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 (T_3) distributions in various organs were calculated based upon the disappearance curve of ^{131}I-T_3 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 T_3 and the time dependent pool size of T_3 in each compartment such as serum pool (P_13, liver pool (P_2) and the other pool (P_3). The T_3 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-T_3 was 9 ± 2 min., whereas 11 ± 3 and 20 ± 0.8 min. in the cases of chronic hepatitis and liver cirrsosis respectively. The values of serum T_3 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 P_2, a rate constant for inflow to the liver (K_{21}), to the serum from the other pool (K_{13}) and biliary excretion of T_3 during 24 hours, contrally a slight increase in the values of P_3 and within normal limits in the values of P_1 and the rate of urinary excretion of the radioisotopes during 24 hours ($26 \pm 6\%$ dose). The rate of the metabolism of T_3 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), gorup 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