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CLINICAL APPLICATION OF COMPUTED TOMOGRAPHY AND RADIOISOTOPE SCINTIGRAPHY FOR DIAGNOSING THYROID DISEASES. K.Yoshikawa, K. Machida, S.Furui, A.Tasaka. Department of Radiology, Faculty of Medicine, University of Tokyo.

A retrospective evaluation of computed tomography (CT) and radioisotope (RI) scintigraphy was performed on 71 patients with thyroid diseases (twenty diffuse goiters, forty-two nodular goiters, etc). CT and RI scintigraphy have complementary characters to each other. In detecting thyroid masses CT is very valuable especially in evaluating their walls and their contents such as fluid collections or calcifications. Particular information for their walls are important to determine whether the masses are benign or malignant. Five of seven (71%) nodular goiters that have smooth walls are adenomas and six of seven (86%) with irregular walls are adenocarcinomas.

Furthermore, we found four of five aberrant thyroid glands in three patients on CT, because thyroidal tissue has high density on CT (Our mean density is 105.4 ± 35.1 Hounsfield units). For diagnosing the aberrant thyroid gland, CT is as useful as RI scintigraphy.

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FUNDAMENTAL STUDIES FOR THE MEASUREMENT OF PARATHYROID HORMONE. T.Ogawa,* K.Kanao,* M.Honda,* S.Ishihara,* Y.Matsuvuki,** M. Nishikawa,** T.Inoue,** T.Okamoto** and H.Morii.**** *Division of Nuclear Medicine, Sumitomo Hospital, **Department of Internal Medicine, Sumitomo Hospital, ***Inoue Hospital and ****Second Department of Internal Medicine, Osaka City University. Osaka.

Recently, measurement of C-terminal-PTH has popularized to detect several PTH abnormalities. So we compared the following three measuring methods; 1) home made system using RD 24 (211/41) antibody, 2) Eiben (ICL) kit and 3) Midorijuji (CIS) kit, in their sensitivity, reproducibility, recovery rate and operating process.

In high or medium PTH concentration, three methods coincided well and their reproducibility was excellent. On the contrary, in low PTH concentration these three methods yielded different results and their reproducibility was poor.

As the concentration of PTH is expressed in different unit in each kit (ng/ml in ICS and our system, mIU/ml in CIS), we feel the necessity of standardized unit.

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CLINICAL EVALUATION OF Tl-201 SCINTIGRAPHY IN POST-OPERATIVE PATIENTS WITH THYROID CANCER. N. Tonami, H. Bunko, A. Kuwajima, H. Mori, T. Maeda, T. Michigishi, A. Tada, K. Ichiyanagi, I. Aburano, K. Hisada and H. Seto. The Department of Nuclear Medicine, School of Medicine, Kanazawa University. Kanazawa.

Tl-201 scintigraphy was performed to visualize malignant lesions in 30 post-operative patients with thyroid cancer. The results were compared with those of I-131 and/or Tc-99m pertechnetate scintigraphy.

Tl-201 scintigraphy produced an increased concentration in malignant lesions in 7 out of 9 patients in group A of 16 patients in which normal thyroid tissue was completely removed by surgery and/or radioiodine ablation. This sensitivity of Tl-201 (0.78) is quite satisfactory and superior to that of I-131 (0.33).

In group B of 14 patients in which a portion of normal thyroid tissue was left all of 5 patients with malignant lesions were positively visualized by Tl-201. This result indicates that Tl-201 can concentrate into malignant lesion even in the presence of normal thyroid tissue.

With regard to Tl-201 concentration in malignant lesions at different locations, Tl-201 was positive in all of 6 focal lesions in group A and all of 4 focal lesions in group B. These good results show that Tl-201 scintigraphy might be useful in the evaluation of focal lesions.

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EVALUATION OF Tl-201 DELAYED SCAN IN DIFFERENTIATION BETWEEN MALIGNANT AND BENIGN THYROID NODULES. H.Sawa, Y.Masuda, T.Fukuda, Y.Inoue, H.Ochi, M.Omura, H.Ikeda, Y.Onoyama, H.Okita, S.Sugano, T.Furukawa, and H.Kakehi. Department of Radiology and First Department of Surgery of Osaka City University medical school, and Radiology of Japan Red Cross Medical Center. Osaka and Tokyo.

The purpose of this study is to evaluate benign and/or malignant thyroid tumors with Tl-201 thyroid scan. We studied 80 cases of the thyroid tumors seen as cold nodules on the I-123 thyroid scan. Tl-201 thyroid scan was performed 10 min. (early scan) and 2 to 4 hours (delayed scan) after intravenous injection of 2 mCi of Tl-201.

In 44 cases (92%) of 48 thyroid carcinomas, Tl-201 accumulated at the cold nodules of the I-123 thyroid scan in both early and delayed scan. Among them, anaplastic and papillary carcinomas showed more markedly high activities than follicular carcinomas in the delayed scan. On the other hand, 30 cases (94%) of 32 benign thyroid tumors showed no Tl-201 accumulation in the delayed scan.

Thus the delayed scan is quite useful in differentiating malignant thyroid tumors from benign ones.