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CONCURRENT ADMINISTRATION OF Li_2CO_3 IN ^{131}I THERAPY FOR GRAVES' DISEASE. N.Ishikawa,T. Sugimoto,J.Noh,N.Momotani,K.Kobayashi,A. Suzuki,Y.Manabe,O.Ozaki,Y.Nishikawa,K.Ito, M.Izumi* and S.Nagataki*. Ito Hospital and Nagasaki University*, Tokyo and Nagasaki*.

It has been reported that Li_2CO_3 does not affect the ^{131}I uptake and prolongs the effective half life of ^{131}I in the treatment of Graves' disease. The effect of Li_2CO_3 on therapeutic ^{131}I doses in the treatment of Graves' disease was investigated. In 28 patients with Graves' disease, 600 mg of Li_2CO_3 per day was started after the initial tracer dose of ^{131}I was administered. ^{131}I uptake (24hr) and effective half life were measured before (A) and after (B) the administration of Li_2CO_3. There was no significant difference in the ^{131}I uptake between A (68.0±5.6%) and B (69.9±5.6%). For effective half life, B was significantly more prolonged than A (7.0±0.5 days vs. 4.8±0.8 days, $P<0.001$). The doses of ^{131}I were significantly reduced after administration of Li_2CO_3 (4.4±1.6 mCi vs. 2.9±0.7 mCi, $P<0.001$). The serum concentrations of Li_2CO_3 were 0.31 and 0.32 mEq/l 3 and 7 days after the initiation of administration of Li_2CO_3, and both of these concentrations were much less than toxic level (2.0 mEq/l). These data showes that the doses of ^{131}I in the treatment of Graves' disease can be reduced by the concurrent administration of small dose of Li_2CO_3.

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CHANGES OF THYROID HORMONES AFTER I-131 THERAPY FOR HYPERTHYROIDISM. Y.Hirota*, Y. Takaki*, S.Yoshioka*, Y.Koga*, S.Nanakawa** A.Kojima*, M.Takahashi*, S.Tomiguchi*** * Department of Radiology, Kumamoto University School of Medicine ** Department of Radiology, Hitoyoshi Sogo Hospital *** Department of Radiology, Saishunso Byoin National Sanatrium, Kumamoto.

We have studied thyroid hormones (triiodothyronine T3, thyroxine T4, free-triiodothyronine FT3, free-thyroxine FT4), in 28 clinical euthyroid patients who were being observed for more than three months after I-131 therapy.

In all 28 patients, serum levels of T3 and T4 were normal, but abnormal levels were observed in 19 patients for FT3 levels, and in 15 patients for FT4 levels.

In the other group of 14 patients, serum levels of T3, T4, FT3, FT4 were determined daily, one, two, three and four weeks after I-131 administration.

In five patients, serum levels of these hormones increased within a week after I-131 therapy, but in other patients decreased slowly. These hormone levels had tendency to show decrease in two weeks after I-131 therapy. FT3 correlated well with T3 ($r = 0.86$, $p < 0.01$).

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EXPERIENCE OF RADIOIODINE TREATMENT IN THE 21 PATIENTS WITH BONE METASTASIS FROM DIFFERENTIATED THYROID CARCINOMA. K.Fukushima, K.Kusakabe,K.Karasawa,K.Kaneyasu,Y.Ohta,Y. Kawasaki,M.Maki and M.Hiroe.Tokyo Women's Medical College,Tokyo.

Twenty one patients with bone metastasis from well-differentiated thyroid carcinoma were treated with radioactive iodine(I-131) since 1974. The average age of the 21 patients was 58.0 years(ranging from 40 to 74 years) at the time of initial radioiodine treatment. Five patients were male and sixteen patients were female. Histology of 19 cases was classified as follicular carcinoma and only one case as papillary. 14 of 21 patients also had metastases to lung at the time of initial I-131 therapy. Single dose of I-131 was 75 to 150 mCi. Total administration doses were ranging from 100 to 600 mCi(average 290 mCi) individuals. Eleven of 21 cases were died with thyroid cancer within 10 years mean survival of 3.6 years after the initial I-131 therapy. There were ranging from 1.2 years to 18 years after initial surgical therapy. This study suggested that the factors influencing on the efficiency of I-131 therapy are the I-131 uptake of the tumor,the size of bone metastases and the existence of pulmonary metastases.

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CLINICAL EVALUATION OF PARATHYROID SUBTRACTION IMAGING BY SURGICAL CONFIRMATION ON 45 CASES.
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We have established the method of computer-assisted parathyroid subtraction imaging with I-131 and Tl-201 for localization of abnormal parathyroid glands. This paper describes clinical evaluation of the method on 45 cases, including 8 patients with primary hyperparathyroidism and 37 patients with secondary hyperparathyroidism, by surgical confirmation of the images. Following results were obtained in this study. 1)Among 180 parathyroid glands recognized, 150 glands were enlarged surgically. 2)In 32 glands of primary hyperparathyroidism, sensitivity: 85.7%, specificity: 96.0% and accuracy: 93.8%. 3)In 143 glands of secondary hyperparathyroidism, specificity: 100% however, sensitivity: 49.0 %, and accuracy: 50.7%. 4)In secondary hyperparathyroidism, false negative increased when glands became smaller, and there was no false negative on the glands over 2100 mg.

These findings suggest that the method is more useful for localization of abnormal parathyroid glands than the conventional methods.