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ANTIMICROSOME ANTIBODY ASSAY USING MICROSOME COATED WELLS. T.Tominaga,M.Iwanaga,T.Sakamoto,H.Kakezono,N.Yokoyama,S.Morita,S.Yamashita,S.Ohtakara,I.Kubo,S.Okamoto,M.Izumi and S.Nagataki. The First Department of Internal Medicine,Nagasaki University School of Medicine,Nagasaki.

The purpose of this study was to develop a sensitive method of the measurement of antimicrosome antibody to detect monoclonal anti-body. Microsome fraction was prepared from thyroids obtain at operation. Samples such as serum or culture sup were incubated in the wells coated with microsome fraction and I-125 antihuman IgG antibody was added after samples were removed and the wells were washed. I-125 antihuman IgG antibody bound to the wells was counted after the well was extremely washed. IgG fraction prepared from serum of a patient with microsome test 10^8 was employed as standard of antimicrosome antibody. 4 µl of serum was enough for the assay of antimicrosome antibody. Antimicrosome antibody was detected in approximate 80% of patients with Graves' disease and chronic thyroiditis. Antimicrosome antibody in culture sup of EB virus transformed lymphocytes of Graves' patients could be detected by this method.

In summary, this method of the measurement of antimicrosome antibody is sensitive enough to use clinically and to detect monoclonal antibody.

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THE RELATIONSHIP BETWEEN SERUM FREE THYROID HORMONES AND THE RESPONSE OF TSH TO TRH IN NONTHYROIDAL ILLNESS. S.Kokei*,Y.Matsuoka*, S.Suzuki,S.Iino. Fujigaoka Hospital of Showa University.*Kameda General Hospital.

The function of hypothalamus-pituitary-thyroid system of the patients with nonthyroidal illness(NTI)is not clear yet. Therefore, it was thought of interest to investigate this problem by determining free thyroid hormones and TSH in serum and the response of TSH to TRH injection in these patients. The subjects employed in this study were 71 cases with hemodialysis, 40 cases with diabetes mellitus, 16 cases with liver cirrhosis, 11 cases with acute hepatitis and 15 cases with various cancers. The total protein, albumin, serum free-T4,free-T3, TSH and other thyroid functions were determined, but the TRH test was performed in some of them. It was found that the concentrations of serum thyroid hormones and TSH were in normal range in most of the patients with diabetes mellitus and acute hepatitis, whereas the serum concentrations of free thyroid hormones were low, but TSH concentrations were normal in the patients with hemodialysis, liver cirrhosis and cancers. In the groups showing low serum concentrations of free thyroid hormones, the response of TSH to TRH was disturbed in the majority of the patients. These results indicate that low concentrations of serum free thyroid hormones observed in the majority of the patients with severe NTI, at least,in parth,be due to the disturbance of the anterior pituitary to secrete TSH.

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STUDY OF T_4-, T_4 ANALOGUE-, T_3 ANALOGUE-, AND $_rT_3$- AUTOANTIBODIES IN PATIENTS WITH T_3 AUTOANTIBODIES AND COMPARISON OF FREE T_4 VALUES BY VARIOUS ASSAY.
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The complication of T_4-, T_4-analogue-, T_3-analogue-, and $_rT_3$- autoantibodies in 15 patients with T_3 autoantibodies (11 with Graves' disease, 4 with Hashimoto's thyroiditis) was investigated using the binding of patient's sera to tracer. Some of them were characterized. Serum free T_4 in the patient having above 5% binding to ^{125}I-T_4 (control:2.6±0.2%) was measured by using the commercial kit (Clinical Assay 1 step and 2 step method) and the equilibium dialysis.
FTI was calculated using the fluoro immunoassay (TDx).

The frequency of autoantibodies was 40% against T_4, 60% against T_4-analogue, 100% against T_3 analogue, and 25% against $_rT_3$. 3 patient with T_4 autoantibodies above 5% binding had the high binding to ^{125}I-T_4 analogue, 61.9±2.2% (control 4.8±0.3%). Their free T_4 concentrations were >5.8, 4.58 and >5.8 ng/dl by 1 step method-RIA, whereas, 1.10, 1.13 and 2.46 ng/dl by 2 step method-RIA. Using the equilibrium dialysis assay, they were 0.85, 0.64 and 1.54 ng/dl. The FTI by TDx (5.3, 1.8 and 7.4, control 8.3±1.8) was resembling to the results of the equilibium dialysis assay.

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SERUM CONCENTRATION OF UNSATURATED THYROXINE-BINDING GLOBULIN(TBG) IN HYPER- AND HYPOTHYROIDISM. A.Kakinoki, N.Konno, H.Kon, K.Hagiwara, and H.Taguchi. Hokkaido Central Hospital for Social Health Insurance, Department of Internal Medicine, and Radiology, Sapporo.

The concentration of serum TBG not binding T_4 (unsaturated TBG,u-TBG) was determined in hyper- and hypothyroidism. u-TBG was expressed as the product of TBG concentration and the ratio of free TBG capacity to maximal TBG capacity as determined by reverse-flow electrophoresis. u-TBG concentration in normal sera(n=40) was 15.4±2.3mg/L(mean±S.D.), or 257±38nmol/L for a molecular weight of TBG of 60,000 daltons. u-TBG levels were significantly lower in hyperthyroidism(7.1±2.3mg/L,n=16,p<0.001) and higher in hypothyroidism(21.7±5.0mg/L,n=22,p<0.001). Based on partial correlation analysis, u-TBG was inversely correlated to serum T_4(r=-0.586, p<0.001),but not correlated to triiodothyronine(T_3) (r=-0.180,NS). There was a reciprocal correlation between u-TBG concentration and the T_3 uptake value (r=0.748,p<0.001). There was also a reciprocal correlation of u-TBG with both %free T_4(r=0.425, p<0.001) and %free T_3(r=0.377,p<0.001),when the data were subjected to partial correlation analysis. These results provide the values for u-TBG concentration in hyper- and hypothyroidism, and support the concept that the free fractions of serum thyroid hormones may be determined by the number of binding sites of the TBG molecule that are unsaturated with T_4in hyper- and hypothyroidism.