Our Experience Using T3 RIA KIT (PEG Method)

K. Saito, Y. Onodera, K. Ishii, S. Hashimoto, T. Kuribayashi, and T. Watanabe
Department of Radiology, Kitasato University, Kanagawa Japan

Measuring T3 (triiodothyronine) in the blood is rapidly becoming a common and indispensable clinical procedure. We had the opportunity to use the T3 RIA KIT developed by Dinabott R1 laboratory. This kit uses polyethylen-glycol (PEG) to separate antibody combined with hormone labeled RI from isolated hormone labeled RI. We intend to report the foundamental and clinical findings that we obtained with this kit.

(Object and Methods)

Foundamental Examination—In accordance with standard measuring method, we examined the time and temperature of incubation, and the influence of light. We also tested diluted T3 high concentration serum, its recovery and its ability to reappear.

Clinical Examination—We measured T3 in serum taken from 58 patients who have various thyroid diseases, 9 pregnancies, 3 nephrosis, and 33 healthy persons by means of this method. We then also measured T3 in all these cases by means of the usual T3 RIA KIT (dextran-charcoal method) and compared the results obtained from both.

(Results)

We obtained a good standard curve which was taken after 2 hours of incubation at 25°C, and made these our assay condition. The dilution curve of T3 high concentration serum run parallel to the standard curve. When we added standard 0.25–4.00 ng/ml of T3 to the pooled serum, the rate of recovery was 87–120‰. 98.6% on the average. In healthy persons, the amount of T3 in serum was 1.20–1.73 ng/ml, 1.44±0.15 ng/ml on the average; in hyperthyroidism patients, 2.65–8.00 ng/ml; in hypothyroidism patients, 0.09–1.14 ng/ml; in pregnancies, 1.05–1.98 ng/ml; in patients with nephrosis, 1.30–1.85 ng/ml. The correlation coefficient of the T3 of the dextran-charcoal method and T3 of the PEG method was γ = 0.927. This means that these correlate very well.

This new method is simple and can be performed quickly. For these reasons, we think this method is very useful to measure T3 in serum.

Radioimmunoassay for Measurement of Triiodothyronine and Thyroxine in Human Serum

H. Yoshii, Y. Ichihara, Y. Hirota, K. Fukui, T. Yasunaga, H. Imuta, and K. Katayama
Department of Radiology, Kumamoto University Medical School, Kumamoto

Our experience with radioimmunoassay (RIA) used for measuring serum triiodothyronine (T3) and thyroxine (T4) is reported. The method has good specificity for T3, T4 and its reproducibility is satisfactory. RIA T3 values ranged from 0.80 to 2.14 ng/ml (1.30±0.31) in normal adults. RIA T4 values ranged from 4.7 to 14.7 μg/100 ml (9.4 ± 2.7) in 50 normals cases.

In all clinical states, serum T3 values obtained by RIA afforded excellent agreement (correlation coefficient −0.91) with those obtained by triiodothyronine binding globulin index-thyopac 3. Serum T4 values obtained by RIA afforded excellent agreement (correlation coefficient 0.91) with those obtained by competitive protein binding assay-thyopac 4.

Hemolystic serum are light higher than normal serum between the two techniques.

Advantages of the method over commercially available RIA kits or CPBA and TBG-index are outlined.