330

FUNDAMENTAL AND CLICICAL EVLUATION OF SERUM FREE TRIIODOTHYRONINE CONCENTRATION BY RADIOIMMUNOASSAY.

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Fundamental and clinical evaluation of serum free triiodothyronine(FT3) concentration by RIA was performed. First and second incubations were twenty and sixty minutes at room temperature, respectively. The coefficient of variation for intraassay and interassay, recovery tests and specifity in this assay system were satisfied. Dilution tests were not successful by various methords. The assay results of clinical application was as follows; 4.6±1.1 pg/ml in normal subjects(n=78), 17.7±3.7 pg/ml in untreated patients with Graves' disease(n=54), 1.2±0.5 pg/ml in patients with hypothyroidism(n=19), 4.1±1.1 pg/ml in euthyroid patients with Hashimoto's thyroiditis(n=33), 4.7±1.2 and 4.4±0.8 pg/ml in patients with simple diffuse and noduler goiter(n=27,8), respectively, 2.7-6.4 pg/ml in euthyroid patients with anti-T3 antibody(n=3), 3.2±0.4 and 3.4-4.5 pg/ml in patients with TBG excess and deficiency(n=8,2), respectively. In patients with nonthyroidal illness, serum FT3 concentrations were low values of normal ranges, especialy in patients with myocardial inferction showed subnormal values at first day after onset.
These results indicates that serum FT3 concentration well reflected on thyroid function.

331

CLINICAL EVALUATION OF CORNING IMMO PHASE FREE T_3 ASSAY KIT.

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The new kit of Corning IMMO PHASE free T_3 assay was investigated to see whether this is good enough to use clinically for patients with thyroid diseases.

This method is composed of 2 steps. In one steps, total T_3 in serum is measured by RIA. In the other-step %free T_3 is measured by absorbing free T_3 by anti-T_3 antibody without using ANS in assay system. The product of total T_3 and %free T_3 is corrected by using a standard curve, which is obtained by measuring standard samples with this method. The concentrations of free T_3 in these standard samples were already measured by dialysis method. In both steps of this method, 50µl of serum or standard sample is put into a assay tube. The tube is incubated for 20 min. at room temperature after adding 100µl of ^{125}I-T_3 solution. Thereafter, 800µl of anti-T_3 antibody solution is added and the mixture is incubated for 60min. at room temperature. The precipitate is counted after centrifugation at 3000 rpm for 10 min. The assayable range is from 0.51 to 19.0 pg/ml. The sensitivity and reproducibility of this assay(CV, 3-9%) were good. The concentration of serum free T_3 was 5.4±1.5(mean+SD) pg/ml in 36 normal subjects, 15.8±4.6 in 50 patients with Graves' disease and 1.2±0.8 in 50 patients with hypothyroidism. Excellect correlation coefficeints were obtained between free T_3 concentrations by this method and by dialysis as well as free T_4 concentration by RIA. These reasults indicate that the method of measurement of free T_3 by this kit is simple and clinically useful for patients with thyroid disorders.

332

BASIC AND CLINICAL EVALUATION OF IMMOPHASE FREE T3 RADIOIMMUNOASSAY KIT.

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Basic and clinical evaluation of Immophase Free T3 RIA kit was performed in this study. The subjects employed were 51 euthyroid persons, 33 Graves' patients, 20 hypothyroid patients and 90 normal pregnant women. In the basic study, no influence was observed on the determined values with the changes in the temperature and duration of incubation. C.V. values for the intraassay reproducibility were between 5.4 and 10.7%, those for the interassay reproducibility between 8.1 and 10.3%, and the recovery rate between 93.9 and 96.7%. In the clinical study, the mean FT3 values±S.D. and the measured ranges were 4.4±0.5pg/ml and 3.2~5.2pg/ml for the euthyroid subjects, 15.3±4.7pg/ml and 8.0~20.9pg/ml for the Graves' patients, and 1.4±0.7pg/ml and <0.5~3.1pg/ml for the hypothyroid patients. The average FT3 values for the pregnant women were 4.2±0.5pg/ml in the first, 3.5±0.4pg/ml in the second and 3.3±0.3pg/ml in the third trimester. From these results, it was concluded that the Immophase FT3 RIA kit was thought to be one of the most useful methods to evaluate the thyroid function. FT3 concentrations in pregnant women showed a similar gradual decrease with the course of gestation to FT4 values.

333

EVALUATION OF SERUM FREE-T3 LEVEL AS THYROID FUNCTION TEST AND THERAPEUTIC SIGNIFICANCE.

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Considering the peripheral hormone metabolism, FreeT3 and FreeT4(discribed as FT3 and FT4) are regardal as active types that signify clearly thyroid functions. It is important for thyroid function tests to measure directly FT3 and FT4 in blood. Until now it seems impossible to detect, they exist in blood on extremely small amount. The measurement kit is developed by Corning Medical, and we report on basic and follow up study of FT3 on the screening tests to the thyroid disorders and on the monitoring for medical treatments. The method doesn't need a long proceeding time as the first incubation takes twenty minutes and the second sixty minutes, and gave good results of the basic study in the reproducibility, the recovery and the dilution. The coefficient of correlation between FT4 and FT3 is 0.818, the regression is y=3.458x-0.549 FT3 decreases more rapidly than FT4 by the treatment to the hyperthyroidism and respond more clearly in the hypothyroidism than total T3 and T4. It is suggested that by the measurement of FT3 we can diffrenciate clearly the thyroid disorders. With the further study, we will report useful date.