IMPACT OF 3-HYDROXYPYRIDINE DERIVATIVES ON CYTOSTATIC AND ANTIPROLIFERATIVE ACTIVITY OF ARABINOFURANOSYLCYTOSINE-5`-MONOPHOSPHATE

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The incidence of malignant neoplasms around the world is steadily increasing. That is why the search for drugs that prevent the development of tumors, the study of the laws of carcinogenesis is one of the main tasks of anti-tumor control. An important feature of tumor growth is the change in the level of free radical reactions, which is manifested in the increased antioxidant activity of tumor tissue, on the one hand, and the depletion of the antioxidant defense system of the tumor-bearing organism, on the other. The value of antioxidant activity is essential for the processes of cell proliferation, as antioxidants are involved in the regulation of cell reproduction. In this regard, it is attractive to search for substances or their combinations with antioxidants, the use of which will lead to a decrease in intoxication in the body of tumor carriers.

In the present work we studied the influence of modified nucleotide arabinofuranosylcytosine-5`-monophosphate in the form of the free acid (ara-CMP) and its salts with the synthetic derivatives 3-hydroxypyridine emoxipin (ara-CMP+Em) on the viability of mononuclear cells in the peripheral blood, the number and lymphocyte proliferation in mitogen-induced stimulation of the cells. Under ara-CMP lymphocytes not only stopped cell division and increased cell death, but as well as fractions of secreting pro-inflammatory cytokines cells were increased. It is known that increasing of pro-inflammatory cytokines level is a systemic reaction to the increased ROS levels due to destruction of cells. Note that the presence of emoxipin (substances that have antioxidant properties) almost completely neutralized the observed effect.

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