was developed using Amerlex to total T4 kit with minor modification. One ml of 0.9% NaCl was used as an incubation buffer. Standard P T4 were calculated by equilibrium dialysis method in our laboratory. The following fundamental and clinical data of our system were obtained. The coefficients of variation for two control sera were 5.7-7.0% (intra-assay) and 4.8-6.1% (intra-assay). The normal value for FT4 ranged 1.04±0.36 ng/dl as determined on 15 healthy adults. Serum F T4 was increased in all patients with untreated hyperthyroidism (n=10, 3.9±0.76 ng/dl) and decreased in all patients with untreated hypothyroidism (n=10, 0.18±0.09 ng/dl). It was normal in patients with euthyroid thyroid diseases (n=7) and pregnant women (n=8). The coefficients of correlation between our FT4 values and FT4 index (T4), our FT4 values and FT4 values obtained with equilibrium dialysis method, and our FT4 values and FT4 values obtained with Gamma Coat free T4 system were r=0.93, r=0.79, and r=0.91, respectively. These data indicate that FT4 radioimmunoa ssay system using Amerlex total T4 radioimmunoassay kit with minor modification was considered quite useful clinically for evaluation of thyroid status.

Evaluation of serum T3 and T4 radioimmunoassay (RIA) kit (Amerlex T3 and T4) were evaluated. The antibody-bound fine particles (Amerlex particles) were used as a suspended solution in this solid-phase system. Blood samples were obtained from patients with high, moderate and low concentrations of thyroid hormones. Intra-assay variability of serum T3 was 1.4 to 4.9%, 2.5 to 5.1% and 4.8 to 6.9% respectively. Similar data were also obtained with serum T4, which were 3.5 to 5.2%, 3.0 to 5.5% and 2.5 to 5.5%, respectively. These results were smaller than those of previously used solid-phase RIA with antibody-coated tubes and similar to those of two antibody methods. In addition, inter-assay variability of serum T3 were 1.7 to 4.0%, while that of serum T4 were 11 to 16%. The values from this RIA system well reflected the thyroid status with good dilution curves.

In our specimens, measurement of serum T3 and T4 by this new RIA system was more rapid than two antibody method, while its reproducibility was similar to the level of two antibody method.