

LIMIT PHYSICAL ACTIVITY AND STRESS: CORRECTION MECHANISM

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INTRODUCTION

Known that under conditions of stress, including limiting physical activity (like stress model) is activated coagulation system. With this is associated cases of sudden death in athletes. We also know that under the conditions of formation of a large amount of thromboplastin observed damage not only the heart, but all parenchymal organs. According to a new understanding of the role of thrombin-plazmin system (TPS) that the damage is the result of thrombin. TPS operates not only in blood but also in the intermediate connective tissue and cells and regulates the functional and metabolic homeostasis: the significant formation of thrombin it is broken, and with considerable formation of plasmin – restored (Monastyrskyj, 2002). To test this theory, the effect of heparin and fibrinolysin homeopathic (HF) athletes during exercise «to failure».

METHODS

Investigated two experimental group (EG) and control group (CG) runners qualified men 18-20 years in terms of physical activity (PhA). Against placebo control athletes EG 1 before PhA injected dose prophylactic heparin and athletes EG 2 - taking HF. It studied: heart rate variability; indices of central hemodynamics; free radical and metabolic homeostasis parameters; concentration of D-dimer - markers of coagulation and fibrinolysis. Also analyzed the duration and power of physical work «to failure». Results processed statistically.

RESULTS

Is noted positive effects of heparin on duration and load power; circulatory parameters: significant economization, which is manifested in the reduction and chronotropic and inotropic cardiac function ($P < 0.05$), shows the optimization of parameters of metabolic processes to decrease the depth changes homeostasis. Athletes EG single dose HF has

led to an increase in total HRV in terms of the total variability (TP) to 33.6% ($P < 0.01$) and decreased stress index (SI, $P < 0.05$), creating a more powerful functional metabolic reserve in athletes EG and reduced the concentration of D-dimers.

DISCUSSION

Effect of heparin due to its anticoagulant effect, because heparin with FN did not lead to verifiable changes in homeostasis, but only if PhA «to failure» accompanied by severe hypercoagulation, and thus form a significant amount of thrombin (Cooper, 2004). Thrombin can cleave other proteins of cells (Morel, 2005), as well as affect other cell processes, including the work of Na^+ , K^+ - pump and pH (Kolodzeyskaya, 2004), which is the basis for changes in the structure and function of cells.

CONCLUSION

Thus, heparin leveled the complex enzymatic TPS body equilibrium shift toward the predominance subsystem thrombin caused by excessive physical and emotional stress, a reception HF led to the activation of plasmin and recovery subsystem changes the body's homeostasis and increase its reserves.