(group B) as compared with the $^{14}CO_2$ curves of 3 control cases which revealed no diarrhea during the examination and/or high lactoase level. Three in group A reveavled positive lactose tolerance test and two cases in group B gave high lactase level. It might be assumed that diarrhea in group A was caused by lactose deficiency but that in group B was resulted by other causes.

Although further investigation is obviously necessary before giving any conclusion, the results of this study suggests the possibility to use this method for the diagnosis of milk intolerance.

Studies on Albumin Turnover in Leukemia, Hdgkin's disease, Lymphosarcomatosis, Cancer etc. with Use of RISA

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Albumin turnover in subjects of leukemia, cancer etc. was studied with the use of iodine labeled (^{131}I) human serum albumin (RISA). After intravenous administration of RISA, blood samples were taken for 25 days and assayed in a well type scintillation counter. According to Sterling's method half time of albumin ($T\frac{1}{2}$), albumin turnover rate as %/day, total exchangable albumin (TEA), intravascular albumin (IVA), extravascular albumin (EVA) and albumin turnover in grams/day were calculated.

5 cases of acute leukemia, 4 of chronic leukemia, 2 of Hodgkin's disease, 3 of lymphosarcomatosis, 1 of malignant lymphoma, 1 of macroglobulinemia, 4 of lung cancer, 5 of gastric cancer, liver cirrhosis and nephrosis etc. were studied.

In subjects of leukemia, Hodgkin's disease, lymphosarcomatosis and malignant lymphoma, serum albumin level is slightly decreased. $T\frac{1}{2}$ is shortened in some cases and lengthened in other cases. Albumin turnover is normal except few cases. TEA is increased in some cases and decreased in other cases.

In healthy subjects and in subjects of liver cirrhosis interrelation of serum albumin level and albumin turnover in g/kg/day is high. But in leukemia, Hodgkin's disease, lymphosarcomatosis and malignant lymphoma this interrelation is low, that is, turnover in g/kg/day is greatly increased but serum albumin level is not so much decreased as in nephrosis. And so albumin turnover is greatly accelerated and albumin synthesis is presumed to be accelerated. But in cancer, serum albumin level is greatly decreased and albumin turnover is not so much accelerated as in leukemia. And so albumin synthesis is presumed to be not accelerated. This difference of albumin metabolism will be studied further.

Turnover Study on Serum Albumin Metabolism in Liver Diseases Special Reference to the Gastro-intestinal Losing of Protein by the Double Tracer Method with ^{131}I-albumin and ^{51}Cr-albumin

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In liver cirrhosis we observed decrease in the serum albumin (SA) concentration, total exchangeable albumin (TEA) and albumin tunrover value (ATOV), whilst in the cases of

subacute hepatitis which showed an extensive necrosis, deformation of lobules as well as swelling of cells in the histological pictures, only a slight decrease in the albumin metabolism. Looking at the changes in SA concentration and albumin metabolism, another case of subacute hepatitis which has recurrence three times during the course of 4 years and tarnsformed to liver cirrhosis, finally falling into coma, it showed a fall in SA at the first and the third stage of recurrence and the decrease in ATOV at the third recurrence. On the remission by treatment, the albumin metabolism also recovered to normal level. Although the metabolism recovered to almost normal at convalescence in the third recurrent stage, on the administration of 75 mg of 6-mercaptopurine (6MP) there was a slight fall in ATOV.

Along with the fall in the ability of synthesis as shown by the fall in ATOV, it is reasonable to assume that there will also be relative gastro-intestinal losing of proteins. In order to clarify this latter problem, we studied whether or not such a protein losing takes place, by Waldman's method, using radiochromated human serum albumin (^{51}Cr-almumin, Squib). The fecal exreation rate (FE) in 5 controls was 0.1−0.5% of the amount of SA adminstered and in some who showed tar feces and positive occult blood reaction (+++) it was over 1%. However, the average of 26 cases of liver cirrhosis was 0.54±0.20%, revealing hardly any significant difference from controls. There was correlation coefficient of −0.35 between SA concentration and FE, and even in the cases showing the fall in SA concentration, FE was not less.

Next, after the intravenous injection of both ^{131}I-albumin and ^{51}Cr-albumin we computed the albumin metabolism and FE of ^{51}Cr-albumin simultaneously, and the ratios of FE to TEA represented as RFE, were compared among liver diseases. As a result, in contrast to 1.24±0.34 (%/g) of RFE in 6 controls, the cases of liver cirrhosis showed a significantly high value of $p<0.05$. Especially in 5 cases of severe liver cirrhosis which were accompanied with ascites, varix and jaundice a distinct rise ($p<0.01$) in RFE was observed, and in one case showing tar feces RFE was as high as 13.5. However, there was no significant difference between mild cases of liver cirrhosis and controls. From these results it may be assumed that in severe cases of liver cirrhosis along with the decline in the albumin synthesis there arises factor of relative gastro-intestinal protein losing, and these combined factors elicit the decrease of SA and TEA.

Total Exchangeable Sodium in Relation to Extracellular Water

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Total exchangeable sodium in hypertension and various diseases related to sodium disturbance was evaluated in relation to extracellular water (ECW) and to total body water (TBW).

Meterials and methods: (1) Sterile solution for intravenous injection was the mixture of the following: ^{3}H-water 2 mCi, ^{22}Na 20 μCi, and ^{51}Cr-E.D.T.A. (ethylenediaminetetraacetate) 200 μCi. (2) Determination of total exchangeable sodium (TENa), ECW and TBW was carried out by isotope dilution methods. Lean body mass (LBM) was calculated form TBW. Measurement of ECW with ^{51}Cr-E.D.T.A. was presented previously elsewhere by us. (3) ^{3}H was assayed with liquid scintillator by the method of Weber, H., et al. Camma rays from ^{51}Cr and ^{22}Na were separated by gamma ray pulse height analyzer and counted at each photopeak. (4) The observations were performed in 4 healthy subjects and 12 patients with various disease including