measured with ^{51}Cr labeled method, was 14 to 36 ml/kg (27 to 36 ml/kg in normal control). 5 patients had normal RCV, but 4 patients had decreased RCV indicating anemia. Plasma volume (PV), measured with RISA, was 44 to 94 ml/kg (44 to 54 ml/kg in normal control). 4 patients had normal PV, but 5 patients had increased PV. Total blood volume (TBV), expressed as the sum of RCV and PV, was 67 to 126 ml/kg (64 to 81 ml/kg in normal control). 4 patients had normal TBV, but 5 patients had increased TBV. These facts show that splenomegaly has hypervolemia resulting from the plasma volume expansion. 2) Plasma volume was plotted against the spleen size, expressed as the sagittal areas of the splenic scanning which was performed with MHP method. There was positive correlation between them. Plasma volume increased with enlarging the size of the spleen. This result shows that hypervolemia (or the elevated plasma volume) in splenomegaly may be due to the increased volume of the spleen, resulting from increased capillary beds of the spleen. Most of our cases have liver cirrhosis with portal hypertension which is responsible for splenomegaly. 3) The red cell volume was plotted against the size of the spleen, expressed as the sagittal areas of splenic scanning. There was no correlation between them. The red cell volume is influenced by the hematopoiesis of the bone marrow, the bleeding from esophageal varices and the other factors. 4) The body hematocrit was calculated from the formula $\frac{RCV}{RCV + PV} \times 100$ (%). Its value is compared with the venous hematocrit. In most cases of splenomegaly with anemia and without anemia the venous hematocrit was greater than the body hematocrit. These facts are inconsistent with Mollison's opinion. According to him the venous hematocrit is greater than the body hematocrit in normal, but the body hematocrit may be greater than the venous hematocrit in splenomegaly, due to the relatively large amount of splenic blood which has a relatively high hematocrit. The hematocrit of the spleen is greater than the one of the other circulated blood. This indicates that there are enlarged sequestrated red cell pool and smaller circulated blood pool. The enlarged capillary beds in splenomegaly result in enlarging the plasma volume of circulated blood pool of the spleen, while sequestrated red cell pool increases too. The enlarged degree of plasma volume of circulated blood pool is greater than the one of sequestrated red cell pool in splenomegaly. The hematocrit of the enlarged spleen may be smaller than the hematocrit of of the normal spleen. And then it is thought that the body hematocrit is smaller than the venous hematocrit in splenomegaly.

Studies on the ^{51}Cr-labelled Heat Damaged Erythrocytes Method as a Sequestration Test of Mouses RES

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The sequestration of mouse spleen has been studied with ^{51}Cr-labelled heat demaged erythrocytes with a large standard errors in our laboratories since 1968. The experiments for improvement of this method had been our urgent problem and is the subject of this paper.

Our improved method of sequestration function test with ^{51}Cr-labelled heat demaged erythrocytes in mice is as follows;

1) Female ICR mouse weighing 20 to 24 gm were used throughout this experiments. Three ml of isostrain blood was collected by depletion.

2) One hundred μCi of $Na_2\ ^{51}CrO_4$ was added in this blood at 49°C for twenty minutes to avoid excess hemolysis and to perform the label and damage at the same time.

3) The labelled blood was washed repeatedly with saline for three to four times. It is

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enough to exclude the hemolysate contained free Na_2 $^{51}CrO_4$.

4) The final labelled packed red cells were brought to the original volume with normal saline. The radioactivity of 0.3 ml of the labelled blood was measured by Well-type scintillation counter.

5) 0.3 ml of this blood was injected into the tail vein of mouse respectively.

6) 25 μl of the blood was taken from retroorbital venous plexus into the heparinized microhematocrit tube at 5, 20, 40, and 60 minutes after injection. Each blood was measured its radioactivity with Well-type scintillation counter. The cpm was plotted on semilogrithmic paper, and $t_{1/2}$ (clearance) was calculated from ^{51}Cr-labelled blood disappearance curve.

7) The mice were sacrificed at 120 minutes after labelled blood injection. The organ uptake rate was calculated by dividing each organ cpm with initial cpm of 0.3 ml blood. Finally, the unit organ uptake rate was obtained by dividing each organ uptake rate with each organ wet weight.

Use of ^{198}Au colloid for Spleen Scanning

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The probability of visualization of the spleen with ^{198}Au colloid is believed to be very low so far. However the visualization of spleen with ^{198}Au colloid was successful in diseases with splenomegaly, especially when the spleen was scanned in prone position even in thick patient.

In chronic hepatitis, liver cirrhosis, Banti's syndrome, polycythemia vera, hemolytic anemia, chronic leukemia, cysts, and myelofibrosis, 100% visualization was possible.

^{198}Au colloid is easy to use, since it does not require any preparation, it has stronger energy and cheaper than Hg-203 MHP, Cr-51, Tc-99m and etc. In addition, ^{198}Au colloid visualizes the liver in the same time. Therefore, the use of ^{198}Au colloid is recommended in connection with the scanning of spleen in prone position.

In Vivo Measurement of Splenic Blood Flow and Its Content Using ^{133}Xe, ^{51}Cr Red Cells and ^{131}I H S A

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Plasma and red cell circulation and their content in the spleen were measured with in vivo counting technique under coeliac catheterization.

Following successive injection of ^{133}Xe saline solution, ^{51}Cr erythrocytes and ^{131}I

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