

low thyroxine concentrations and normal ETR values, whereas those with elevated TBG had elevated thyroxine concentrations and normal ETR values. Thus, it was possible to find out patients with abnormal TBG by modified

method. In conclusion, the modified ETR test, by which serum thyroxine concentrations and ETR values were determined simultaneously, was more useful in vitro thyroid test than the original method.

Thyroid Function Test Using Res-O-Mat ETR Kit

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Res-O-Mat ETR (Effective Thyroxine Ratio) tests were carried out in 31 control subjects, 21 cases of untreated hyperthyroidism, 40 cases of treated hyperthyroidism, 10 cases of untreated hypothyroidism, 11 cases of treated hypothyroidism, 16 cases of non-toxic goiter, 10 cases of euthyroid pregnant women, 4 cases of nephrotic syndrome and one case of TBG deficiency. ^{131}I -triiodothyronine resin sponge uptake by Triosorb test and thyroxine by competitive protein-binding analysis using Res-O-Mat T_4 test were also determined in all cases. Free thyroxine indices (T_7 values) were obtained by the products of Triosorb and Res-O-Mat T_4 values.

The ETR values were 0.96 ± 0.04 (mean \pm one standard deviation) for control subjects, 1.28 ± 0.15 for untreated hyperthyroidism,

0.92 ± 0.08 for treated hyperthyroidism, 0.76 ± 0.06 for untreated hypothyroidism, 0.96 ± 0.08 for treated hypothyroidism, 0.94 ± 0.05 for non-toxic goiter and 0.96 ± 0.04 for pregnant women. The values for cases of nephrotic syndrome and TBG deficiency were in the range of control subjects.

When ETR values were plotted against Triosorb, Res-O-Mat T_4 and T_7 values in 123 cases of control subjects, hyperthyroidism and hypothyroidism, the correlation coefficients (γ) were obtained 0.87, 0.86 and 0.90 respectively. A good reproducibility was shown in the results of Res-O-Mat ETR tests.

The present study supported that Res-O-Mat ETR values were useful indicators of thyroid function as well as T_7 values.

Thyroid Function Test Using by Res-O-Mat ETR

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The direct measurement of free thyroxine would reflect the metabolic status of an individual more accurately than any other single thyroid function test. Free thyroxine index has been shown to have a higher degree of correlation with the clinical thyroid status of the patient

than the results of either TBC index or T_4 value alone. The Res-O-Mat ETR test is a single in vitro thyroid function test which can simultaneously consider both the TBC index and T_4 level.

The test procedure was examined and the following results were obtained.