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THE INVESTIGATION OF THYROXINE BINDING INDEX(TBI, KIT.

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Total T_3 and T_4 may not reflect thyroid function in patients with abnormal concentration of TBG in serum , and many kinds of free T_4 index, such as $T_4 \times T_3U$, $T_4 \times T_3U/100-T_3U$, and T_4/TBG have been introduced.

We investigated TBI kits of enzyme immunoassay(Boehringer), which reflect unbound TBG, and free T_4 index of T_4/TBI. The total numbers of subjects were 143, which included 50 normal subjects, 23 patients with Graves' disease, 27 patients with hypothyroidism, 27, pregnant women, 8 patients with TBG deficiency and 8 patients with nonthyroidal illness.

0.01ml of serum and 1ml of T_4 and T_4-PoD buffer were taken into an anti-T_4 antibody coated assay tube. The tube was incubated for 2 hours and washed, and was incubated for 30 to 60 minutes after adding 1 ml of ABTS solution. The optical density of the tube was measured at 420nm. TBI was obtained from the standard curve. The values for TBI were 0.99-11.55 in normal subjects and Free T_4 index of T_4/TBI were 3.88-9.44. This free T_4 index reflects well thyroid function and correlated much well with free T_4, when serum T_4 level is less than TBG--capacity.

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THYROID FUNCTION TESTS IN HOSPITALIZED PATIENTS.

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Patients with nonthyroidal illness have a wide variety of abnormalities in serum thyroid hormone concentrations. Recent evidences have shown that these patients are euthyroid (euthyroid sick syndrome).

Present study was aimed to investigate abnormalities in serum thyroid hormone concentrations in patients who hospitalized in our department for nonthyroidal illness. Of sera from 135 patients, T4, T3, TBG, rT3, FT4 and FT3 were determined by RIA. TSH responses to TRH were also assessed in 8 patients. Although only four patients (3%) showed lower T4 value than normal, lower T3 and TBG concentrations were observed in 41 (30%) and 12(8.8%) of patients respectively. The concentrations of rT3 and FT4 were increased in 30(22.4%) and 27(20%) of patients respectively. Serum FT3 were lower than normal in 44% of patients. Serum T3 concentrations were closely correlated to serum albumin. Half of eight patients who were subjected to TRH test showed reduced TSH responses to TRH.

These results indicate that available thyroid function tests may give misleading results in patients with nonthyroidal illness and caution be exercised in diagnosing thyroid disease in hospitalized patients.

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FUNDAMENTAL AND CLINICAL STUDIES ON THE MEASUREMENT OF SERUM THYROGLOBULIN BY IMMUNORADIOMETRIC ASSAY KIT(CIS).

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The sensitivity of the assay was 3.0ng/ml T_3 and T_4 did not crossreact in the assay. The intra- and interassay C.V. were 2.9-11.9 % and 10.4-17.1% respectively. Analytical recoveries were nearly quantitative for the serum with normal anti-Tg, while they were decreased for anti-Tg positive sera.

To study the effect of anti-Tg on Tg measurements, various amounts of anti-Tg IgG from a patient were added to anti-Tg negative sera and the assay were performed. The presence of anti-Tg gave rise to depressed values for Tg.

Serum Tg was measured in 29 normal subjects and untreated patients with various thyroid diseases. The mean Tg level in normal subjects was 15.3±10.4(S.D.)ng/ml ranging from 3.0 to 42.0ng/ml. High Tg levels were found in 64% of 11 Graves' disease and 46% of 28 Hashimoto's disease even in the presence of anti-Tg. Serum Tg levels were elevated in 63-68% of 16 differentiated thyroid cancer and 31 adenoma

We conclude that the assay allows a semiquantitative determination of Tg in the presence of anti-Tg by eliminating false positive Tg values. Tg determination can be helpful in the diagnosis and management of thyroid diseases and might be useful in studies related to the autoimmune mechanisms

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MEASUREMENT OF SERUM THYROGLOBULIN BY IMMUNORADIOMETRIC ASSAY AND ITS CLINICAL SIGNIFICANCE.

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Serum thyroglobulin (Tg) concentration was measured by immunoradiometric assay with H-TG kit (CIS-Sorin). The first and second incubations were performed at room temperature for 24 hours. The intraassay and interassay reproducibilities, recovery test and dilution test were proved to be satisfactory.

The mean Tg value was 8.1±6.9 ng/ml (±SD) in 35 normal subjects. It was elevated in 20 patients with untreated Basedow's disease and 10 patients with hyperthyroidism due to subacute thyroiditis, being 274.5±158.3 and 250.6±187.1 ng/ml, respectively, compared with that of normal subjects. The 40 patients with Basedow's disease who were treated by antithyroidal drugs were subdivided into four groups: remission group (I, n=10), antithyroidal medication for less than 2 years (II, n=10), for 2-3 years (III, n=10) and for 4-8 years (IV, n=10). The patients in group II~IV have been treated by maintenance dose of MMI 5 mg per day.
The value of Tg in group I (25.9±16.2 ng/ml) was significantly lower than those of group II~IV. The level of serum thyroid hormone was almost similar in each group. All subjects studied had no circulating Tg autoantibodies as measured by anti-Tg radioimmunoassay kit (CIS-Sorin).