Distribution of Erythropoietic Bone Marrow in the Body

H. SAITO and T. MIURA
Department of Radiology and Central Radioisotope Laboratory, Nagoya University School of Medicine, Nagoya

After the iv injection of radioiron, whole body was counted with Ring Type Total Body and Section Counter. The radioiron distribution curves immediately after injection, 6-24 hours, and 15-20 days were obtained. By using the curve of immediately after injection, which is equal to 100% utilization whole body curve, blood distribution curve after 15-20 days was constructed in proportion to percent utilization figure. This was subtracted from the curve after 15-20 days, and obtained the curve of storage activity only. This curve was then subtracted from the curve after 6-24 hours' consisting of storage and bone marrow activity. The curve representing the quantitative distribution of bone marrow through the whole body was then constructed. The bone marrow distribution in hypoplastic anemia, hemochromatosis and etc. was thus visualized and characteristic figures were useful for the diagnosis of hematological diseases, especially in cases of poor utilization.

Bone-Marrow Scanning with ^{113m}In Colloid

T. MURATA
Department of Orthopaedic Surgery, School of Medicine, Chiba University, Chiba
H. KAKEHI, G. UCHIYAMA and K. AKIBA
Department of Radiology, School of Medicine, Chiba University, Chiba

Bone-marrow scanning after intravenous injection of colloidal ^{198}Au is a useful method for the diagussis of of marrow lesions, but has the disadvantage of high radiation dose to the patient.

We recently had a chance to use the short-lived radioisotope ^{113m}In, obtained from ^{113}Sn-^{113m}In generator, for bone-marrow scanning.

The results are as follows.

1) The tissue distribution of ^{113m}In colloid was performed in rabbits. One hour after I.V. administration of 1 mCi of the colloid, the uptake of bone-marrow, liver and spleen was approximately 1-1.6 per cent of injected dose/gram. This proved the uptake of colloid in the RES organs was 20-30 times greater than in other organs.

3) Using this colloid, we performed the bone marrow scanning of the rabbit. The scanning showed good visualization of the spine and pelvis.

4) When the colloid was injected intravenously in man, most of it was rapidly cleared from the circulation. Therefore the scanning was possible 20 min. after administration.

Only 1.1 per cent of the injected radioactivity was recovered in the urine within the first 24 hours after injection.

5) The absorbed dose from ^{113m}In colloid in bone-marrow scanning was calculated. It gave lower radiation dose to the patient.

6) The scans of two patients with metastatic cancer showed local destruction of the marrow of the pelvis. Some expanded marrow was seen in chronic leukemia.