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CLINICAL STUDY OF IN VIVO KINETICS OF PLATELETS LABELED WITH In-111-OXINE. Y. Takahashi, A. Okamoto and K. Akasaka, Hematology, Internal Medicine, Tenri Hospital, Nara.

Platelets were labeled in vitro with In-111-oxine and their in vivo distribution, rate and site of their destruction or consumption were examined following their reinfusion in reference to those by Cr-51 labeling.

Platelet suspension of 40 times concentration in the order of 10^9 /ml in ACD-plasma saline was obtained from 200 ml whole blood by differential sedimentation. One half was labeled with In-111-oxine and the other with Cr-51. Both cells were mixed and infused into the patient and the kinetics study followed. In average value of 7 cases, 48% of In-111 was bound rapidly to cells in a rate of 100%/min. and additional 21%, slowly in a rate of 16%/min. Labeling ratio reached finally to 69%, while that of Cr-51 was 59%.

In vivo elution of In-111 was negligible.

In vivo kinetics which In-platelets and Cr-ones developed were compared. No significant difference was observed in the recovery in the circulation, halftime of disappearance, mean life span and the nature of the survival curve of the labeled cells between two labeling procedure. Images of body distribution of In-111-platelet was superior to those of Cr-51. In-111-oxine label enabled simultaneous measurement of autologous and isologous platelet survival, combined study with Cr-51 red cell survival and spleen scintigraphy with Tc-99m-colloids or denatured red cells in conventional performance.

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PLATELET LABELING WITH IN-111-OXINE (III). DETECTION OF INTRACARDIAC THROMBI BY SCINTIPHOTOGRAPHY. T. Yui, T. Uchida, S. Matsuda, S. Muroi, K. Machii and S. Kariyone First Department of Internal Medicine, Fukushima Medical College, Fukushima

Detection of intracardiac thrombi by scintiphotography using In-111-oxine labeled autologous platelets was done in 14 patients with various heart diseases. Their results were compared with those of two dimensional echocardiography. 1) Left atrial thrombi in 3 patients with mitral valvular disease and left ventricular thrombus in a patient with myocardial infarction were detected by the both methods. In 2 out of above 3 patients with mitral valvular disease, 30 and 21 g of weight of left atrial thrombus were confirmed at surgery. The second scintiphotogram during antiplatelet therapy in the patient with myocardial infarction did not show any radioactivity on the thrombus. 2) In a case of mitral valvular disease, the image of thrombi by scintiphotogram was positive, while abnormal echo by two dimensional echocardiography was negative. In this case, 0.3 g of left atrial thrombus was formed by surgery.

Scintiphotography with In-111-oxine labeled platelets is considered to be an excellent method for the detection of intracardiac thrombi and for the evaluation of antithrombotic therapy in vivo.

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SCINTIGRAPHIC DETECTION OF THROMBUS WITH INDIUM-111-OXINE LABELED PLATELET.

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We performed thrombus detection with In-111-oxine labeled platelet delivered by the Amersham International Limited. Labeling procedure was Hawker's (1980) method using Tyrode's solution buffer. It was a merit that blood was taken only 26ml and incubation was at 37°C for one minute. In this study, platelet imaging was done in 28 cases of suspected patients with thrombus. Labeled platelet depositions were detected in the case of left ventricular thrombi, bypass-graft of large vessels, Gruntzig angioplasty and deep vein thrombi, but did not detect cerebral emboli and pulmonary emboli. The labeling efficiency was 40±20% and the radioactivity was 200±50 µCi in all cases. The sensitivity of detecting thrombi was high in early and active period of thrombus formation, however it was thought to be difficult for detecting thrombi in the cases of heparin and aspirin therapy. In conclusion platelet imaging were clinically useful to detect active platelet deposition.

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IMAGING OF PYOGENIC INFLAMMATORY LESIONS USING IN-111 OXINE LABELED LEUKOCYTES

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Indium-111 oxine labeled leukocytes were clinically evaluated for detecting abilities of abscesses and pyogenic inflammatory lesions in 77 patients. Five to eight hundred microcuries of In-111 oxine labeled leukocytes were intravenously administered to the patients. Imaging was mostly performed 24 hours later with a gamma camera except for a few patients required further examinations. The images demonstrated radionuclide accumulation in the liver, spleen and bone marrow in normal subjects. Of 77 studies, 24 showed positive images of abscesses and 7 showed positive findings of osteomyelitis and arthritis. Normal images were obtained in 41 patients. The In-111 oxine labeled leukocytes imaging has proved a high specificity (95%) in detecting the patient with abscesses and inflammatory lesions.