Kinetic Analysis of Triiodothyronine Outside Thyroid with $^{131}$I-L-Triidothyronine by Aid of Computer—with Special Reference to Liver Diseases

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The peripheral metabolism of triiodothyronine in various disease was studied using $^{131}$I-L-triiodothyronine. Clinical materials were composed of 6 cases of chronic hepatitis, 5 of liver cirrhosis, one case of precirrhosis, 2 cases of hyperthyroidism, 2 of hypothyroidism, one case of low TBG and 5 cases of hospital controls. By assuming a three-compartment model, kinetic analysis of peripheral triiodothyronine (T3) distributions in various organs were calculated based upon the disappearance curve of $^{131}$I-T3 radioactivity in the serum, time dependent curve of radioactivity over the liver and the rate of urinary excretion in attempts to clarify the kinetic distribution of T3 and the time dependent pool size of T3 in each compartment such as serum pool (P13), liver pool (P2) and the other pool (P3). The T3 concentration in the serum was assayed by Sterling's method.

In controls, time giving the peak of hepatic radioactivity after i.v. injection of $^{131}$I-T3 was 9 ± 2 min., whereas 11 ± 3 and 20 ± 0.8 min. in the cases of chronic hepatitis and liver cirrhosis respectively. The values of serum T3 concentration were 218.3 ± 7.6 ng/dl in controls, 211.0 ± 9.9 and 196.0 ± 13.5 in the cases of chronic hepatitis and liver cirrhosis. The cases of liver diseases showed a remarkable decrease in the values of P2, a rate constant for inflow to the liver (K21), to the serum from the other pool (K13) and biliary excretion of T3 during 24 hours, contrarily a slight increase in the values of P3 and within normal limits in the values of P1 and the rate of urinary excretion of the radioisotopes during 24 hours (26 ± 6% dose). The rate of the metabolism of T3 in the liver was quicker than that of thyroxine.

Significance of TIBC and LIBC Measurement in Severe Cirrhosis of the Liver

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The purpose of this paper is to study whether TIBC (Total Iron Binding Capacity) or LIBC (Latent Iron Binding Capacity) may be a good index indicating the degree of severity in the cirrhosis of the liver. 1) Materials: The patient studied were as followed; group 1: 30 cases with LC (the cirrhosis of the liver) & SC (schistosomiasis), group 2: 7 cases with LC, SC & hepatom, group 3: 1 case with SC & hepatom, group 4: 8 cases with SC & acute hepatitis, group 5: 23 cases with SC, group 6: 2 cases with LC, group 7: 14 cases with acute hepatitis, and 18 cases of normal control. Diagnosis was