On in Vivo Destroy of the Red Blood Cells

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Recently the importancy of a spleen scanning increased to differenciate a mass in abdomen and hamatological disturbances. So it is necessary to draw a clear scintigram of ^{203}Hg-neohydrin has a problem on toxity on spleen. But former method using ^{197}Hg or red blood cells and the ^{51}Cr labeled red blood cell method is sometimes difficult to get a good spleen scintigram, because the destroy of red blood cells is very delicate with temperature.

It was difficult to hold the in cubating temperature accurately in our laboratory. And the grade of destroy of the red blood cells depends on its conditions. For these reason, the grade of aging of red blood cells is uncertain. According to the cell age the ^{51}Cr deposits mainly on the liver or disapears from the body. By this scintigram an evaluation of a spleen is uncertain. Instead of fever, we discussed about radiation. Red blood cells are irradiated by cobalt-60-rays. We employed this red blood cells to scan of the spleen. By this method it is easy to destroy red blood cells. And we have good spleen scintigrams. The scintigrams by this method show better contour than fever-method.

For these purpose we investigated the resistance of the red blood cells by ^{60}Co-ray irradiation. The destroy of the red blood cells begin from 300,000R, and 50% of red blood cells are destroyed at 400,000R. This curve of the grade of destroy shows that the best condition to get a scintigram is between 300,000R and 340,000R.

The grade of deatroy of the irradiated red blood cells shows that 40% one day after irradiation and 80% after two days. The better spleen scintigram is drawn between six hours and twenty four hours after injection.

It is suggested that application of this method to making simple method for determining a red blood cell survivals.

Studies of Fatty Acid Metabolism with Incorporation of ^{14}C-Acetate into Lipids of Human Whole Blood and Bone Marrow

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As a part of studies of fatty acid metabolism, by method of incorporation of radioactivity, we report some results about incorporation of ^{14}C-acetate into fatty acids from whole blood and bone marrow cells of patients with hypoplastic anemia, hypochromic (iron deficiency) anemia and leukemias.

Method; as we have already printed, after 4 hours incubation with 5 μCi ^{14}C-actate under 37°C, lipids extracted due to Folch, and esterified with BF3 (Metcalf) and separated by gas liquied gaschromatography. Radioactivity were determined by liquied scintillalation spectrometer. Fractionation into major lipids were performed after Hanahan, Borgstrom and Metcalf with silisic acid column chromatography and so on.

Results as follow:

1) In hypoplastic anemia, radioactivity of total fatty acid decreased in DPM per 10^6 white blood cells and bone marrow cells compared with control. Percentage of ^{14}C in each fatty acid increased in myristic and palmitic acids, and decreased in 20 carbons and more