

mean C.V. of 95.8%. Two ways of serum storing were compared. A series of sera was freeze-dried and stored in glass tubes for 30 days. Another series of the same sera in a small test volume (0.05 ml) were freeze-dried and stored in polyethylene tubes (provided in the test kit) for the same period of time. No difference was found between these two, and it might be convenient to run the test by the latter storing method.

The  $T_4$  value of normal subjects ranged 6.43 to 12.47  $\mu\text{g/dl}$ , and they are clearly separated from those of hyper- and hypothyroid patients. A good correlation was observed between  $T_4$  RIA values and Res-O-mat  $T_4$  values ( $r=0.91$ ).

The  $T_4$  RIA test needs only 0.05 ml of serum, can easily and simply be carried out with good precision. This might be superior to the CPBA method in determining serum  $T_4$  value.

### Serum Thyroxine Level by $T_4$ RIA Kit

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The basic condition and clinical usefulness of thyroxine radio-immunoassay kit were examined.

$T_4$  RIA kit (Dainabot RI Co.) and RIA-Mat  $T_4$  kit (Daiichi RI Co.) were employed in this study.

Thirty five normal euthyroid subjects, forty eight patients with hyperthyroidism and twenty five patients with hypothyroidism were investigated.

Result: The absorption of free thyroxine to resin sponge or strip resulted in progressive increases in the course of incubation time on the both kits. On  $T_4$  RIA kit, resin sponge uptake resulted in slight progressive increases with the increase in incubation temperature.

Cross-reactivity of antiserum with triiodothyronine, monoiodotyrosine and diiodotyrosine were appeared only a very little. Coefficient of variation on intraassay and interassay were less than 10%.

Coefficient of correlation on PBI and thyroxine level by CPBA method were  $r=0.9$ , and on the level of RT3U were  $r=0.7-0.9$ .

The mean serum thyroxine level in normal euthyroid subjects was  $7.4 \mu\text{g}/100 \text{ ml} \pm 1.8$  (SD) on  $T_4$  RIA kit and  $7.2 \mu\text{g}/100 \text{ ml} \pm 1.5$  on RIA-Mat  $T_4$  kit. Euthyroid subjects indicated values which range from a low of 5.1 and 4.6  $\mu\text{g}/100 \text{ ml}$  to a high of 12.0 and 11.0  $\mu\text{g}/100 \text{ ml}$  on the  $T_4$  RIA kit and RIA-Mat  $T_4$  kit, respectively.

The mean thyroxine level in hyperthyroid patients was  $21.3 \mu\text{g}/100 \text{ ml} \pm 5.4$  on  $T_4$  RIA kit  $23.1 \mu\text{g}/100 \text{ ml} \pm 6.7$  on RIA-Mat  $T_4$  kit. The mean thyroxine level in hypothyroid patients was  $2.7 \mu\text{g}/100 \text{ ml} \pm 1.5$  on  $T_4$  RIA kit and  $3.5 \mu\text{g}/100 \text{ ml} \pm 1.2$  on RIA-Mat  $T_4$  kit.

The values of both  $T_4$  kit did not appear to overlap between hyper- and hypothyroid patients and normals.