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ON THE SIGNIFICANCE OF IMAGING OF THE KIDNEY IN BONE MARROW SCINTIGRAPHY WITH In-111-CHLORIDE.

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We investigated the usefulness of bone marrow scintigraphy with In-111-Chloride for the diagnosis of blood disease. In this report, we studied on the significance of imaging of the kidney in bone marrow scintigraphy with In-111-Chloride. Imaging was performed at I.D.1000 on sternum after the injection of 3 mCi of In-111-Cl by DYNA 4c type Gammacamera as reported previously. It was found that the kidney was imaged in the case of aplastic anemia, myelofibrosis, RAEB, and chronic renal Failure in bone marrow scintigraphy. From the analysis of plasma disappearance and urinary excretion of In-111, the imaging of the kidney suggested that the disturbance of usefulness of In-111 by bone marrow. And also, it was found that the kidney was imaged reversibly after the chemotherapy for stomach cancer, lung cancer, malignant lymphoma and multiple myeloma. Consequently, the evidence of imaging of the kidney in bone marrow scintigraphy is useful finding for the diagnosis of the function of the bone marrow.

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FUNDAMENTAL STUDY OF PLATELET LABELING WITH In-111-2-MERCAPTOPYRIDINE-N-OXIDE. T.Yui, H.Shineha, M.Konno, S.Matsuda, T.Uchida and S.Kariyone. Fukushima Medical College, Fukushima

In-111-oxine and In-111-tropolone labeled platelets have been used extensively for detection of thrombi and for measurement of platelet life span. Recently, a new labeling method with In-111-2-mercaptopyridine-N-oxide (In-111-M) was reported by Thakur et al. In order to evaluate the usefulness of In-111-M, efficacy of the new agent was compared to that of In-111-oxine and In-111-tropolone. In-111-M was prepared by modified method of Thakur et al. Labeling efficiency of In-111-M increased due to the increase of platelet concentration. Labeling efficiency of In-111-M was reduced in the presence of plasma comparing with in condition of non-plasma media. These phenomenon were also seen in the case of In-111-oxine and In-111-tropolone used under identical conditions. Labeling efficiency of In-111-M was consistently higher than that of In-111-oxine and similar to that of In-111-tropolone. Aggregability of labeled platelets were similar with any labeling conditions.

In conclusion, In-111-M is useful as a platelet label with high labeling efficiency in non-plasma media as well as In-111-tropolone.

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I-131 LABELED TISSUE-TYPE PLASMINOGEN ACTIVATOR ACCUMULATION ON DEENDOTHELIALIZED LESION IN RABBITS. A.Uehara, Y.Isaka, H.Etani, K.Kimura, T.Kozuka, S.Yoneda, T.Kamada and M.Nobuhara. Osaka University Medical School, Osaka and Mochida Pharmaceutical Co., LTD., Tokyo.

Tissue-type plasminogen activator(t-PA) which has a high affinity for fibrin in the clot was labeled with I-131 by IODO-GEN method, and its deposition on deendothelialized lesion in rabbits was measured to assess its detectability of thrombus. Lesion was induced in rabbit abdominal aorta by using Fogarty 4F balloon catheter. One hour after deendothelialization, I-131 labeled t-PA (125 ± 46 μ Ci, mean $\pm$ SD) was injected intravenously. Half life time of I-131 labeled t-PA in rabbits (n=12) was 2.9 ± 0.4 min. The degree of I-131 labeled t-PA accumulation on the lesion was evaluated at 15 min (n=6) or at 30 min (n=6) after incorporation of I-131 labeled t-PA. In spite of the retention of the biochemical properties of I-131 labeled t-PA and the presence of fibrin deposition on the lesion, results of our study showed that the binding of I-131 labeled t-PA to the lesion was weak as follows. Lesion-to-control ratios (cpm/g) were 1.65 ± 0.40 (at 15 min) and 1.39 ± 1.31 (at 30 min), and lesion-to-blood ratios (cpm/g) were 1.39 ± 0.32 (at 15 min) and 1.36 ± 0.23 (at 30 min). These results suggest that radiolabeled t-PA may be inappropriate as radiopharmaceuticals for the scintigraphic diagnosis to allow visualization of a thrombotic lesion.

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EVALUATIONS OF SIMPLIFIED METHOD OF LABELING MIXED WHITE BLOOD CELLS WITH In-111 OXINE. C.Saitoh, K.Itoh, E.Tukamoto and M.Furudate. Sapporo General Hospital and Hokkaido University School of Medicine, Sapporo.

The clinical usefulness of In-111 labeled WBC scintigraphy for detection and localization of inflammatory disease has been reported. We have developed and validated a technique that simplified a recommended method. The recovery yield and labeling yield of In-111 oxine WBC by using recommended method were 28.4 ± 35.6 and 43.2 ± 11.8 (n=11), whereas 55.2 ± 26.7 and 81.6 ± 6.8 (n=41) by using simplified technique. The labeling yield of mixed WBC, which was not varied by the number of contained WBC or RBC, tended to decrease as the number of contained platelets increased. Simplified labeling technique was enough to evaluate clinical studies.

In-111 oxine WBC was accumulated diffusely in lungs at injection and migrated to the liver and spleen. 3 or 4 hours after injection, faint radioactivity in both lungs were observed and had been discharged by 24 hours. Radioactivity of the liver, spleen and bonemarrow was unchanged.

Blood pool images were obtained in two children, who underwent surgery of Hirschsprung's disease and were used heterologous WBC labeled with In-111 oxine.