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THE BIOLOGICAL BASIS OF THE KIDNEYS GOVERNING THE BONE

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Kidneys are important organ for the human body. In traditional Chinese medicine (TCM), there are many unique theories, “the kidney governing the bone” is vital one. Application of this theory on clinical treatment of bone diseases has been for over thousands of years, and theeffectiveness of kidneys reinforcing prescription have also been confirmed by clinical practices. But, up to now, the mechanism of “the kidney governing the bone” remains unclear. In recent years, study on TCM theory has been focused by scholars and variety of hypothesisabout the mechanism of the kidney dominating the bone have been advanced. The main viewpoints may be summarized as (1) by affecting vitamin D absorption, (2) by regulating the trace elements such as calcium and phosphorus metabolism, (3) by regulating the secretion and metabolism of the growth hormone, (4)by affecting OPG-RANKL-RANKL signaling pathway, (5) by regulating the neuroendocrine-immune network [1]. It seems to be that the kidneys through a variety of ways to regulate the process of bone growth and metabolism. But all these viewpoints need direct systemic experimental evident to support a reasonable modern physiological explanation.

Recently, many studies indicated that sex hormones play indispensable roles on the skeletal size and shape during growth, and contribute to the homeostasis of skeleton[2]. On the other hand, major function of kidneys in TCM are believed to be function of the hypothalamic–pituitary–gonadal axis (HPG axis)[2]. As all know, the HPG axis carries out its function through the sex hormones. This article aims to explore the modern science mechanism of TCM theory “kidneys govern the bone”. Here, we propose a new explanation for the theory that the “kidneys” in TCM govern the bone by regulating the function of sex hormones and its receptors.

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THE EFFECT OF ADAPTOGENS ON THE LIPID PEROXIDATION OF THE LIVER IN THE CONDITIONS OF HEAT EXPOSURE

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Summary. Heat exposure stimulates the generation of reactive oxygen species, inducing peroxidation of lipids, resulting in the development of hypoxia. In experimental conditions the possibility to correct free radical lipid oxidation of rats’ organism membranes was studied with the oral introduction of the phytoadaptogens that contains the complex of natural antioxidants. The application of the phytoadaptogens in the conditions of long heat exposure of the organism of animals under experiment leads to the stabilization of the processes of peroxidation against the increase of antioxidant system activity.

Key words: phytoadaptogens, extract eleutherococcus, extract radiola, extract liquorice, heat exposure, lipid peroxidation.

Modern environmental conditions dramatically increased the level radiculopathic processes in the body. Heat exposure stimulates the generation of reactive oxygen species, inducing peroxidation of lipids, resulting in the development of hypoxia. The oxidative stress is the pathogenic moment in the development of many diseases: inflammatory, broncho-pulmonary, cardio-vascular and other diseases. In this connection the search for the new ways of the correction of oxidation during heat exposure is actual because the increase of adaptive possibilities of a man with the help of pharmacological means becomes the important moment in prophylaxis of diseases and pathologic conditions [2, 5].

Materials and methods. In experimental conditions the possibility to correct free radical lipid oxidation of rats’ organism membranes was studied with the oral introduction of the phytoadaptogens. The animals were divided into 5 groups and each of them had 30 rats: intact animals (1) which were held in standard conditions of vivarium; the control group (2) in which rats were exposed to heat during forty-five minutes daily; the experimental groups (3, 4, 5) in which before the effects of heat animals had a daily oral intake of the extract eleutherococcus, of the extract radiola, of the extract liquorice in a dose of 1 ml/kg. The intensity of peroxidation processes was assessed by examining the contents of hydroperoxides lipids, diene