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CLINICAL STUDY for THE DIGITAL MAP of THYROID SCINTIGRAM. K.Higuchi, K.Noya, H.Hasegawa and T.Inagaki. Social Insurance Saitama Chuou Hospital. Urawa.

In this study, computerized gamma camera system has been used for 256 thyroid nodules before operation. The digital map displays the distribution-ratio of R.I. image. Using I-131, the cold nodules, constituted 80% in thyroid cancers and 45% in benign tumors, were discriminated from cool, warm and hot nodules objectively. Excluding nodules with small size under 2cm (recently 1cm) in diameter and cases with low 24-hr I-131 uptake ratio under 10% (recently 5%), discrimination has been made up more clearly. After that, as for these cold nodules, we are trying the dyramic function test using Tc-99m. In addition to the calcification shadow in thyroid X-ray film, our own combined screenig method has been able to distinguish between thyroid cancer and benign tumor clinically in 96% truely. We couldn't yet obtain better image-maps using Tc-99m than I-131, so that, we reported the results of digital thyroid scintigram using I-131.

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ESTIMATION OF THYROID WEIGHT BY EMISSION COMPUTED TOMOGRAPHY(ECT). A COMPARATIVE STUDY WITH PROJECTION METHODS. T.Miyamoto, K.Sato,M.Nakamura,H.Komaki,A.Okamoto, and S.Hamada. Tenri Hospital,Radioisotope Division,200 Mishima,Tenri City 632.

We studied a method for estimation of thyroid weight by ECT using Maxi Camera 400T/61 and Maxi Star. The results obtained were compared with those by projection methods using manual and computer-assisted assesment. In ECT,data were obtained from 180°/32 directions with 2.5-fold zoom, and transaxial images were made in thickness of 7.2mm (3 pixels) using Chesler's filter and smoothing(3 times). A cut-off level for thyroid contour was determined from a background/thyroid ratio on the basis of phantom studies. A sum of these slices was the thyroid weight. In phantom studies, values obtained by 3 methods were in general agreement for thyroid weights of less than 100g, however, a close agreement was obtained in ECT but not in two projection methods. Further studies with distorted or hemi-lobe phantom indicated that an estimation by ECT is in close agreement with the actual value as compared with that obtained by two projection methods. In patients with Graves'disease,thyroid weight obtained by ECT bore good correlation with that by the two projection methods; ECT vs. scintiphoto,r=+0.95 and ECT vs. computer-assisted projection method,r=+0.99. It was concluded that ECT is useful in estimation for thyroid weight, particularly, in distorted or large thyroid.

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PROGNOSIS OF THE PATIENTS WITH GRAVES' DISEASE AFTER RADIOIODINE TREATMENT Y.Iida, E.Komori, K.Yamada, T.Misaki, T. Nakajima, K.Endo, J.Konishi and K.Torizuka. Kyoto University School of Medicine. Kyoto.

One of the important problems in the radioiodine treatment of Graves' disease was the high incidence of late onset hypothyroidism. We evaluated the incidence of late hypothyroidism in 726 patients with Graves' disease treated with radioiodine (2-61 mCi) since 1956. The incidence of hypothyroidism was 23.7% at 5 years, 42.5% at 10 years and 62.2% at 15 years. There was no significant difference in the incidence of hypothyroidism in between the single and multiple administration groups whose dosages were less than 0.1 mCi/g estimated thyroid weight. From 1971 to 1973, we tried single administration of small dosage of radioiodine to reduce late onset hypothyroidism and compared the incidence. In the small dosage group (3-6 mCi, average 4.14 mCi, 0.042 ± 0.051 mCi/g, 109 cases), the incidence of hypothyroidism was 11.5% at 3 years, 18.2% at 5 years and 29.0% at 7 years. In the control group (2-9 mCi, average 5.19 mCi, 0.070 ± 0.056 mCi/g, 426 cases), the incidence was 17.3%, 22.0% and 30.2%, respectively. Administration of small dose could reduce the incidence of hypothyroidism up to 6 years, but could not reduce it thereafter. In conclusion, we could not avoid the late-onset hypothyroidism by reducing the dosage or by dividing the administration dosage.

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THE RESULTS OF ^{131}I LOW DOSE THERAPY IN GRAVES' DISEASE. Y. Matsuoka, K. Ito, S. Iino and N. Hamada. Ito Hospital, Fujigaoka Hospital Showa University and Osaka City University. Tokyo, Yokohama and Osaka.

Six hundred fifty five patients were treated with an averaged ^{131}I dose of 3000 rad from 1975 to 1976. All patients received antithyroid drugs until euthyroidism was obtained. We succeeded in making a survey of 264 patients out of 655 patients. 86(31%) patients received multiple therapy. The result of ^{131}I therapy was, 187(71%) eu-, 53(20%) hyper- and 24(9%) hypothyroidism. After the single therapy, patients who became euthyroidism are 137 out of 178. More than half patients who received ^{131}I low dose therepy gained euthyroidism 6 years after therapy.