

identical when different batches of anti T_3 serum were used. Heterogeneity of the anti T_3 serum which reacts with free T_3 , conjug-

ated T_3 or thyroid hormone metabolites in urine (or serum) may cause the different results of T_3 RIA.

Studies on ^{131}I -Thyroxine Binding Protein Using Single Radial Immunodiffusion and Ouchterlony Method

S. NAKAGAWA

The Third Department of Internal Medicine, Kumamoto University. Medical School.

In 1967, I reported the first familial thyroxine-binding globulin (TBG) deficiency in Japan. The evidence of TBG deficiency is based on the defect of the distribution of radioactivity due to ^{131}I -thyroxine in inter-alpha globulin region by electrophoresis of the serum and ^{131}I -thyroxine mixture. Recently, I have an opportunity for studying with anti-TBG rabbit serum (Behringwerke) for purpose to clarify the nature of TBG protein fraction in TBG deficient serum more exactly. Two different immunological methods are used, i.e. single radial immunodiffusion in antigen-contained gel layer and Ouchterlony method combined with radioautography. In the former procedure, the sample sera (0.1 or 0.2ml) are mixed with ^{131}I -thyroxine ($20\mu\text{Ci}$, $55\mu\text{g}/\text{dl}$ of serum) and thereafter 7.0ml of 1.2% agarose solution are poured into the mixture. After making the agar plate, 12 or 27 wells for anti-

sera application are punched out with cutter.

As the result of the former method, the radioautogram showed the distribution of radioactivity around some wells into which are applied anti-sera to TBG, prealbumin, β -lipoprotein and hemopexin, corresponding to the protein precipitation rings respectively. I emphasize the probability of hemopexin to be one fraction of the thyroxine-binding proteins besides previously identified.

From the second part of these studies, I draw the conclusion that the TBG protein itself is defect in the sera of the TBG deficient patients instead of the disturbance of binding activity of TBG to ^{131}I -thyroxine, because there is the precipitation line between normal serum and anti-TBG serum, while the line between TBG deficient sera and anti-TBG serum can not be detectable.

Activities of Thyroid Stimulator in the Fractions from the Serum of Graves' Disease Eluted Through the Acid Sephadex Column

K. ABE, K. MATSUURA and Y. HIRATA

The First Department of Internal Medicine, Tottori University School of Medicine, Yonago

In the present paper, activities of thyroid

stimulator in the fractions from the serum of