Relationship between iron absorption and storage iron. H. Saito, T. Ohya, D. Hayashi, and T. Abe, Department of Radiology and Radiosotope Laboratory, Nagoya University Hospital, Nagoya.

As the indices of storage iron, serum ferritin was radioimmunoassayed, and total iron-binding capacity (TIBC), serum iron (SI), and transferrin saturation (TS) were radioassayed. Iron absorption was measured by the ring-type whole body counter with Fe-59. Normal subjects (male 3, female 8), iron deficiency anemia (IDA) (male 5, female 8), hemosiderosis (Hsd) (male 4, female 1), alcoholic chronic liver disease (AD) (male 5, female 1), liver cirrhosis (LC) (male 3), and hemochromatosis (HC) (male 4) were studied. In addition, the effect of alcohol to iron absorption was studied. The results showed a good correlation between iron absorption and TIBC. However the correlations between iron absorption and SI, TS, and Ferritin were limited in the group of IDA, normal and Hsd. Addition of alcohol to radiodine enhanced the iron absorption. Hemochromatosis showed a quite different attitude from other groups in correlation pattern. The use of the above indices of storage iron ensures the diagnosis of disorders of iron metabolism, especially that of hemochromatosis. TIBC, SI, and TS are useful for higher iron stores and serum ferritin are useful for lower iron stores.


Lymphocyte survival and organ distribution were studied by using In-111-oxine and Cr-51 labeled autologous lymphocytes in a normal subject, 7 patients with chronic lymphocytic leukemia (CLL), 9 with malignant lymphoma (ML) and 2 with adult T-cell leukemia (ATL). Disappearance curve of the labeled lymphocytes showed two exponential components in all cases. The half time of the first component was within 1 hour in all cases except a patient with splenectomy. That of the second one was 58.3 hours for a normal subject, 109±60.9 hours for CLL, 54.9±25.9 hours for ML and 72.7 and 10.8 hours for two cases of ATL, respectively. The recovery of labeled lymphocytes in the blood were 25.1±3.5% for a normal subject, 23.9±9.1% for CLL, 11.9±9.1% for ML and 78.5 and 57.5% for two cases of ATL. According to the observation on the organ distribution with scintillation camera, the labeled cells were accumulated markedly in the spleen immediately after the infusion and in the bone marrow after 1 hour in all cases. The radioactivity over the lungs and liver in ML and ATL were higher than those of CLL immediately after the infusion. Lymph nodes were clearly seen in patients with T cell type CLL and T cell type ML from 18 hours after the infusion and in a patient with B cell type CLL the lymph nodes were seen from 68 hours. However they were not seen in a patients with B cell type ML.

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Analysis of simultaneous measurement of red cell survival and ferrokinetiscs. S. Nobeaw, H. Fukui, T. Sasaki, and T. Kanno. Department of Radiology, Hamamatsu Medical Center, Hamamatsu.

We investigated the simultaneous measurement of red cell survival (by the use of Cr-51) and ferrokinetiscs (by the use of Fe-59), by reason of shorten the period for the examination and decrease the patient's complain. In our several analysis of counts by Cr-51 and Fe-59 to same samples at same time. In consequence relationship between energyrange of Cr-51 (0.260) KeV and energyrange of Fe-59 (1.902) KeV should be estimated truly Cr-51 = (X-0.46Y) cpm and Fe-59 = Y cpm.

Our clinical method:
1) Collecting 35 to 200 ml of blood of patient with haperin coated syringe and doing centrifugulation.
2) Red cell were labeled by Cr-51 for it's survival examination.
3) Serum were labeled by Fe-59 for his ferrokinetiscs.
4) Labeled red cell and serum were used for injected intravenously at the same time.
5) Blood's samplings over the period of 3 weeks.

Results:
The period and the blood's sampling times of this new method was a half shorter than original old method.
And evaluation of total examination error is not remarkable.