67 citrate accumulation in stomach cancer was correlated with the depth of wall invasion and the spread of lymphnode metastasis. The sensitivity of Ga-67-scintigraphy in stomach cancer was low, but it is a good test for the evaluation of the depth of wall invasion and the lymphnode metastasis of the stomach cancer before the operation.

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THE RELATIONSHIP BETWEEN THE Ga-67 UPTAKE AND EFFECTIVENESS OF RADIATION THERAPY OF ANAPLASTIC CARCINOMA AND MALIGNANT LYMPHOMA OF THYROID.

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We now attempted to explore the relationship between Ga-67 uptake and the effectiveness of radiation therapy in anaplastic carcinoma and malignant lymphoma of the thyroid. Ga-67 scanning was performed in 30 patients with anaplastic carcinoma and 34 patients with malignant lymphoma of thyroid. The tumor uptake of Ga-67 was estimated to be strongly(+++), intermediately(++),weakly positive(+) and negative(-).The response to radiation therapy was evaluated by comparing the size of the tumor before and after radiation therapy. Generally, the uptake of Ga-67 in malignant lymphoma was stronger than that of anaplastic carcinoma. Our results indicated that the greater the Ga-67 accumulation in the tumor, the more effective is radiation therapy in reducing tumor size. Thus the Ga-67 scan appears to be a valuable tool in estimating the sensitivity of the tumor to radiation therapy before the institution of treatment in patients with anaplastic carcinoma and malignant lymphoma of the thyroid.

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INCREASED SALIVARY GLAND UPTAKE OF GA-67-CITRATE - EFFECT OF RADIOTHERAPY -.

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Localization of Ga-67-citrate in normal salivary gland is well-known and we frequently observed increased salivary gland uptake of Ga-67-citrate in scans performed on patients with sarcoidosis and Sjögren syndrome. Increased salivary gland uptake of Ga-67-citrate after radiotherapy is also well-known and must not be confused with cervical node activity.

We performed gallium scans on 38 patients (48 scans) with head and neck tumor last three years, who received radiotherapy. Salivary gland uptake of Ga-67-citrate was classified into 4 grades, Grade I: salivary gland uptake is as high as background activity, Grade II: slight increased uptake but its margin in unclear, Grade III: moderate increased uptake and its margin is clear, Grade IV: marked salivary gland uptake. This criteria was compared with radiation dose and the time elapsed after radiotherapy.