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Bone Marrow Distribution in Patients with Hematologic Malignancy; Degree of Bone Marrow Extension and Uptake Ratio

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Objectives: We evaluated the distribution pattern and uptake ratio of bone marrow using anti-NCA-95 monoclonal antibody in patients with various hematologic malignancy. **Methods:** Bone marrow immunoscintigraphy was performed on 50 patients; 11 with acute myelogenous leukemia (AML), 12 with acute lymphocytic leukemia (ALL), 15 with lymphoma (LYM) and 12 myelodysplastic syndrome (MDS). The bone marrow activity was categorized into four groups(G): I, II, III, IV. **Results:** The degree of bone marrow extension was 0 in GI, 7 in GII, 3 in GIII, 1 in GIV of AML patients; 0 in GI, 5 in GII, 6 in GIII, 1 in GIV of ALL patients; 3 in GI, 11 in GII, 1 in GIII, 0 in GIV of LYM patients; 1 in GI, 4 in GII, 5 in GIII, 2 in GIV of MDS patients. Bone marrow extension was marked in MDS patients (58% in GIII, GIV), mild in LYM patients (93% in GI, GII) and heterogenous in leukemic (AML, ALL) patients. UR was 5.9 ± 3.6 in AML patients, 7.9 ± 4.6 in ALL patients, 6.3 ± 2.8 in LYM patients and 8.5 ± 4.0 in MDS patients ($p=NS$). UR of whole patients was 5.4 ± 2.6 in GI, 7.1 ± 3.7 in GII, 9.3 ± 3.4 in GIII and 2.1 ± 0.4 in GIV ($p=0.003$). **Conclusion:** The pattern of bone marrow extension was different among the disease entities. Activity of central hemopoietic marrow was related to the degree of bone marrow extension, but not to the disease entities. Compensatory response of bone marrow developed at both peripheral and central skeleton in patients with hematologic malignancy.

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Preliminary Clinical Study of ^{89}Sr in Palliation in Painful Skeletal Metastases

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^{89}Sr has shown to produce significant pain relief in patients with skeletal metastases from advanced cancer. According to the requirements from the drug agency of Chinese ministry of health, we had treated 27 patients with painful bone metastases to testify the safety and efficiency of Metastron (^{89}Sr injection solution imported from the Amersham company, UK). Strontium was used for the treatment of painful bone metastases in 27 patients. 2 cases was excluded by missed follow-up, the other 25 cases with metastatic prostate carcinoma, lung cancer, breast cancer have been evaluated in a standard quantitative pain measures before the treatment. Pain scores of these patients were between 6~16. According to the guideline of this pharmaceutical, Metastron was given intravenously to these patients as a 1.48 MBq/kg dose. All the patients were monitored at least 3 months. Pain score, radiotoxicity and immediately reaction were observed in the follow-up. **Results:** Clinically significant metastatic pain relief can be observed in most patients. Total efficiency is 77.8% respectively, patients' life quality have been improved. No clinically significant adverse effects or myelosuppression were observed in most patients. The mild decrease of white blood cell can be seen in 32% patients and platelet counts in 60% patients. Most of these patients can recover except 1 case. For the case, further clinical data show a little change in liver function. Absolute granulocyte counts did not fall below 2000 in any patients. Significant increased pain (flare) occurred in 55.5% patients after the injection of Metastron. The flare had been lasting 3-7 days. Only one patients' pain last more than 20 days. It is concluded that ^{89}Sr is an effective agent in palliative therapy for metastatic bone pain in-patients with prostate or breast carcinoma. More than 3 months pain relief can be observed in 94.4% patients. There is only one patient lasted for 2 months. 7 cases had repeated the bone scan before and after the ^{89}Sr therapy, no significant changes can be observed.