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FUNDAMENTAL AND CLINICAL STUDIES ON CALCITONIN RIA KIT. C.Nawa, K.Okano, Y.Yamada, S.Kou, N.Sekita, M.Doi, S.Ishiguro, R.Chida and K.Someya. St. Marianna University School of Medicine. Kawasaki

Human calcitonin (CT) RIA kit (Eiken) was studied fundamentally and clinically. CT standard or serum sample was incubated with human CT rabbit antiserum for 20h at 25°C. After addition of I-125-HCT and further incubation for 48h at 4°C, second antiserum was added and incubated for 30 min at 4°C. The tubes were centrifuged and precipitates counted. The C.V. in within assay variance using 3 different concentrations (73.3, 109.7 and 763.2 pg/ml) were 6.6%, 5.0% and 4.3%, and the C.V. in between assay variance 12.8%, 9.9% and 5.8 %, respectively. The recovery tests were 103.5% and 89.0%. The dilution curve of a serum sample showed a parallelism with a CT standard curve. There was no significant difference in CT levels between serum samples and plasma samples, and both showed a significant positive correlation. The serum CT levels were 78.6 ± 4.0 pg/ml (mean \pm SE) in 18 normal subjects, above 2560 pg/ml in a case of thyroid medullary carcinoma, 89.0 ± 12.7 pg/ml in 10 cases of renal failure, 390.5 ± 271.4 pg/ml in 9 cases of carcinoma, 97.8 ± 8.5 pg/ml in 10 senile osteoporosis, 109.6 ± 15.3 pg/ml in 9 hyperthyroidism, and 103.1 ± 11.7 pg/ml in 9 primary hypothyroidism.

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TSH RECEPTOR ANTIBODIES IN HASHIMOTO'S THYROIDITIS AND PRIMARY MYXEDEMA. J.Konishi, Y.Iida, T.Kousaka, T.Misaki, T.Nakajima, K.Endo, K.Torizuka, K.Ikekubo and T.Mori. Kyoto Univ. School of Medicine, Kyoto and Kobe Central Municipal Hospital, Kobe.

By using a radioreceptor assay of TSH (Smith) TSH-binding inhibitor immunoglobulins (TBII) were detected in 7 of 43 (16%) patients with goitrous Hashimoto's thyroiditis (HT) and in 9 of 43 (26%) patients with primary myxedema (PM). IgG fractions of 9 patients with HT, 18 patients with PM, and 14 normal controls were tested for their ability to alter TSH stimulation of cAMP production in cultured human thyroid cells. When compared with the cAMP increase induced by 0.1mU/ml bTSH in the presence of normal IgG, cAMP accumulation was significantly inhibited ($p < 0.005$) by the addition of IgG from patients with PM. TSH-induced cAMP accumulation was not affected by IgG from patients with HT. IgG from patients with PM also inhibited the cAMP increase induced by thyroid-stimulating IgG, but not against the increase induced by PGE₁. None of the IgG tested affected the basal level of cAMP. Two potent inhibitory IgG were strongly positive for TBII. Excluding these, no significant correlation was found between the thyroid stimulation-blocking activity and the TBII activity. These data suggest the presence of at least two different types of antibodies in PM which block adenylate cyclase stimulation by TSH and might be responsible for thyroid dysfunction and atrophy.

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THYROTROPIN DISPLACING IMMUNOGLOBULINS (TDI) BY RADIORECEPTOR ASSAY (RRA) KIT IN PATIENTS WITH THYROID DISEASE. N.Akimoto, H.Uchimura, T.Mitsuhashi, K.Kubota, N.Kuzuya, Y.Imai, H.Ikeda, F.Matsuzaki and F.Takaku. Third Department of Internal Medicine, Faculty of Medicine, University of Tokyo.

TDI detected in sera of patients with Graves' disease might have a significant role in pathogenesis of this disease. However, assay methods which have been available were troublesome and not in routine clinical use. Recently a RRA kit has become commercially available.

The present study was aimed to measure TDI activities in sera of patients with thyroid disease by the kit and to evaluate its clinical usefulness. TDI activities in sera of 401 patients (untreated Graves' disease 21, treated 237, in remission 30, Hashimoto's thyroiditis 109, subacute thyroiditis 4) were determined by a RRA kit supplied by Japan Travenol. In untreated patients with Graves' disease, 81% of patients were positive TDI and frequency of positive patients were decreased every year during treatment of 4 years period.

Patients who could not stop the drugs for longer than 13 years showed high TDI. 83% of patients in remission were negative. Of 109 Hashimoto's patients, 11(10%) patients were positive. No positive patients were found in patients with subacute thyroiditis.

These results indicate that TDI detected by this kit may be a useful clinical marker in treatment of Graves' patients.

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RECOVERY FROM REFRACTORINESS OF CYCLIC AMP RESPONSE TO TSH IN THYROID CELLS IN MONOLAYER CULTURE. Y.Fukue, S.Okano, Y.Kanaji, and H.Uchimura*. Kanaji Hospital and * The Third Department of Internal Medicine, Faculty of Medicine, University of Tokyo. Tokyo.

Effects of period in culture and addition of TSH in medium on intracellular cAMP responsiveness to TSH stimulation were studied using monolayered cells of human and porcine thyroids.

Methods: Isolated thyroid cells prepared by enzymatic dispersion were cultured in the plastic dishes with or without TSH (10mU/ml) for 2,4,6, and 8 days and then stimulated each day with various doses of TSH (0, 0.1, 1, 10, and 100mU/ml) for 30min. Intracellular cAMP was measured by RIA.

Results and conclusion: When cells were cultured without TSH, they showed the greatest increase in cAMP and a maximal response was observed in cells of 4 days in human and 6 days in porcine thyroids. When cells were cultured with 10mU/ml TSH for initial 2 days, decreased cAMP responses to TSH were observed during following culture time despite in the absence of TSH in culture. However, responsiveness to TSH was recovered on 6 days in monolayered cells in porcine but not in human thyroids. When cells were cultured continuously with TSH for 8 days, refractoriness to TSH stimulation was not recovered by 8 days in both human and porcine thyroid cells. Our results indicate that recovery of cAMP responsiveness to TSH was earlier in porcine than human thyroid cells.