

93

CLINICAL EVALUATION OF TBIAb (TSH BINDING INHIBITING ANTIBODY) KIT. S.Morita, M.Izumi, T.Sakamoto, F.Kakezono, N.Yokoyama, S.Yamashita, S.Okamoto and S.Nagataki. The First Department of Internal Medicine, Nagasaki University School of Medicine, Nagasaki.

TBIAb Kit was recently developed by Dr. Smith and can be supplied through Travenol Co. The purpose of this study is to investigate the clinical usefulness of this kit and to compare it with our assay of TBIAb.

When each incubation time was prolonged for additional 30min in the assay of this kit, the values of TBIAb were not influenced. When samples with high values for TBIAb were diluted with control serum or buffer, the values of TBIAb of samples diluted with buffer were greater than those with control serum.

The coefficients of variation of intra assay and inter assay of samples with high values for TBIAb were 1 to 2.1 and 3 to 7.1%, respectively. Those of normal samples and samples with low values for TBIAb were greater.

With this assay kit, TBIAb was detected in 19 out of 20 untreated patients with Graves' disease (95%) and in 5 out of 18 patients with chronic thyroiditis.

When this kit was compared with our method, the assay procedure and clinical results was similar to each other. Therefore, this kit seems to be clinically useful.

95

USEFULNESS OF SERUM THYROGLOBULIN CONCENTRATION ABOUT PREDICTION IN THE PATIENTS WITH GRAVES' DISEASE.

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Serum thyroglobulin (Tg) were measured, using a highly sensitive radioimmunoassay kits in patients with Graves' disease. In 66 normal subjects, serum Tg concentration was 11.3 ± 5 ng/ml. In 24 untreated patients with Graves' disease, serum Tg was 41.3 ± 32.5 ng/ml and this value was significantly ($p < 0.001$) higher than that in normal subjects, but correlation between serum Tg and activity of TSH-binding inhibiting immunoglobulins (TBII) was not significantly. In 13 patients treated with antithyroid drugs serum Tg was 34.2 ± 29.6 ng/ml and in six patients after radioiodine therapy serum Tg was 66.1 ± 52 ng/ml. In 19 patients who went into remission, serum Tg was 18.3 ± 15.3 ng/ml, this value was significantly ($p < 0.01$) lower than that of untreated patients, but in this group no correlation was found between serum Tg and activity of TBII. In 16 relapsed patients serum Tg was 64.8 ± 97.9 ng/ml, this mean value was significantly ($p < 0.05$) higher than that of remission group and correlation between serum Tg and activity of TBII was significantly ($p < 0.05$). The data suggest that serum Tg concentration in various conditions of patients with Graves' disease shows clinical usefulness and has probability of guide to the prediction of disease.

94

ESTABLISHMENT OF A NEW RIA SYSTEM FOR THYROGLOBULIN BY MEANS OF INDIUM-111 LABELED MONOCLONAL ANTIBODY.

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Thyroglobulin (Tg) is a useful marker in various thyroid diseases. However in a conventional RIA system using I-125 labeled Tg and polyclonal antibodies (Ab), precise values cannot be obtained whenever anti-Tg autoantibodies exist. Further, shelf-life of radioiodinated Tg was not so long. In order to resolve these problems, a new RIA system for Tg was developed by using In-111 labeled monoclonal Ab. Monoclonal antibody against human Tg, named 59A, had a high affinity constant of 3.6×10^{10} M and showed no or very low cross-reactivity with auto-Ab in thyroid patients. In-111 was tagged to 59A through the chelation with DTPA with almost full retention of Ab activities. The specific activity was 1mCi/mg IgG. Solid phase RIA was developed by using In-111 labeled 59A. The sensitivity of the assay was 40ng/ml . In conclusion, our new RIA system had following characteristics: 1) Interference of auto-antibodies in thyroid diseases could be minimised. 2) 59A-DTPA conjugates are very stable with long shelf-life. 3) Theoretical sensitivity of the assay could be increased by introducing short half-lived In-111, instead of I-125.

96

A METHOD OF MEASUREMENT OF THYROGLOBULIN (Tg) IN SERUM WITH ANTI-Tg ANTIBODY. (ANTI-Tg Ab). M.Iwanaga, T.Tominaga, T.Sakamoto, M.Kakezono, N.Yokoyama, S.Morita, S.Yamashita, S.Nagataki. The First Department of Internal Medicine, Nagasaki University School of Medicine, Nagasaki.

The purpose of this study is to develop a method to measure the concentration of Tg in serum with anti-Tg Ab. Serum IgG was removed using antihuman IgG Ab bound Sepharose 4B and I-125 Tg was used for recovery for Tg. The concentration of Tg in IgG free serum was measured by RIA using I-131 Tg.

Adding unlabeled Tg to serum with anti-TgAb, the recovery study of added Tg was carried out and the recovery rate was 80% to 100%. The dilution of serum showed a straight line suggesting that the concentration of Tg in serum with anti-TgAb was measured correctly.

The coefficient of variation of intra-assay and inter-assay was 5 to 30% and 13 to 25% respectively.

The concentrations of serum Tg were measured with this method in 6 untreated patients with anti-TgAb. Serum Tg concentrations were elevated in all patients.

In summary, the concentration of Tg in serum with anti-TgAb can be measured with this newly developed method.