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CLINICAL EVALUATION OF Tl-201 UPTAKE RATIOS IN NODULAR GOITER - ROLE OF DELAYED SCAN. K. Suzuki, M. Mashimo, K. Nishimura and T. Miyamae Saitama Medical School, Saitama.

We studied 60 nodular goiter patients who were performed both Tl-201 thyroid scan and pathological study. They were classified into 3 groups by histological type; 17 cases of malignant tumor (M) group, 20 cases of benign non-cyst group and 23 cases of cyst group. Cystic or fibrotic change of benign nodular goiter was included in C group. Tl-201 scan was performed at 10 min. (early scan) and 3 hr. (delayed scan) after I.V. injection. At the same time, radioactivity was recorded on computer. We counted Tumor/background (T/B) ratio by Sawa et al. reported, Tumor/Non-tumor (T-B)/(N-B) ratio by Hisada et al. and each Delayed/Early (D/E) ratio. We studied the correlation between these ratios and histological types. The summary of the results are;

1. M, A and C groups were not differentiated by T/B and its D/E ratio.
2. By the use of (T-B)/(N-B) ratio and its D/E ratio, M, A and C groups were well differentiated. (T-B)/(N-B) ratio of delayed scan =  $2.34 \pm 1.27$  (M),  $1.29 \pm 0.65$  (A) and  $0.69 \pm 0.41$  (C). D/E ratio =  $1.24 \pm 0.47$ ,  $0.98 \pm 0.48$  (A) and  $1.24 \pm 0.85$  (C)
3. By the use of next criteria, sensitivity and accuracy improved compared with the case of Tl-201 image diagnosis. If (T-B)/(N-B) < 1 (early or delayed scan) or D/E < 1, the goiter is benign. If (T-B)/(N-B)  $\geq$  1 and D/E  $\geq$  1, the goiter is malignant.

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RESULT OF RADIOIODINE I-131 THERAPY FOR THYROID CANCER. K. Tsutsui, K. Satoh, H. Muraki and M. Nakazawa. Cancer Center Niigata Hospital, Niigata.

Since 1975, 37 patients with differentiated thyroid cancer have been treated with I-131 after surgical operation.

The results were summarized in 14 patients with measurable thyroid tumor out of 37 cases. According to the standardized evaluation method of chemotherapy for solid tumor by Japan Society for Cancer Therapy, complete response was observed in 2 cases and partial response was in 3 cases out of 14 cases. 35.7% of total response rate and 66.7% of the response rate of pulmonary metastasis were observed. On the other hand 9 cases with bone metastasis showed no response. Patients with bigger tumor more than 4cm in diameter responded only in 11.1%, centrally patients with smaller tumor less than 4cm responded in 80%.

5 years survival of total 37 cases with I-131 therapy was observed in 46.6%. 17 cases had had previous thyroidectomy and 11 cases revealed follicular thyroid cancer.

In conclusion, the best way to get long term survival is to find metastatic tumor in the earliest stage or to give I-131 therapy for all follicular thyroid cancer after surgical operation.

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CLINICAL SIGNIFICANCE OF  $^{201}\text{Tl}$ -CHLORIDE SCINTIGRAMS FOR DIAGNOSIS OF VARIOUS THYROID DISEASES. R. Sakai (Funabashi Central Hospital) and Y. Kuniyasu (Teikyo University), Japan.

The usefulness of  $^{201}\text{TlCl}$  for differential diagnosis of thyroid disease was studied, using 164 subjects, a part of the 429 patients scanned with  $^{99\text{m}}\text{TcO}_4$  (163 cases) or  $\text{Na}^{123}\text{I}$  (266 cases), who were further examined with  $^{201}\text{TlCl}$ -scan for differentiation. Of the subjects, 42 cases (25%) had the following diseases confirmed by tissue diagnosis after operation, etc.: 10 cases of malignant thyroid tumor and 32 cases of benign tumor (including 1 case of thyroiditis and 5 cases of adenoma-like tumor). This study also used additional 30 subjects who were clinically diagnosed as chronic thyroiditis.

Initially, the optimum delay time for the delayed scan technique was studied. It was found that 63% of the cases are analyzable for residual activity at 1 hour, 87% at 2 hours and virtually 100% at 3 hours. Thereafter, we employed 2 hours as standard delay time and increased the time only in unclear cases. Counts at 1, 2 and 3 hours were plotted graphically by setting the same ROI for both the lesion and control parts of the thyroid gland. The rate of count reduction was calculated from the graph to determine its significance for differential diagnosis.

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I-131 AND ACTINOMYCIN-D FOR METASTATIC THYROID CANCER. S. Okuyama, Tohoku Rosai Hospital, Sendai

For the purpose of reducing radioisotopic dosage in the internal irradiation therapy, actinomycin-D was incorporated to I-131 regimen.

An oral dose of 10mCi of I-131 was given in a case of thyroid cancer with skeletal metastases postoperatively, and 100 micrograms of actinomycin-D was given on the third and fourth day. This schedule was repeated 3 times in 6 weeks. Pains in the smaller bone foci regressed in due course of time. Two large lesions were additionally irradiated externally.

The patient remains free of signs of cancer metastasis for 1 year after end of the irradiation. Possibly this I-131 and actinomycin-D as combined in small doses can be useful and convenient enough.