

Functional and biochemical activities of neutrophil granulocytes from patients with Hodgkin's disease

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Several investigators have reported impairment of cell mediated specific immunity [3], but little is known about functional and biochemical features of polymorphonuclear granulocytes (PMNs) in patients suffering from malignant lymphomas. Functional desintegrity of PMNs may stand at the background of different infections that occur by high frequency in lymphoma patients.

To assess the number and function of PMNs a battery of tests was used. Absolute granulocyte count was determined from peripheral blood. After separation of PMNs [2] the followings were tested: yeast phagocytosis, phagocytosis of opsonized yeast particles, binding of sensitized sheep red blood cells (EA cells), chemotactic activity [1] against zymoosan activated serum and phagocytosis of *Staphylococcus aureus* (St. au.) particles [5]. Intracellular killing of St. au. and superoxid anion production were measured as indirect markers of intact intracellular bactericidal enzyme-activities [6].

Blood samples were obtained from 22 healthy donors, 10 previously un-

treated patients with Hodgkin's disease and 32 Hodgkin-patients who were in complete remission.

Results showed increased binding of EA cells and chemotactic activity while abolished yeast phagocytosis and bactericidal capability of PMNs from patients with active disease. No differences were found according to sex and age of patients or duration of remission. Yeast phagocytosis was decreased in more extent disease. Binding of EA cells was depressed in cases with mixed cellular and lymphocyte depleted type of histology. Phagocytosis of opsonized yeast particles and the number of neutrophils were reduced after radiotherapy. Other prognostic parameters had no significant influence in PMN functions.

Neutropenia often can be seen in consequence of either polychemotherapy or radiotherapy protocols [7]. Lithium is a known stimulator of proliferation and differentiation of both pluripotential and granulocyte-macrophage committed stem cells. Therefore it has been promoted as an adjuvant for cancer therapy. On the other hand there is little and unequivocal infor-

mation about the effect of lithium on functional capacity of PMNs [4].

To decide whether lithium was beneficial to give, patients' granulocytes were tested before and after a short-term lithium treatment. 3×300 mg Li-carbonate per day was given orally for one week.

Number of neutrophil granulocytes was increased significantly by Li and no impairment of cell functions was observed. Therefore, lithium is supposed to have therapeutical effect on granulocytes and can be offered as a supportive agent in cancer therapy.

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