NORMAL TSH CONCENTRATIONS IN LOW T3 SYNDROME. F.Kakezono,U.Nagayama,T.Kiriya
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It is well known that the concentrations of serum T3 (and T4) are often decreased in euthyroidal illness and it is not known whether these decreases are due to decreased serum TSH concentration, because it had been difficult to measure accurately lower concentrations of serum TSH. The present study was, therefore, undertaken to investigate the mechanism for these decreases in serum T3 (and T4) measuring TSH concentrations Using the SUCROSEP of a high sensitive assay for TSH. A decrease in serum T3 concentration was found in 12 of 33 patients with nonthyroidal illness and a decrease in serum T4 concentration in 3/33. The concentration of serum free T3 and TBG was normal in all patients including 3 patients with low T3 syndrome. The concentration of serum TSH did not correlated with that of serum T3, T4 and free T4. These results suggest that decreased serum T3 and T4 in these patients with nonthyroidal illness are not due to decreased TSH secretion but may be due to inhibition of binding of T4 and T3 to TBG.


We have reported fundamental and clinical evaluation of a high sensitive IRMA for serum TSH concentration. Serum was obtained from 95 healthy euthyroid subjects, 85 patients with Graves' disease, 43 patients with chronic thyroiditis and 318 pregnant women. This method could measure for 120 minutes at room temperature and the assay had an absolute sensitivity of 0.08 uU/ml. The coefficient of variation of intraassay and interassay were 4.79–18.58 and 3.42–13.68%, respectively. Using three kinds of serum, the mean recoveries were 91.5±6.47(SD), 102±4.27, 91.6±2.87%, respectively. Serum TSH levels on diluted serum were shown linear to 4096 times. The crossreactivity between anti-hTSH monoclonal antibody and LH, FSH, HCG, 8-hCGC was absent. This assay was never influenced by addition of albumin, olate and hemoglobin. The mean circulating TSH concentration was 1.5±1.31(SD) in normal subjects, 0.9±0.02 in untreated patients with Graves' disease, 5.08±3.13 in patients with Graves' disease in remission, 1.65±2.53 in patients treated with antithyroid drugs. The normal range was 0.3–3.4 uU/ml by Hoffman pregnancy the level of TSH was slightly decreased but not so in non-pregnant women. Concluding these results, we have reported the utility and value for clinical usefulness.

THE MEASUREMENT OF SERUM TSH IN NORMALS AND PATIENTS WITH THYROID DISEASES USING HIGH SENSITIVE ASSAY METHODS. T.Sakamoto,F.Kakezono,U.Nagayama,T.Kiriya,N.
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The serum TSH concentrations were measured by high sensitive RIA, using DP-5061 kit (Daichii Aisotop) RIA gnost hTSH kit (Hoechst) and SUCROSEP TSH IRMA Kit (Boots Celltech). The serum TSH concentrations measured by a polyclonal monoclonal sandwich method (DP-5061 Kit) is slightly but significantly increased compared to monochonal monoclonal sandwich method (RIA gnost, and SUCROSEP) in normal subjects and no difference was found in TSH increased samples either in hyperthyroid patients or of TSH test serum. This difference in normal subjects was found to be due to the method itself but not due to supposed molecular difference between TSH at basal state and TSH at stimulated state, since dilution curves of increased TSH serum showed a straight line in three assay methods. The concentrations of serum TSH in normal subject were clearly higher than those in patients with active Graves' disease, in these three assays. The measurement of TSH by high sensitive assays is clinically and pathophysiologically useful.

A CLINICAL STUDY ON SERUM TSH(hTSH) BY A SENSITIVE RADIOIMMUNOASSAY (RIMA) IN PATIENTS WITH THYROID DISEASE AND NONTHYROIDAL ILLNESS. H.Uchimura,N.Akimoto,T.Mitsushashi,N.Sasaki,Y.Inoue and F.Takaku. The Third Department of Internal Medicine,University of Tokyo,Tokyo.

Very recently highly sensitive RIMA's for hTSH have been developed by several laboratories. Most of these methods employ specific monoclonal anti-hTSH antibodies. The present study was examined the clinical significance of measurements for hTSH by a highly sensitive RIMA with monoclonal mouse antibody. Sera were obtained from normal subjects(118),patients with thyroid disea(se(299) or nonthyroidal illness(134). Two hundred ul of serum was incubated with 1-125-anti-hTSH antibody in antibody-coated tubes for 2h at 4C.Decantation was performed by aspiration. Normal value was 1.25±0.71uU/ml(normal range:118,134). Minimal detectability was 0.01uU/ml. Basal and TRH-induced TSH increase were detected in thyrotoxic patients with Graves' disease. Serum TSH was closely and inversely correlated with FT3, in patients with thyroid disease.In patients with nonthyroidal illness, no relation was found among TSH, T4, T3, and FT3. However,there was significant negative correlation between TSH and FT3. These results suggest that TSH secretion from the pituitary in thyrotoxic Graves' patients and the secretion of TSH might be directly or indirectly related to circulating FT3 in patients with thyroid disease or nonthyroidal illness.