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DETECTION OF TSH RECEPTOR ANTIBODIES BY RADIOIMMUNOPRECIPITATION ASSAY. Y.Iida, K.Kasaqi, K.Ikekubo, J.Konishi, K.Torizuka and K.Kuma. Kyoto University School of Medicine and Kuma Hospital. Kyoto and Kobe.

Radioimmunoprecipitation assay for TSH receptor antibodies was developed and the nature of this antibodies was analyzed. To  $\{^{125}\text{I}\}$ TSH prebound to Triton-solubilized receptor, 50 $\mu\text{g}$  of immunoglobulin G (IgG) were added and precipitation was effected by addition of antihuman IgG. The solubilized thyroid plasma membranes obtained from patients with Graves' disease were found inappropriate for the assay because of probable existence of microsomal antigens.

By using the solubilized membranes from guinea pig fat tissues, significantly high immunoprecipitation values were obtained in 6 (46%) of 13 patients with Graves' disease and none of 8 patients with Hashimoto's thyroiditis. No correlation was observed between immunoprecipitation values and titers of antimicrosomal or antithyroglobulin antibodies. Neither was there any correlation between the values and TSH-binding inhibitor immunoglobulins (TBII) detected by the radioreceptor assay. The IgGs positive for the immunoprecipitation antibody were found to be poor human thyroid stimulators (HTS), relative to their TBII activities, in a bioassay using cultured human thyroid cells. On the other hand, good correlation was observed between TBII and HTS activities among IgGs without detectable antibody by radioimmunoprecipitation ( $r=0.907$ ;  $p<0.005$ ;  $n=7$ ).

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FUNDAMENTAL RIA STUDIES OF HUMAN CALCITONIN BY PEG METHOD. Yoriko Ishikawa, Masaaki Aoyama. Special Reference Laboratories Inc.

It has been well known for a long time that calcitonin (CT) is the one of calcium control like parathyroid hormone and activated vitamin D, and several radioimmunoassay (RIA) studies have been reported.

We developed our own method using polyethyleneglycol (PEG) B/F separation.

We used synthetic human CT which was supplied from Protein Research Foundation to produce antibodies and labeled antigen.

The labeled CT was damaged for a incubation. The degree of damaged labeled antigen ( $^{125}\text{I}$ -CT) was different from each samples therefore the adjustment was made by measuring nonspecific binding level on every samples.

Simultaneous reproducibility in our method was  $118 \pm 7$  pg/ml (mean  $\pm$ S.D.), C.V. was 6.1%. Reproducibility in different days was  $250 \pm 19$ ,  $1605 \pm 84$  pg/ml (mean  $\pm$ S.D.) and C.V. were 7.5%, 5.2% respectively.

Recovery test was  $102.8 \pm 9.8\%$  (mean  $\pm$ S.D.) and minimum detectable sensitivity calculated from 95% intercept rates was 20 pg/ml.

We would also like to report some clinical findings by measuring serum CT level of changes in pentagastrin infusion in patients with medullary thyroid carcinoma and their family cases, and with renal failure chronic.

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CLINICAL USEFULNESS OF Tl-201-CHLORIDE SCINTIGRAPHY FOR THE PREOPERATIVE IDENTIFICATION OF THE ABNORMAL PARATHYROID. F.Nakanishi, T.Kasuga, K.Moriya, T.Kobayashi, M.Makiuchi, M.Miyakawa, K.Yano and K.Yokoyama. Shnshu University School of Medicine. Matsumoto.

Preoperative scintigraphy with Tl-201-chloride was performed in 11 patients with hyperparathyroidism. The diagnostic usefulness of Tl-201-chloride in the parathyroid tumors was proved by the results of surgical explorations. In 11 patients 15 lesions were identified at operation. Eleven of these 15 lesions were correctly predicted on the preoperative scintigraphy. Overactive lesions of the parathyroid were clearly visualized from 5 to 30 min. after administration of Tl-201-chloride. The abnormality was better recognizable with simultaneous presentation of Tl-201-chloride image and Tc-99m-perchnetate thyroid image and or subtraction image.

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A RECEPTOR ASSAY FOR AN ANTIBODY TO THYROID PLASMA MEMBRANE USING THE I-PROTEIN A. Y.Kajita, M.Ishida, N.Shiozu, T.Miyazaki, M.Yoshimura, T.Hachiya, H.Ijichi and Y.Ochi. Nantan General Hospital, Kyoto Prefectural University of Medicine, Shiga University of Medical Science. Yagi, Kyoto and Otsu.

The principle of this method is the specific binding of  $^{125}\text{I}$ -Protein A with thyroid plasma membrane binding immunoglobulin (TPMBI) that had been bound with thyroidal plasma membrane. The bound percent in normal subjects was  $10.2 \pm 1.2\%$  (mean SD). The binding activity was positive in both hyperthyroid patients and Hashimoto's thyroiditis while in simple goiter, thyroid cancer and hypothyroid patients it was always negative. Twelve out of 15 cases of high LATS positive serum in the patient with hyperthyroidism showed a strong binding activity. The binding activity was also positive in 81% of LATS negative cases, although the binding activity was less weak as compared with LATS positive cases. Hashimoto's thyroiditis showed a high binding activity in 90%. All sera with positive TPMBI in both Graves' and Hashimoto's diseases had positive MCHA titers. Though no correlation between binding activity and LATS activity was observed, a positive correlation between binding activity and hyperthyroid states (expressed as  $T_7$ ) was observed ( $r=0.54$ ). The receptor assay is available for measuring TPMBI in thyroidal disease because of excellent selectivity of Protein A binding with antibody (immunoglobulin G).