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THE MEASUREMENT OF SERUM THYROGLOBULIN (Tg) USING ANTI Tg MONOCLONAL ANTIBODY (MoAb). T. Tobinaga, T. Sakamoto, I. Kubo, S. Ohtakara, S. Morita, N. Yokoyama, F. Kakezono, U. Nagayama, T. Kiriya, S. Okamoto, I. Morimoto, M. Izumi, S. Nagataki. The First Department of Internal Medicine, Nagasaki University School of Medicine

The serum Tg concentrations can not be measured in the majority of patients with thyroid disorders, because of the presence of anti Tg autoantibodies (Auto Ab) in their serum, which cross-react with polyclonal anti Tg Ab used in the assays. This study was, therefore, undertaken to develop a new Tg assay method using MoAb which does not cross-react with Auto Ab. After making hybridoma 5 times and screen test of 20,000 wells, only one MoAb was obtained which does not cross react with Auto Ab and has a high affinity for Tg and is specific for human Tg. Two kind assay methods have been tried using sandwich technique, MoAb-MoAb and polyclonal Ab (poly Ab)-MoAb. The both assay methods showed good standard curves whose sensitivity to detect serum Tg concentrations was as low as 4ng/ml in both. However Auto Ab interfered with a standard curve in the poly Ab- MoAb sandwich method but not in the MoAb-MoAb sandwich method. In summary, the serum Tg concentration can be measured in the presence of Auto Ab using a MoAb-MoAb sandwich method.

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RADIOIODINE TREATMENT IN DIFFERENTIATED THYROID CARCINOMA. K. Ikekubo, Y. Saiki, S. Jeong, H. Yamaguchi, H. Ito, M. Hino, T. Ishihara, N. Waseda and T. Mori*. Kobe General Hospital Kobe and *Kyoto University School of Medicine, Kyoto.

Iodine-131 whole body scans and determination of plasma Tg were performed in 27 patients with differentiated thyroid carcinoma who had undergone total thyroidectomy. Out of those 27, 14 patients were considered free of carcinoma and 13 patients were treated with therapeutic doses (50-100 mCi) of I-131. Of 13, 7 patients had functioning metastases (lung 3, bone 2, lung and bone 2). The remaining 6 patients had residual carcinoma in thyroidal bed. In 11 of the 13 patients, Tg levels were high and 2 patients had anti-Tg autoantibodies.

The effects of I-131 therapy were evaluated by clinical findings, isotopic, radiologic modalities and plasma Tg levels. Of the 7 patients with functioning metastases, 3 were improved, 2 are dead and 2 had no remarkable changes. Of 6 patients with residual carcinoma, 4 had successful ablation.

We conclude that I-131 whole body scan and the determination of plasma Tg levels should be performed for detecting metastatic or residual thyroid carcinoma after total thyroidectomy. I-131 therapy is effective in both functioning metastases and residual carcinoma. Plasma Tg levels are clinically useful in monitoring the activity of differentiated thyroid carcinoma.

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EVALUATION OF SERUM THYROGLOBULIN ON THE MEASUREMENT OF ITS HIGH VALUES AND ITS CLINICAL SIGNIFICANCE FOR THYROID TUMOR MARKER. H. Muraki, K. Tsutsui, K. Sato and S. Niizuma. Niigata Cancer Center, Niigata.

Serum thyroglobulin (Tg) concentration especially its high levels was measured by Eiken Tg-RIA kit. The minimum sensitivity of the assay was 2.5 ng/ml. The intra- and interassay reproducibilities, dilution test and recovery test were good. In the assay, there was no crossreaction between Tg and T4, T3. For serum dilution, Tg free serum was better than saline, in big value Tg measurement. Even though anti-Tg antibody was present, it was possible to measure Tg in cases with relatively low titer. Serum Tg levels was increased by the long time storage (-10 C, 1-6 months) and freezing and thawing.

Serum Tg levels in normal was less than 40 ng/ml. Serum Tg was elevated more than 1000 ng/ml in 35% of 40 thyroid cancer cases and more than 7000 ng/ml in 41% of 17 metastasis cases. Tg was found to be high value in cases with metastasis in which I-131 uptake was high. Serum Tg levels and clinical stage was well correlated in this series.

In conclusion, measurement of serum Tg levels was useful in the diagnosis of the thyroid cancer as a tumor marker.

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EVIDENCE THAT THYROID BLOCKING TYPE ANTIBODY (B-IgG) FROM A PATIENT WITH PRIMARY MYXEDEMA INHIBITS TSH- OR THYROID STIMULATING IgG (TSI)-INDUCED THYROGLOBULIN (Tg) RELEASE IN VITRO. Y. Fukue, H. Uchimura, S. Okano*, Y. Kanaji*, and F. Takaku. Third Department of Medicine, Faculty of Medicine, University of Tokyo; and Kanaji Hospital*, Tokyo, Japan.

In our previous report, TSH and TSI have been demonstrated to stimulate Tg release in human thyroid monolayer cells in a dose- and time-dependent fashion. The present study was performed to see whether B-IgG from a patient with myxedema affects Tg release induced by TSH, TSI, PGE₂, Forskolin (FSL) or dibutyryl cAMP (DBC) in human thyroid cells. Cells were prepared by enzymatic dispersion of thyroid tissues obtained from Graves' patients. Day 9 to 15 cultures were used in the experiments. All IgG's were prepared by Protein A Sepharose affinity chromatography. Tg concentration was measured by RIA. Results 1) When effects of graded doses of B-IgG on Tg releases induced by TSH were tested, Tg release was inhibited in a dose- and time-dependent manner. TSI-induced Tg release was also inhibited in a dose- and time-related fashion. 2) When effects of B-IgG on Tg releases by such thyroid stimulators as PGE₂, FSL, and DBC were examined, no inhibitory effects were observed. Conclusion. These results indicate that B-IgG affects post receptor processes specific for the TSH action.