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CLINICAL EVALUATION OF THE DIAGNOSTIC METHOD COMBINED WITH THYROID SCINTIGRAM AND ASPIRATION BIOPSY CYTOLOGY IN THYROID CANCER CASES. K.Tsutsui, K.Sato, H.Muraki, S.Nagasawa and S.Niizuma. Niigata Cancer Center, Niigata.

Considering with thyroid scanning, thyroid aspiration biopsy cytology(ABC) is effective more than ABC alone in the diagnosis of thyroid cancer.

Clinical diagnosis and histological are compared in 64 cases with thyroid cancer and 86 cases with thyroid benign diseases.

Diagnostic value of thyroid scintigram using Tc-99mO₄ and Tl-201 was 79.7% in sensitivity, 73.7% in specificity and 76.3% in accuracy.

10 cases of 12 false negative were with multiple nodules, cancer in adenoma, Hashimoto's thyroiditis and thyroid cyst.

Diagnostic value of ABC(+) was 48.4% in sensitivity and 96.5% in specificity. These of ABC(+) and (±) was 79.7% in sensitivity and 86.0% in specificity.

7 of 13 cases with thyroid cancer which were negative in ABC were with follicular cancer. 9 of these 13 cases were diagnosed as thyroid cancer with scintigram.

In total diagnosis, combination diagnostic methods with scintigram and ABC, if ABC(±) was diagnosed as positive, sensitivity of diagnosis will be very high such as 94.3% in sensitivity, 64.1% in specificity and 78.4% in accuracy.

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DATA ANALYSIS OF THYROID PERCHLORATE TEST (IODINE ORGANIFICATION DEFECT). K.Matsumura, I.Kawai. Kyoto Minami Hospital, Kyoto.

The perchlorate test is useful to diagnosis of primary hypothyroidism due to iodine organification defect. I-123 uptake ratio of thyroid gland is calculated at the 6 hrs after I-123(100 mCi) p.o. After the intake of KClO₄ orally, I-123 discharge curve and discharge ratio(DR) are obtained by the data acquisition(1 frame/30 sec,60 min.) on gamma camera(Gamma-View) and CPU(HARP). DR is calculated by this formula,

$$DR = \frac{\text{total thyroid count}(\text{pre-KClO}_4 - \text{post-KClO}_4)}{\text{total thyroid count}(\text{pre-KClO}_4)}$$

From Jan.'83 to Sep.'86, 24 cases were positive in perchlorate tests(DR ≥ 15%), who had not anti-thyroid antibody and not treated. The statistical analysis of these 24 cases were done.

Serum thyroid hormones'level;
 T₃ 110 ± 28 ng/dl (N)
 T₄ 3.8 ± 1.8 mcg/dl(↓)
 free-T₄ 0.54 ± 0.30 ng/dl (↓)
 TSH 87.8 ± 72.0 mU/ml (↑)

I-123 uptake ratio:16.6 ± 12.2%(N)

Tc-99m uptake ratio:5.58 ± 3.62%(↑)

I-123 discharge ratio:54.0 ± 21.6%(↑)

DR were divided four groups, namely negative (DR < 15%), mild (15% ≤ DR < 30%), moderate (30% ≤ DR < 50%) and severe (50% ≤ DR). There are tendency to lower T₄ and higher TSH in proportion as DR higher. The primary(latent) hypothyroidism due to iodine organification defect is frequently complicated in senile chronic diseases.

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EVALUATION OF HORMONAL DATA IN PATIENTS OF THYROID CARCINOMA AT TRACER DOSE I-131 SCAN. K.Nakada, E.Tsukamoto, K.kawanura, K.Fujimori, K.Itoh and M.Furudate. Hokkaido University School of Medicine, Sapporo.

Serum values of T₃, T₄, Free-T₃(FT₃), TSH, Thyroglobulin(Tg), Protein binding Iodine(PBI), and Total Iodine(TI) at tracer dose I-131 scan(TDIS) were measured in 89 patients(89 scans) of thyroid carcinoma. Replacement of thyroid hormone was stopped from 3 weeks before and low iodine diet was applied from 2 weeks before TDIS. Mean value of T₃, T₄, FT₃, TSH, PBI, TI, was 0.50(ug/ml), 2.80(ng/dl), 1.46(pg/ml), 87.2(uU/l), 2.64(ug/dl), and 3.47(ug/dl), respectively. In 67 scans(74.9%), TSH levels were higher than 50.0(uU/l), which thought to be enough elevation. Results of TDIS were successful in 70 scans(78.6%) and unsuccessful in 19 scans(21.4%). Mean value of TSH in successful scan was 90.5(uU/l), while 86.8(uU/l) in unsuccessful, and there was no significant difference between them. But in 5 patients of unsuccessful scan, measured serum data suggested insufficient preparation of patients and four of them turned out to successful scan at retrieval. 6 of 9 patients of unsuccessful scan with enough elevation of TSH showed successful scan at retrieval with therapeutic dose. In all but one of such patients high Tg levels were found. It is suggested measurement of values of those items is very helpful in evaluation of the the results of TDIS.

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RELATION BETWEEN ABSORPTION DOSE ESTIMATED BY ADMINISTERED THERAPEUTIC DOSE OF I-131 AND THERAPEUTIC EFFECT IN GRAVES' DISEASE. T.Miyamoto, A.Ishihara, T.Komaki, H.Nagashima, Y.Kondo, K.Sato, Y.Takahashi and S.Hamada. Tenri Hospital, Nara.

We measured thyroidal uptake and effective half-life (T_{1/2}) of therapeutic dose of I-131 in Graves' disease, and examined the relation between the absorption dose and therapeutic effect. Sixty patients were divided into 4 groups: Cured (C), Effective (E), Slightly effective (S), and Hypothyroid (H). Thyroidal uptake of I-123 before the therapy and administered doses per g (about 100 μCi/g thyroid) were nearly the same in all the groups. Thyroid weight were mostly less than 50g in C- and H-groups and mostly more than 50g in E- and S-groups. T₄, FT₄ and T₃ were slightly lower in H-group than in C-group. T_{1/2} were 6.1 ± 0.80 and 5.69 ± 1.00 days (P, NS), and absorption doses were 10830 ± 2276 and 8838 ± 2343 rads (P, 0.05) in H- and C-groups, respectively. The hormone levels in E- and S-groups did not differ significantly from those in C-group. However, T_{1/2} were 5.53 ± 0.98 (P, NS vs C-group) and 4.60 ± 0.54 days (P, 0.05), and absorption doses were 7182 ± 1889 (P, 0.05) and 6402 ± 511 rads in E- and S-groups, respectively. Thyroid weight did not differ significantly from each other. Therefore, the present studies using therapeutic dose of I-131 indicate that T_{1/2} and absorption dose of administered I-131 together with thyroid weight are related with the therapeutic effect.