

A Study on the Radioimmunoassay of Serum Triiodothyronine

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Preparing antibody for triiodothyronine (T₃) by ourselves, the serum T₃ concentrations were determined by radioimmunoassay and compared with those obtained with Dainabot's T₃ assay kit.

21 euthyroid normal control volunteers, 30 hyperthyroid patients, 12 hypothyroid patients and 2 patients with TBG deficiency were employed in this study.

The conjugate of T₃ to human albumin was made by carbodiimide method of Oliver et al., emulsified in equivalent volume of complete Freund's adjuvant, then injected into back muscles of rabbit every week and sera were drawn and served for assay successively at adequate intervals.

It was found that the relative activity of T₄ to T₃ was 0.25%, but there is no effect on T₃ concentration when 10 or 20 ng of T₄ was added to standard doses of T₃ or 1, 10, 20 or 100 ng of T₄ to 150 pg of T₃. The relative activities of DIT and MIT to T₃ were 0.009% and 0.008%, respectively.

The serum T₃ concentration in various thyroid

disorders was determined in duplicates and the average value was calculated. The assay procedure was similar to the conventional method, except for using 0.1M Veronal buffer of pH 8.6 and T₃ free serum treated with ANS and expelling of T₃ from TBG with ANS.

The precision and the reproducibility of this assay system were quite excellent, having C.V. of 4.9% for the former, and 8.6% for the latter. The rate of recovery was 127%.

The concentration of serum T₃ was 136 ± 12 (mean \pm S.D.) ng/100ml for euthyroid normal volunteers, 570 ± 93 ng/100ml for hyperthyroid and 52 ± 10 ng/100ml for hypothyroid patients. In 2 patients with TBG deficiency they were 52 and 84 ng/100ml.

These results were comparable to the values obtained with Dainabot T₃ radioimmunoassay kit.

It was concluded that the developed T₃ radioimmunoassay system was very reliable and could be used for the routine T₃ determination.

Radioimmunoassay of T₃

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Radioimmunoassay of T₃ in human serum has been studied. Antiserum to T₃ was produced in rabbits by injection of a T₃-Human serum albumin conjugate.

Cross reactivity of this antibody with T₄ was less than 0.1%. T₃-125 with high specific activity (600mCi/mg) was obtained, by the isotope exchange method, and 10pg of the labeled T₃ was