

ACTION INHIBITOR PROTEIN HEAT SHOCK 27 ON THE ACTIVITY OF GLUTATHIONE PEROXIDASE AND CATALASE IN TUMOR CELLS

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Normally, the accumulation of free radicals in the cells prevents the antioxidant system. With the accumulation of reactive oxygen species formed by oxidative stress, often accompanied by increased levels of heat shock proteins. They are involved in the formation of the correct three-dimensional conformation of newly synthesized polypeptides in the maintenance of functional activity of intracellular proteins and elimination of damaged proteins. Tumor same transformation is accompanied by increased synthesis of heat shock protein 27, as well as the accumulation of oxidation-modified metabolites.

The material for the study is based on the tumor cell line Jurkat (T-lymphoblastic leukemia), obtained from a bank of cell cultures Institute of Cytology RAS (St. Petersburg). Cells were cultured in the way the suspension medium containing 90% RPMI-1640, 10% fetal calf serum («Biolot», St. Petersburg), inactivated at 56°C for 30 min. Cells were maintained in logarithmic growth phase culture of continuous passages every 2–3 days. Assessment of cell viability were performed using trypan blue. Assessment of the activity of glutathione peroxidase and catalase was performed by spektrofotomitricheskim.

The results of this study showed that the addition of dexamethasone and an inhibitor of heat shock protein – KRIBB3, we received an increase in activity as glutathione peroxidase, and catalase. But in the case of co-added to the incubation medium, an inhibitor of heat shock protein 27, and dexa-

methasone, we recorded a decrease in the activity of both enzymes.

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FUNCTIONAL CONDITION OF HEART AMONG CHILDREN WITH DIFFERENT TYPES OF EATING REGIME

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An impact of a healthy lifestyle, including a type and regime of diet upon functional condition of children is studied insufficiently in age physiology and hygiene [2]. A rational diet plays an especially important part in providing for an optimal psychophysical condition of a growing organism.

Functional condition of heart was studied among pupils of 1–3rd grade with different eating regime: group 1 – children who had breakfast at school regularly (GN) and group 2 – those who did not have breakfast at school (GP). For a test strain the children kept static tension on a hand dynamometer of 1/3 of its maximum strength. In rest and during the strain, heart rate (HR) and blood pressure (BP) was measured.

The results of our study have shown that HR indexes in rest among all 1st grade boys didn't differ (table), while among the girls of GN group in the 1st grade HR in rest was reliably higher than among girls of GP group. Among 2nd grade boys of GN group HR in rest was reliably higher than that of GP group, and among girls of GP group HR in rest was the opposite – reliably higher than that of GN. In the 3rd grade HR in rest was reliably higher among pupils of GP group, compared to GN.

Changes in heart rate and blood pressure after local work of schoolchildren

Class	Sex	Before						During exercise					
		HR		BPS		BPD		HR''		BPS''		BPD''	
		I	II	I	II	I	II	I	II	I	II	I	II
1	B	88,0±3,4	89,4±2,4	89,2±2,3	86,7±2,1	64,2±1,2	52,2**±1,3	95,3±2,1	100,4±2,2	99,2±2,6	97,9±1,4	72,5±2,5	65,6**±2,1
	G	84,4±1,3	94,8±2,1	87,7±3,2	81,8**±2,0	63,8±2,1	50,1**±1,5	96,6±2,2	105,2**±2,1	97,7±3,5	94,7±2,7	70,5±2,6	62,1**±1,7
2	B	84,8±2,2	90,2±2,0	90,0±3,3	83,0**±2,1	64,2±3,3	49,0**±2,6	95,8±3,3	96,2±2,4	99,2±2,4	89,8**±2,9	70,7±1,4	61,3**±2,9
	G	92,5±6,1	84,6±1,9	86,4±2,2	82,6±2,0	66,0±1,4	51,8**±2,7	111,4±2,6	100,4**±1,9	93,5±3,3	90,6±2,1	68,5±2,3	62,8±3,0
3	B	87,5±2,3	80,4**±1,7	91,6±3,2	88,1±2,8	61,2±2,5	56,7**±2,0	92,6±3,7	95,3±1,8	104,6±2,2	92,7**±2,0	76,5±3,2	65,4**±2,1
	G	89,8±3,2	85,9**±1,5	92,8±3,4	90,5±2,6	61,7±2,4	59,5±1,9	92,8±2,8	102,7**±1,9	94,4±3,1	105,1**±2,9	70,0±2,1	68,9±2,8

Notes: B – boys, G – girls; I – GN, II – GP; ** – significant differences between I and II.