

MYELOGRAM - DIAGNOSTICAL AND PROGNOSTICAL SIGNIFICANCE IN CHILDREN WITH MALIGNANT TUMOURS

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The purpose of this investigation is to establish the clinical significance of myelogram in children with malignant tumours. We studied the myelograms of 86 children with solid malignant tumours hospitalized in Pediatric Clinic in MU-Varna for the period 1976-1981. The microscope smears were stained by May-Grunwald-Giemsa, and additional cytochemical reactions for peroxidase, PAS, Sudan, non-specific-naphthyl esterase reaction were done in some of patients. There were 55 boys (63,8%) and 31 girls. This shows that males are more vulnerable (1,8:1,0); 14 of the children are aged up to 3 years, 37 are 3-7 years of age. Twenty-three patients (26,7%) were with neuroblastoma, 22 (25,6%) - with neuroblastoma, 9 (10,5%) - with brain tumours, 11 (12,8%) - with bone tumours and 21 (24,4%) - with others (embryonal teratoma, rhabdomyosarcoma, etc.). The leading clinical symptoms are: recurrent abdominal pain and tumour - 33 (38,3%); bone and joint pain - 19 (22,2%); fever, poor appetitis, weakness - 9 (10,5%), peripheral lymph node enlargement - 6 (7,1%), pneumonia - 3 (3,5%), anemia - 5 (5,8%), radiculitis - 2 (2,1%). The alterations that can be seen in a bone marrow (BM) smear are specific, represented with a various incidence of tumour cells. Non-specific reactive changes affect all haemopoietic lineages. According to the morphological type of the tumour, its histological variant and clinical stage by the TNM-classification these changes are expressed to different extent. There are 53,6% of erythroblastic hyperplasia which is equally distributed among patients with neuroblastoma and rhabdomyosarcoma. In contrast, in 9 children that suffered neuroblastoma infiltrating the bone marrow severe depression of the erythroid lineage, correlating to the anemia syndrome is found. The granulocyte lineage alters in a similar way. BM eosinophilia is found in 45,5% of the patients and the eosinophilic total count shows a moderate growth. A common cytological finding is the presense of naked nuclei of megakaryocytes and medakaryocytosis especially in cases of micrometastases in bone marrow (83%) (fig.1). Monocytosis and plasma cell moderate increase is detected in 1/3 to 1/5 of the cases. BM lymphocytes show an interesting picture of alteration. Moderate BM lymphocytosis (25-30%) is observed in 25,9% of the cases, espe-

cially in patients with Ewing's sarcoma, embryonal teratoblastoma, bone tumours and in some patients with neuroblastoma and BM micrometastases. In patients with massive BM tumour cell infiltration

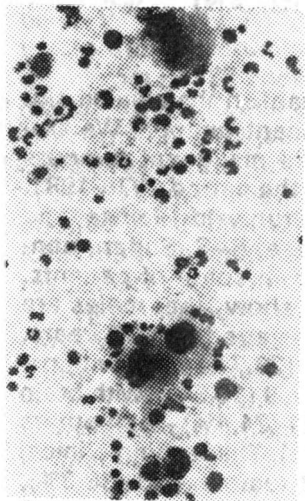


Fig. 1

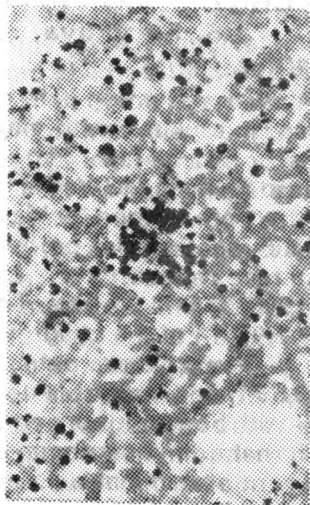


Fig. 2

(50%), especially IV stage of neuroblastoma we found an expressive BM lymphopenia (under 5%) which is a result, very much according to the clinical diagnosis. We found in 23 patients (26,7%) specific alterations represented with BM tumour infiltration. The picture is typical in

cases of neuroblastoma (63,6%) (fig.2). Tumour cells in BM form small groups of 5-6 cells or can expand to massive infiltrates that engage 25-50% of BM. In cases of neuroblastoma they look like pseudorosettes followed by a line of cells or littered cells. The degree of BM infiltration is in inverse proportion to the non-specific reactive alterations that are usually erythropenia and megakaryocytosis. On the basis of BM tumour cell infiltration showing IV stage of neuroblastoma and corresponding to a poor prognosis, 8 patients were diagnosed. Four patients with infiltration of 30 to 50% survived for 6 to 10 months, 3 ones with micrometastases after chemotherapy survived for 18 to 24 months and one - over 2 years. We conclude that BM smear investigations have a diagnostical significance in children with malignant tumours. Alterations in erythroid lineage followed by changes in granulocytes and megakaryocytes are the main non-specific reactive alterations in BM. Neuroblastoma presents the picture of tumour cell BM infiltration in 63,6% of the patients forming pseudorosettes, strips of tumour cells and diffuse infiltration. The degree of the neoplastic effect on BM has a prognostical value.