

Application of ^{131}I iododeoxyuridine, D N A precursor, to Scintiphotography of the Bone Marrow and Lymphnode Tumor in Cases with Neoplastic Alteration of Hematopoietic Organs

Y. TAKAHASHI, K. AKASAKA, T. IMANAKA and H. AMANO

Hematology Division of Internal Medicine

H. FUJINO and T. TANAKA

Radiology Division

Tenri Hospital, Tenri

^{131}I labelled iododeoxyuridine, ^{131}I UdR, a pyrimidine analog as the precursor of DNA, was applied to scintiphotography of the bone-marrow and lymphnode tumor in cases with neoplastic alteration of hematopoietic organs.

The patients received intravenous infusion of ^{131}I UdR (ca. 400 mcc, 0.07 mcM) with 50 mg of 5 F U which is considered to increase incorporation rate of IUdR. Twenty-four to forty-eight hours thereafter, scintiphotography was carried out in appropriate preset counts over bone marrow of sternum, spine, pelvis and knee, the spleen and the liver or target tumors of lymphnodes. Results were compared with those using $^{99\text{m}}\text{TcS}$ colloids or ^{67}Ga citrate.

In chronic granulocytic leukemia, subacute type of erythroleukemia and polycythemia vera, distribution pattern of ^{131}I UdR showed remarkable expansion of cells proliferating marrow from central part of sternum, spine and pelvis to the periphery, e.g. knee area. This finding was in good agreement with distribution pattern of expanded hyperplasia of phagocytic marrow visualized with $^{99\text{m}}\text{TcS}$ colloids.

Discrepancy was sometimes observed in acute leukemias of monocytic as well as granulocytic types, which was attributable in some part to various disease stages influenced by administration of antileukemic drugs.

Discrimination of neoplastic proliferation of hematopoietic marrow from reactive one could not be achieved successfully, since resembled features were observed in those cases with e.g. hemolytic anemia.

Accumulation of ^{131}I UdR in the spleen indicated its myeloid metaplasia in a case with chronic granulocytic leukemia, although its enlargement was not necessarily remarkable.

In a case with reticulosarcoma developed out of his ileum, positive localization pictures were observed in the liver, the spleen and mesenchymal lymphnodes showing existence of metastatic lesions. Similar findings were also obtained by administration of ^{67}Ga citrate.

Although positive localisation was less clear than that of ^{67}Ga citrate, usefulness of this material is thought to rest in patho-physiological interpretation of its distribution.