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IN-111 LABELED LEUKOCYTES IMAGING FOR DETECTION OF INFLAMMATORY FOCI.  
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Indium-111 labeled leukocyte(In-111-WBC) scintigraphy has been recognized as a reliable modality for locating and evaluating acute inflammatory disorders. In-111 complexes, namely Oxine and Tropolone are used for labeling. These are lipophilic chelating agents and easily penetrate the cell membrane, where the In-111 dissociate and bind to components in the cytoplasm. With its suitable gamma ray energies and half-life of 67 hours, In-111 is an ideal radio-nuclide for external imaging and this complexes are the first agent that make possible efficient WBC labeling.

I report here on my experience with In-111-WBC imaging in 245 subjects. Studies in this series were performed either at the Chiba University or in community hospital, mainly Kimitsu Central hospital. Of the 210 patients clinically suspected inflammatory foci, 85(40%) showed a positive imaging in In-111 WBC scintigraphy. The sensitivity and specificity for this modality was 91% and 92%, respectively. The obvious advantage of In-111-WBC imaging over Ga-67 in the abdomen is the lack of secretion of In-111 into the bowel makes the identification of abdominal infection far simpler.

Thirty-five patients were evaluated in inflammatory joints of rheumatoid arthritis. Though rheumatoid arthritis is regarded as a chronic disease, active changes in syn-

ovial membrane manifest a pattern of acute non-ovogenic inflammatory processes.

It is concluded that In-111-WBC imaging was a reliable modality for monitoring the state of inflammatory foci. In near future, improvements in the radiopharmaceutical labeling of WBC could lead to better-quality images, a one-day study, and selective irreversible labeling of subjects.

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DETECTION OF INTRACARDIAC THROMBI USING IN-111 LABELED AUTOLOGOUS PLATELETS.  
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Thakur et al introduced In-111-oxine in 1976 as a new labeling agent of platelets. It has higher advantages for imaging by gamma camera than Cr-51 which had been most widely used as a platelet label. Further, In-111-tropolone was reported in 1981 by Dewanjee et al, which was soluble in water. While In-111-oxine might be dissolved in ethanol. Therefore, preparation of In-111-tropolone was much more simple than that of In-111-oxine.

In order to evaluate the usefulness of In-111 labeled autologous platelets for detection of intracardiac thrombi, scintiphotography of thrombi and measurement of platelet survival time were done simultaneously in 24 patients with mitral stenosis, 6 patients with myocardial infarction and a patient with cardiomyopathy. In-111-oxine and In-111-tropolone were prepared according to Thakur's and Dewanjee's techniques, respectively. Platelets were suspended in 3.5 ml of ACD-saline solution containing In-111-oxine or In-111-tropolone and incubated for 20 minutes at room temperature. After the injection of labeled platelets, serial imagings by gamma camera on the body and measurement of platelet survival times were done simultaneously. In 9 out of 24 patients with mitral stenosis, 3 out of 6 patients with myocardial infarction and a patient with

cardiomyopathy, intracardiac thrombi were detected by scintiphotography using In-111 labeled autologous platelets. In 9 out of 13 patients, positive images of thrombi by both scintiphotography and echocardiography were detected. In 4 out of 13 patients, the detection of thrombi by scintiphotography was positive, but negative by echocardiography. The form and size of thrombi in 3 echocardiography negative cases were confirmed at surgery. In one out of 13 patients, the image of thrombus by scintiphotography was negative, while that by echocardiography was positive. The presence or absence of thrombus was not confirmed yet at surgery in this case. Evaluation of efficacy of antiplatelet therapy was done by the comparison of image before and during the therapy. In 3 out of 5 patients, repeated scintiphotograms during antiplatelet therapy did not show any radioactivity on the thrombus. The platelet survival times in 13 patients with intracardiac thrombi detected by scintiphotography were significantly shortened,  $6.6 \pm 0.9$  days (mean  $\pm$  1S.D., n=13) comparing with the normal value  $8.2 \pm 0.4$  days (n=6) ( $p < 0.001$ ).

In conclusion, In-111 labeled autologous platelets would be remarkably useful for detection of intracardiac thrombi and assessment of efficacy of antiplatelet therapy in vivo.