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STUDIES ON THE VIABILITY OF LEUKEMIC CELLS LABELED WITH IN-111-OXINE AND THEIR ORGAN DISTRIBUTIONS.

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Method of leukemic cell labeling with In-111-oxine was reported by us in the last meeting of this society. In this presentation, the viability of leukemic cells labeled with In-111-oxine by this method and their organ distributions were discussed. No ultrastructural change was observed by electron microscope. Labeled leukemic cells were incubated in the Iscove's modified Dulbecco's medium at 37°C in the CO_2 incubator, and their viability with trypanblue and the elution rate of In-111 from labeled cells were assessed at the same time. The viability and the elution rate assessed in 3, 10 and 20 hours of incubation period were 94.8% & 3.1%, 92.0% & 10.4% and 87.5% & 17.2 %, respectively. It was suggested that almost of the elution of In-111 derived from cellular death. The capacity of colony formation of bone marrow mononuclear cells labeled with In-111-oxine assessed with leukemias either in remission or in relapse had no significant difference between labeled and unlabeled cells. From the study on organ distribution patterns observed with gamma camera, accumulations of labeled leukemic cells in the spleen, the liver, the bone marrow and the lesion of leukemia cutis were presented.

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IN VITRO STUDIES ON THE PHAGOCYTOSIS OF THE HUMAN PERIPHERAL MONONUCLEAR CELLS TO THE HUNAN PLATELETS.

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Since recent observations indicated that the platelets were phagocytosed by macrophages in the liver and spleen in the idiopathic thrombocytopenic purpura(ITP), we utilized In-111 labeled platelets to evaluate the degree of phagocytosis of human mononuclear cells.

Using Yui's technic, platelets were labeled with In-111 tropolone. We separated mononucler cells from human peripheral blood by Rinehart's method and trnsfered them into glass culture dishes. The cells were incubated for 48 hours at 37°C in humidified 5%CO_2 air. Adherent cells removed from dishes by scratching were used as effecter cells. In-111 tropolone labeled platelets(target cells) and effecter cells were mixed at different effecter/target cells ratio,and were incubated at 37°C in air with 5% CO_2 for 24 hours. Assesing the radioactivity of their supernatant and effecter cells' pellets in 1,2,4, 12,18,24 hours of incubation period, %ADCC and %phagocytosis were determined. Counting radioactivity of In-111 in supernatant from effecter cells, %release was determined. In the patient with ITP or with platelets transfusion, %phagocytosis were higher than that of normal subjects. But %ADCC and %relerse were not significantly increased. These data suggested that platelet associated IgG played a role of platelets destruction.

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THE EFFICACY OF INDIUM-111-OXINE LABELED PLATELET SCINTIGRAPHY TO DETECT TUMOR THROMBUS.

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A fifty four year old man suffering from a cough with chest pains complained of sudden dyspnea, which was presumably caused by a pulmonary embolism. CT scan of the liver and heart revealed a large low density mass in the right lobe of the liver, and a giant mass in the right atrium extending into the inferior vena cave. The volume of the right atrial mass was increasing rapidly. It was therefore essential to determine whether this giant mass was a tumor thrombus or due to multiplication of the hepatocellular carcinoma itself. To determine the nature of the right atrial mass, In-111-oxine labeled platelet scintigraphy was performed. Mean platelet survival time was apparently shortened (1.88 days). Accumulation of In-111-oxine platelet in the right atrium was clearly detected and minimal pulmonary accumulation was seen in the right lung.Disseminated radioactivity of In-111-oxine labeled platelet might be brought about the embolic showers from a giant fragile mass in the right atrium.

It was ascertained that In-111-oxine labeled platelet scintigraphy was the excellent method for assessing the tumor thrombus.

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EVALUATION OF INTRACARDIAC THROMBOGENESITY USING IN-111 PLATELET SCINTIGRAPHY.

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The aim of the present study is to assess intracardiac thrombogenesity determining the ratio (T/B), indium deposition: indium blood pool, employing In-111 labeled platelets and Tc-99m labeled human serum albumin (HSA) to allow the subtraction of the blood pool. The ratio (T/B) was used to examine the effect of antithrombotic drugs (warfarin) in vivo. The ratio (T/B) for quantitative studies of scintigraphically detected platelet deposition was assessed with In-111 platelet and Tc-99m HSA digitized images. 4 patients with mitral valve desease and 3 patients with old myocardial infarction were studied. The T/B ratios were significantly reduced after administration of warfarin in 7 cases. Warfarin was proved to suppress thrombogenesity in vivo.

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