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BONE MARROW SCINTIGRAM WITH IN-111-CHLORIDE. M.Nakamura, Y.Sawai, S.Sugawara, M.Mikami and Y.Horino. Dept. of Radiology and Internal Medicine, School of Medicine Tohoku Univ. Sendai.

In-111-chloride as a bone marrow scanning agent has been used for various hematological disorders in order to evaluate erythropoic activity in bone marrow.

Scans were done about 72 hours after injection of 1.5 to 2mCi In-111-chloride using a scintillation camera in 64 patients: 16 with aplastic anemia, 11 with multiple myeloma, 8 with leukemia, 4 with myelofibrosis, 4 with polycythemia, 3 with malignant lymphoma, 2 with hemolytic anemia and 16 with various hematological disorders.

In anaplastic anemia, central marrow activity was markedly decreased or focal areas of decreased activity were observed. Peripheral extensions were observed in some cases. When uptake of central marrow was decreased, renal activity became very strong and sometimes it was the hottest organ in scans.

In patients with multiple myeloma, central marrow activity were normal or slightly decreased. Peripheral extensions were observed in some cases.

In a patient with pure red cell aplasia, In-111 accumulated in the lung. Although there were no histological confirmation, the bilateral pulmonary uptake might be caused by myeloid metaplasia of the pulmonary alveolar wall.

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RI-LYMPHOGRAPHY USING Tc-99m-MDP. H.Kobayashi, K.Senda, T.Sasaki, K.Matsubara, O.Kaii, S.Mashita, A.Ohno, S.Ohshika, Y.Kodama and A.Mishima. Department of Radiology, Nagoya University School of Medicine.

Radioactive Au-198 colloid and Tc-99m-sulfur colloid were used for lymphography. But there has been no report of RI-lymphography using Tc-99m-MDP seen. Tc-99m-MDP can be used following the subcutaneous injection in the foot or hand. RI activity in the blood of bilateral cubic vein is significantly low; this is indicative of RI not in the blood vessels, but in the lymph vessels. The RI counts of Tc-99m-MDP 0.1mCi subcutaneously injected in 4 normal and 4 panhysterectomized cases are comparatively measured. In the latter cases the lymphatic flow is found to be moderately decreased. Besides the visualization of lymph nodes, the lymph vessels are clearly visualized in the most cases. In the lymph edema cases the extravasation from the lymph vessels is visualized.

The RI-activity in the urine is measured both in cases of intravenous injection and subcutaneous injection of Tc-99m-MDP, and the Tc-99m-MDP is confirmed to be stable radiochemically in the human body using the paper-chromatographic method.

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BONE MARROW SCINTIGRAPHY AS A HEMOPOIETIC INDEX - ANALYSIS OF QUALITATIVE INFORMATION OF THE MARROW IMAGE IN APLASTIC ANEMIAS - Y.Takahashi, K.Akasaka, K.Sato and C.Uyama. Hematology, Internal Medicine, Tenri Hospital and Engineering, Kyoto University.

In order to elicit anatomical and functional implication of the bone marrow image as a hematopoietic index, we examined, in addition to quantitative measurement, the qualitative informations which aberrant and complicated marrow images provided in aplastic anemias. The characteristic features of the image in this disease were narrowing, irregularity and island-like appearance in the marrow distribution pattern. We made grading of these features respectively and applied a quantification logic to these grade in reference to the blood and bone marrow picture, ferrokinetics data and the survival time or prognostic index by Lynch, R.E..

The analysis results in respect to the relationship between category value and grade of each feature indicated that, as island appearance became intensified, the erythropoietic index increased in a straight positive correlation but the correlation to granulopoiesis and thrombopoiesis appeared less close. Irregularity reflected the general hematopoiesis in some extent. The narrowing feature only in slight to moderate degree reflected improvement of general hematopoiesis. Relationship to survival and prognostic index was generally poor.

Implication of the aberrant marrow image on a basis of quantification theory gave us several informations which had been unknown.

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In-111 OXINE LABELED LEUKOCYTES. K.Uno, G.Uchiyama, T.Miyoshi, T.Lee, H.Akiba, K.Imazeki and N.Arimizu. Department of Radiology, Chiba University Hospital and School of Medicine. Chiba.

Leukocytes labeled with In-111 oxine were experimentally prepared and tested the ability of locating turpentine induced abscesses in rabbits' forearms. In-111 oxine was well prepared according to the Thuker's method. The abscesses were most strikingly delineated by a scintillation camera at 48 hours after the administration of the labeled autologous leukocytes. The clinically oriented studies were then performed by using the human blood. The labeling efficiencies and the washing effects of leukocytes with their remaining viabilities were examined. The methylcellulose method and the Ficoll-paque method were both used for separating the human leukocytes from other blood elements. The labeling efficiencies were 71% and 66% by respective method, and their viabilities were 90% and 94% respectively. Twofold washing of leukocytes with isotonic saline made 10% decrease of radioactivity probably associated with the free In-111 oxine.