Effects of the brain endogenous inhibitory factor on bone marrow cells

E. Bakuradze[1], G. Mosidze[1], I.Modebadze[1], A.Kordzadze[2], D.Dzidziguri[1]

[1]Division of Morphology, Department of Biology, Faculty of Exact and Natural Sciences; [2]Faclty of Medicine; Iv. Jvakhishvili Tbilisi State University

There is an opinion that the uncontrolled growth is caused by the imbalance between two processes: cell proliferation and their dying, both processes are regulated by growth factors. In turn, the disturbance of proliferation regulation may be the result of a imbalance between the stimulating and inhibiting factors of cell growth. Nowadays inhibition of stimulating factors receptors are actively used for the treatment of tumors.

It is established that cells of different organ of adult rats contain a complex, which inhibits the proliferation of homologous cells due to inhibition of the transcription process in interface. It is not characterized by species specificity, while, tissue specificity appears only to terminally differentiated cells.

It has been also determined, that single injection of endogenous protein complex does not cause changes the mitotic activity of bone marrow cells. In the bone marrow along with the predecessor and differential cells, there are a multypotential stem cells population which is necessary for the development of all blood cells and cells for the immune system. Maintaining their viability is very important.

The aim of the study was the impact of the brain endogenous protein complex on the different populations of bone marrow cells of adult mice.

We used the flow cytometry in order to assess the quantitative changes of hematopoietic stem cells (CD117), macrophage cells (CD11b) B cells (CD19), and T cells (CD3) in the bone marrow.

Obtained results show that the injection of the brain thermospitable protein complex does not cause a change in the number of immature cells in the bone marrow of adult mice. There were no changes in the quantitative evaluation of CD11b, CD19 and CD3 positive cells. We can conclude that the adult rat brain endogenous protein complex does not have the ability to inhibit the proliferation of bone marrow immature cells.