

RECENT ADVANCES IN CHEMOTHERAPY

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Ukrain and Natural Killer Cells

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Ukrain is an anticancer agent prepared from *Chelidonium majus* L. alkaloids. Its anticancer efficacy in vitro was showed on several human cell lines, in terms of GI_{50} , TGI, and LC_{50} parameters, and directly on several patients. Besides its direct influence on cancer cells, the agent was found to influence the immune system of the patient under treatment. The present studies were undertaken to evaluate the influence of Ukrain on a population of natural killer (NK) cells.

Methods. The NK cell population was enumerated by monoclonal antibody (CD16) in the peripheral blood lymphocytes-monocytes fraction obtained from four ovarian cancer patients and six colorectal cancer patients in stage III and IV treated with the agent. NK cells were counted under a fluorescent microscope. The blood from each patient was collected twice, before and after treatment consisting of 30 intravenous injections, equivalent to 150 mg of alkaloids of *C. majus* L.

Results. In patients treated with Ukrain, peripheral blood lymphocytes with the CD16 phenotypic marker increased from $5.6 \pm 4.8\%$ to $28 \pm 10.2\%$.

Conclusion. The above data indicate that Ukrain is responsible for increase of lymphocytes with the CD16 phenotypic marker, characteristic for the NK cell family, besides its regulatory effect on T cells with phenotypic markers CD4 and CD8 as presented before (3). These observations support the view that Ukrain in its anti-tumor activity operates by two mechanisms, direct and indirect. The direct one is operational through modulation of oxygen consumption, which in consequence in malignant cells is responsible for cytostasis and cytolysis (1, 2). The indirect mechanism is mediated by the immune system, in which its anticancer activity is expressed through an increase of the NK cell family.

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