CLINICAL SIGNIFICICANCE OF BONE SCINTIGRAPHY IN MALIGNANT LYMPHOMA

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Bone scintigraphies with Technetium-99m phosphorous compounds in forty-five malignant lymphomas (9 with Hodgkin's disease, 36 with non-Hodgkin's lymphomas) were correlated with histological, clinical, and roentgenographic findings. Abnormal bone scintigraphies were observed in about half of whole cases; 50% in Hodgkin's disease, and 60% in non-Hodgkin's lymphomas, regardless of clinical stage. Frequent abnormal bone scintigraphies in Stage I or II lymphomas were attributed to primary lesions such as eyes, nose, and pharynx. There was no significant correlation between scintigraphic findings and clinical informations (pain, serum alkaline phosphatase levels, serum calcium levels). The vertebral column appeared to have the most frequent bone scintigraphic abnormalities (about 50 %), followed by facial bones, pelvis, ribs, extremities, and skull in descending order of frequency. The most common roentgenographic findings of the thoracic and lumbar vertebrae were collapse of the vertebral bodies, which were quite non-specific. Bone scintigraphic abnormalities in the facial bones and ribs were not detected roentgenographically, while abnormalities on bone scintigraphy in skull and extremities were correlated well with roentgenographic findings (osteolytic, osteoblastic, or mixed lesions).

This study showed so frequent positive bone scintigraphies in malignant lymphoma that we think it is worth while to use bone scintigraphy as a routine examination of malignant lymphomas in any stage.

RADIOISOTOPIC STUDY IN PAGET'S DISEASE OF BONE

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Paget's disease of bone is a local disease of bone which is characterized by a high rate of skeletal remodeling. Although many opinions have been proposed as the cause of this disease, none have been supported and the etiology remains unknown. On seven patients of Paget's disease, we observed differences of the grade of radioactivity on various skeletal images using different radiopharmaceutical agents, such as ^{99m}Tc-MDP, ^{67}Ga, ^{201}Tl and ^{99m}Tc-MAA. The distribution of ^{99m}Tc-MAA, which was injected into the femoral artery on the affected side and normal side, was observed. Then the rate of A-V shunt was measured by means of calculation of the radioactivity, in bilateral lung fields, which had passed through the A-V fistulae in the pagetic bone. Moreover various calcium regulating hormones in plasma were measured by our radioassay systems, in order to investigate calcium homeostatic system. In all cases remarkable high uptake of ^{99m}Tc-MDP in affected bone was observed. Although the grade of accumulations of ^{67}Ga and ^{201}Tl on pagetic bone were different in each case, good correlation was observed between those. It was recognized that active lesions of Paget's disease showed remarkable hypervascularity from the result of high uptake of ^{99m}Tc-MAA to the bone lesions, and the existence of high rate of A-V shunt was proved with this method. Plasma levels of PTH, calcitonin and 25OHD were within normal range, while plasma 1,25 $(OH)_2D$ levels, measured in two cases, were increased. The response of calcitonin secretion to calcium tolerance seemed to be within normal range, and that of PTH secretion to EDTA tolerance was significantly dicreased in three cases. Therefore, it was suggested that there might be impaired mechanism of calcium homeostasis in the patients of Paget's disease of bone.