THE INVESTIGATION OF MELAFEN INFLUENCE TO THE ANIMAL MALIGNANT NEOPLASMS *IN VIVO* AND *IN VITRO* EXPERIMENTS

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This investigation deals with the low dozes of Melafen (melamine salt of bis (oximethyl)phosphinic acid) influences to the animal tumor cells *in vitro* – to the Ca^{2+}-signaling system, to the protein-regulator p53 and antiapoptosis protein Bcl-2 content at the Erchlich ascitic carcinoma cells (EAC) by the primary light scattering under the right angle and immunoblotting methods; *in vivo* – to the growth kinetic of experimental malignant neoplasm of solid tumors (carcinoma Luis of F1 C57BlxDBA mice). The Melafen doses 10^{-5} mol/kg, 10^{-9} mol/kg, 10^{-12} mol/kg were injected to the mice. The tumor development was followed up by linear sizes of tumor and by the lifespan of animal. The obtained kinetic curves of tumor growth dynamics were fitted by the Gompertz function.

The experiments *in vitro* revealed that the Melafen influenced to the two targets at the EAC cell surface –purinoreceptors P2Y and to the Ca^{2+}-releasing channels of capacity entering (CRAC), and decreased its activity greatly. At that, the Ca^{2+}-signaling system of EAK cells was depressed even by the Melafen concentration 10^{-11}, 10^{-10} M. It should be noted that the Ca^{2+}-signaling system of EAK cells effects to the calcium-binding proteins of S100 family, that by turn bind with the p53 protein, changed its transcriptional activity, thereby, realize the path of apoptosis signal transduction, probably. By this, the protein S100B has 2 roles: it exerts, as the protective, that and the proapoptosis effects. It was be shown the increase of p53 protein quantity and decrease of Bcl-2 protein quantity under the 1,5 hour of Melafen action, while under the 0,5 hour of Melafen action no material change in the situation. Appears that, the obtained effects indicated that the apoptosis was developed under the 1,5 hour of Melafen action.

Experiments *in vivo* revealed that the all tested doses of Melafen suppressed the growth of Luis carcinoma. Notably, the rate of tumor growth decelerated, and the mean tumor volume was decreased at the point of animal death time. The mean lifespan of experimental and control animals were similar. Thereby, the tested substance (Melafen) have the appreciable suppressive action to the properties of EAC cells and tumor development of Luis carcinoma under the all tested dozes, even under the super low dozes (10^{-12} mol/kg). The using of Melafen treatment for the next cancer investigations will be actual due to obtained data: combination of well antitumor activity with the low cell toxicity.