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EVALUATION OF ROD (RENAL OSTEODYSTROPHY) BY BONE SCINTIGRAPHY: COMPARISON OF BONE MINERAL CONTENT MEASURED WITH CT SCAN WITH PHANTOM FOR SPINE AND RI UPTAKE RATIO. N.Otsuka, M.Fukunaga, T.Sone, A.Muranaka, S.Yanagimoto, T.Tomomitsu and R.Morita. Kawasaki Medical School, Kurashiki.

Bone scintigraphy was performed in 60 patients with chronic renal failure on artificial dialysis. In addition, accumulation pattern of RI in bone was classified and RI uptake ratio of bone to soft tissue was calculated. Furthermore, in order to measure non-invasively the bone mineral content (BMC) in L3, CT scanning combined with phantom for spine was done, and BMC obtained from relation of various concentration of K₂HPO₄ of standard in phantom and CT number was compared with RI uptake ratio.

Bone scintigram was classified as follows; relatively decreased uptake in bone (low turn-over bone type), increased uptake in costochondral junction (osteomalacic type), increased uptake in skull (hyperparathyroid type) and mixed type. Low turn-over bone type showed low in value of both RI uptake ratio and BMC. On the other hand, hyperparathyroid type showed high. Imaging of trabecular bone in L3 in hyperparathyroid was shown to be mixed with bone formation and resorption on CT scan.

In conclusion, it was suspected that calculation of RI uptake ratio of L3 to soft tissue on bone scintigram was reflected the state of bone metabolism in ROD.

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EVALUATION OF FREE VASCULARIZED BONE GRAFT IN NUCLEAR MEDICINE.

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The free vascularized bone graft is recently applied to a congenital, an accidental pseudoarthrosis, and badly injury. It is difficult to investigate the recanalization of vascular anastomosis and the fate of a grafting bone in the post-operation.

Though it has been done by an X-ray photograph, an angiography till now, there is hardly report which is observed the progress by scintigraphy.

So we apply bone-scintigraphy (Tc-99m-MDP) in a follow-up study and quantitative analysis of radionuclide study by computer. The result revealed that the bone-scintigraphy is valuable to the follow-up study of the free vascularized bone graft.

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INTERPRETATION OF BONE SCANS IN THE CANCER PATIENTS OVER 80 YEARS OLD. Y.Ono, H.Igari, T.Suzuki, T.Fujiwara, K.Yamada, K.Matsui, K.Uzuta and T.Tanaka. Yokohama City University, Yokohama.

173 bone scans in 137 cancer patients over 80 years old were reviewed. There were 33 cases of prostate cancers, 28 of lung cancers, 22 of uterine cervix cancers, 16 of head and neck tumors, 12 of breast cancers, 14 of GI tract malignancies and 11 of other primary sites malignancies. All of patients, whole body bone scintigraphies and several spot views were taken by camera 4-6 hours after injection of Tc-99m-MDP. Interpretation of scan abnormalities were made in conjunction with past history, clinical sign, radiographical (including X-CT) examinations, and subsequent clinical course. Incidence of osseous metastasis was found in 15% which was no higher incidence than the other cancer patients. Non-metastatic osseous lesions were detected in 77 cases. There were fractures of the ribs (27 cases, 20%), spondylosis (29 cases, 21%), vertebral compression fractures (11 cases, 8%), arthrosis of the knee (19 cases, 13%), fracture of the femoral neck and so forth. Incidences of these benign lesion were higher than the other younger cancer patients. We concluded that careful interpretation of scan abnormalities in aged patients was necessary.

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BONE SCINTIGRAPHY IN OSTEOMALACIA: DETECTION OF ITS LESION AND EVALUATION IN EFFECT OF THERAPY. M.Fukunaga, N.Otsuka, T.Sone, K.Nagai, A.Muranaka, T.Furukawa, S.Yanagimoto, R.Morita, *I.Yamamoto, *K.Torizuka, **M.Hino and ***S.Dokoh. Kawasaki Medical School, Kurashiki, *Kyoto University Hospital, Kyoto, **Kobe Municipal Hospital, Kobe and ***Kyoto City Hospital, Kyoto.

Recently, the research on metabolism of vitamin D and P has greatly progressed. These new concepts have made possible several advantages, including the establishment of therapy and the clarification of pathophysiology of osteomalacia, based on the derangement of vitamin D and P. In present study, bone scintigraphic examinations using Tc-99m-MDP were performed in 8 osteomalacia (4 RTA, 2 hypophosphatemic VDRR, 1 tumor-induced osteomalacia and 1 Fanconi's synd.), and, in addition to the interpretation of bone image, the effect of therapy was evaluated. In 7 cases micro- and pseudofractures could be easily detected. Swellings of costochondral junction, characteristic of osteomalacia, were recognized in 5 cases. The increased uptake of RI on generalized bone was noticed in 6 cases. The effectiveness of therapy on active vitamin D was evaluated from RI uptake ratio of diseased bone to control bone. In a case of good response to therapy, RI uptake ratio has decreased.