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BEHAVIOR OF FE-59 AND GA-67 IN SERUM AND SALIVARY EXCRETION. R. Amano, A. Ando, T. Hiraki, K. Hisada The School of Allied Medical Professions, and Department of Nuclear medicine, School of Medicine, Kanazawa University, Kanazawa 920

Reactions of Ga-67 and Fe-59 with serum and/or salivary excretion were examined *in vivo* and *in vitro* in the effort to find what Ga-67 and Fe-59 might bind to *in vivo*. In the case of serum, the two isotopes bound to transferrin (Tr) and the strength of Ga-Tr complex was weaker than that of Fe complex. In the case of salivary excretion, *in vivo* behavior of Ga-67 only was examined and *in vitro* studies were undertaken to the two isotopes. It was very difficult to find what substance Ga-67 and Fe-59 should bind to, by means of electrophoresis and column chromatography. In our experiment, no Ga-67 bound to protein fraction *in vivo* and *in vitro*.

In this paper, we discussed about the effects of chemical separation methods to bound % of Ga-67 and Fe-59, and the difference of Ga-67 and Fe-59 behaviors *in vivo* and *in vitro*.

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THE RADIATION EFFECT ON PAROTID GLAND ⁶⁷Ga UPTAKE. Y. Maehara, T. Inoue, Y. Uozumi, N. Mitsuhashi, A. Okazaki, H. Niibe and T. Nagai. Department of Radiology, Gunma University. Maebashi.

Prominent parotid gland ⁶⁷Ga uptake is frequently caused by irradiation to the head and neck area.

The seventy six scintigrams of the fifty eight patients treated with radiotherapy was studied retrospectively. The radiotherapy was administered with parallel-opposed lateral field including both normal parotid glands.

The results were as follows:

- (1) Increased parotid gland ⁶⁷Ga uptake was produced by radiotherapy frequently.
- (2) Minimum radiation dose which caused prominent ⁶⁷Ga uptake was 4 Gy.
- (3) Increased ⁶⁷Ga uptake did not occur in patient who received 60 Gy irradiation.
- (4) Dose/⁶⁷Ga uptake relationship was not in positive correlation.

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IMAGING OF TUMOR IN THE PAROTID LESION BY TC-99M-PERTECNETATE AND GA-67-CITRATE. M. NAKAZAWA, T. SHIRAIISHI, K. HARIMA, Y. NISHI-YAMA, H. UEHATA, T. HASEGAWA, A. KOBAYASHI, Y. TANAKA Department of Radiology, Kansai Medical University. Moriguchi Osaka

For the clinical evaluation of tumor imaging in parotid lesion, we used combined scan with Tc-99m-pertechnetate and Ga-67-citrate in 58 patients; 17 cases of malignant tumor, 27 cases of benign tumor and 14 cases of inflammation. Our examination showed that; (1) Malignant tumor has cold area in the Tc-99m image and abnormal accumulation of Ga-67, (2) Benign tumor has cold area in the Tc-99m image, but normal accumulation of Ga-67, (3) Inflammation has no cold area, but abnormal accumulation of Ga-67. Thus, Tc-99m image can distinguish tumor and inflammation, while the accumulation of Ga-67 can discern benign and malignant tumor. The combined scan with Tc-99m-pertechnetate and Ga-67-citrate could improve diagnostic accuracy for malignant tumor in parotid lesion (about 76%) much more than the single scan with Ga-67 (about 55%).

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STUDY ON TUMOR SCINTIGRAPHY WITH Tl-201 CHLORIDE FOR DIAGNOSIS OF PRIMARY LUNG CANCER. J. Hirayama, H. Kanai, T. Fujii, S. Kusama, K. Yano and M. Takizawa The 1st Dept. of Internal Medicine, Division of Radiology, Shinshu University Hospital. Matsumoto

Tumor scintigraphy with Tl-201 chloride was performed in 212 patients with various respiratory diseases including 59 cases of primary lung cancer.

Positive accumulation of Tl-201 was demonstrated not only in 54 primary lesions of 59 primary lung cancers, but also in other malignant tumor and the benign conditions such as pulmonary tuberculosis, sarcoidosis, pneumoconiosis, diffuse interstitial pneumonia and so on.

The grade of Tl-201 uptake in primary lesion was correlated with the size of tumor on chest x-ray film and the grade of the bronchial blood flow by radionuclide angiography with Tc-99m-human serum albumin, but it was not related to the cell type of primary lung cancer.

Tl-201 scintigraphy was more valuable for detecting the metastatic lesion in the hilum and mediastinum than chest x-ray film, and it was useful to detect the pericardial effusion, pulmonary congestion and right ventricular hypertrophy.