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GALLIUM-67 SCANNING IN THE EVALUATION OF LUNG CANCER. T.Higashi,H.Wakao,A.shimura, K.Nakamura and S.Suzuki. Kanagawa Dental College, Keiyu Hospital and Ida Hospital. Yokosuka, Yokohama and Kawasaki.

Ga-67 scintigraphy was performed on 116 cases of various types of untreated primary pulmonary carcinoma. The histologic types of the lung cancers were 26 adenocarcinomas, 64 squamous cell carcinomas and 26 undifferentiated carcinomas. Of these patients, 82 received more than 5000 rads irradiation therapy with Co-60. The relationship between the Ga-67 uptake and histologic types indicated that adenocarcinoma is the least uptake, squamous cell carcinoma is moderate uptake and the most dense uptake is in small cell of anaplastic carcinoma.

The relationship between the Ga-67 uptake, the histologic types and the efficacy of radiation therapy suggested that the greater the Ga-67 accumulation in the tumor, the more effective is radiation therapy, for each histologic type. The relationships between the Ga-67 uptake, and the incidence of metastasis as detected clinically showed that the greater the Ga-67 accumulation in tumor, the higher is the incidence of metastasis, despite the histologic types. The relationship between the Ga-67 uptake, and host survival after radiation therapy suggested that the greater the Ga-67 uptake in the tumor, the shorter the host survival. T.Higashi,H.Wakao,A.Shimura,et al:Quantitative Ga-67 Scanning for Predictive Value in Primary Lung Carcinoma.J Nucl Med21:628,1980

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1122 BONE SCAN RESULTS ON THE PATIENTS WITH BREAST CANCER RELATED TO CLINICAL STAGING IN CANCER INSTITUTE, AND USEFULNESS OF BONE SCAN TO TREATMENT PLANNING. S.S.Hong,K.Kaneta,T.Suqiyama,Y.Kaqami,Y.Tokumoto,Y.Umegaki,A.Tsuya,F.Shishido,S.Okano. Cancer Institute, National Institute of Radiological Sciences and Kanagawa Childrens Medical Center. Tokyo, Chiba and Yokohama.

During the 31 months from January 1978 to July 1980, 1122 bone scan were performed on 865 patients with breast cancer. Scan positive rate was 35.4%(397/1122). Stage1; 32.6%(31/95), stage2; 32.0%(164/512), stage3; 39.4%(109/277) and stage4; 45.4%(20/44). Within 6 months after initial treatment, positive rate was 18.8%(55/309). Stage 1; 5.6%(1/18), stage 2; 11.2%(17/152), stag 3; 22.1%(23/104) and stage 4; 43.3%(13/30).

Breast cancer is the disease with long clinical course and general planning should be necessary on initial treatment. From our results, it was concluded that bone scan is necessary for all the patients with breast cancer to staging before initial treatment, and serial scans at about every 6 months may be useful and necessary for providing an early detection of metastatic disease and assessing the response to therapy as well as chest rentgenography for follow up study.

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CLINICAL EFFICACY OF Ga-67 SCAN IN RADIOTHERAPY FOR PRIMARY LUNG CANCER. M.Kimura, N.Nakajima,Y.Saito,Y.Maehara,K.Miyaishi, H.Niibe,T.Nagai and T.Inoue. Gunma University School of Medicine. Maebashi.

Ga-67 scans were performed in 274 cases with primary lung cancer treated by radiotherapy from 1973 to 1980.Ga-67 scans were evaluated in 47 cases with atelectasis or pleural effusion on chest radiograph.

Complete opacification was revealed on chest radiograph in 11 cases.Eight of these were histologically epidermoid carcinomas.Ga-67 accumulation was seen in central region in these 8 cases.The other 3 cases,which were histologically adenocarcinoma,small cell carcinoma,and large cell carcinoma,were negative on Ga-67 scans.In these cases,large amount of pleural effusion was proved on thoracentesis.

In 23 cases,atelectasis was noted on chest radiograph,and Ga-67 scans were positive except for only one case with small cell carcinoma irradiated 28 Gy on scanning,although Ga-67 accumulation was seen in total region detected on chest radiograph in 5 cases,probably due to complicated inflammation.

In 13 cases with pleural effusion,Ga-67 accumulation was relatively low.

Ga-67 scan was very useful in detecting tumor extent and effective in determining radiation field,especially when atelectasis or pleural effusion was revealed on chest radiograph.

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THE CLINICAL SIGNIFICANCE OF SERUM CEA ON RADIATION THERAPY FOR MALIGNANT TUMORS. N.Mitsuhashi,I.Ito,K.Mivaishi,M.Kimura,I.Takahashi and H.Niibe. Department of Radiology, Gunma University, School of Medicine. Maebashi.

The serum levels of CEA in 15 healthy subjects and 768 patients, including 721 patients with various malignant tumors (170 with pulmonary cancer,102 with breast cancer,102 with cervical cancer,67 with carcinoma of the head and neck,64 with malignant lymphoma, etc.)and 47 with non- malignant diseases were determined.

High serum levels of CEA were found in cases of carcinoma of the breast, and in tumors of endodermal origin,especially carcinoma of the colorectum and pancreas. Low serum levels of CEA were found in cases of malignant lymphoma and carcinoma of the head and neck, and in tumors of mesodermal or ectodermal origin excluding the breast cancer. Adenocarcinoma appeared to produce a high level of CEA.

Elevated serum CEA levels in patients with pulmonary cancer declined to within a normal range after successful radiotherapy.

In the patients with malignant tumors,especially breast and pulmonary cancer, serial serum CEA determination was capable of detecting recurrent and/or metastatic tumors who has undergone radiotherapy.

Serum CEA assay was also useful for estimating the primary site in 11 patients with malignant tumors whose origins were unknown.