

Evaluation of the Commercial T₃ Radioimmunoassay Kits

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Determinations were made of total T₃ concentrations in 18 sera of normal subjects by the four commercial kits (T₃ RIA Kit, T₃ RIA Mat, T₃ RIA Pac and Seralute). T₃ RIA Mat gave the lowest value (117 ± 23 ng/100 ml), whereas the highest value was obtained by Seralute (184 ± 34 ng/100 ml). T₃ RIA Kit and T₃ RIA Pac gave the mean value of 147 ± 23 ng/100 ml and of 164 ± 24 ng/100 ml, respectively. It was supposed that the discrepancies of normal T₃ concentrations obtained by these kits resulted from the differences of T₃ standards and from the methodologic differences of separation of B and F. The normal T₃ concentrations were determined by T₃ RIA Kit, in which the T₃ standards accompanied in T₃ RIA Mat were used, and the almost same values as those by the original T₃ RIA Kit were obtained. Moreover, the diminished values were obtained, even if the T₃ standards in T₃ RIA Kit were used

in T₃ RIA Mat. Thus, the findings indicated that the discrepancy did not result from the differences of T₃ standards in both kits. On the other hand, the diminished values were obtained by T₃ RIA Kit, in which B and F were separated by resin strips accompanied in T₃ RIA Mat. T₃ RIA Mat gave the almost same values as those by T₃ RIA Kit, when B and F were separated by charcoal method. Nonspecific bindings of ¹²⁵I-T₃ was almost 7% in both T₃ free serum and sample serum in T₃ RIA Kit, which used the charcoal method, whereas it was approximately 3% in T₃ free serum and 9.7% in sample serum in T₃ RIA Mat, in which B and F were separated by resin strip. Therefore, it was concluded that the differences between nonspecific binding in charcoal method and that in resin strip method caused the discrepancy of T₃ concentrations in T₃ RIA Kit and T₃ RIA Mat.

Clinical Evaluation of In Vitro and In Vivo RI Tests for Thyroid Function

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For recent developments of RI tests of thyroid function, it is possible to determine T₄-Resin Uptake, T₃ concentration, T₄ concentration, TSH levels and thyroid iodine uptake as the clinical routine tests.

In this studies, T₃-Resin Uptake, T₃ concentration, T₄ concentration and TSH levels were measured by commercial kits in 350 samples, and comparison of thyroid hormone levels with thyroid iodine uptake were examined in 57 patients with thyroid disorders in order to evaluate its clinical usefulness.

Results: (1) Coefficient of correlation on T₃-Resin Uptake and T₃ concentration were $r = +0.725$. Normal T₃ concentration but high T₃-Resin Uptake was shown in 38/199 samples and

low T₃-Resin Uptake was shown in 24/199 samples. Low T₃ concentration but high T₃-Resin Uptake was observed in 18/58 samples and normal T₃-Resin Uptake was observed in 28/58 samples. (2) Coefficient of correlation on T₃-Resin Uptake and T₄ concentration were $r = +0.774$. Normal T₄ concentration but high T₃-Resin Uptake was obtained in 58/195 samples and low T₃-Resin Uptake obtained in 14/195 samples. Low T₄ concentration but high T₃-Resin Uptake was shown in 11/82 samples and normal T₃-Resin Uptake was shown in 49/82 samples. (3) Coefficient of correlation on T₃ and T₃ concentration were $r = +0.81$. Normal T₃ concentration but high T₃ concentration was shown in 5/200 samples and low T₄ concentration was shown in 46/200 samples.