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Editor
Komarytskyy M.L.
Ph.D. in Economics, Associate Professor

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e-mail: barca@sci-conf.com.ua

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EFFECTS OF CORTISOL AND CHRONIC STRESS ON THE HUMAN BODY

Ushakova Mariia
Student of Kharkiv National Medical University
Vasylenko Maryna
Student of Kharkiv National Medical University
Malyk Nataliia
PhD
Kharkiv National Medical University
Kharkiv, Ukraine

Introduction. How often do patients complain of a lack of health when they visit a doctor, assuring the doctor that they are no longer healthy? This trend is especially common among young people. However, there is no such definition as "no health"; there is the concept of having a disease, an ailment of the body - a violation or change in the balance of homeostasis of the human body. It is worth remembering that in a stressful situation, cortisol levels rise to prepare the body for the "fight or flight" strategy, which is based on an adaptive defense response, but in chronic stress, when the body is in constant anticipation of either "running" or "fighting" without a clear answer as to which decision to make, it gradually kills the body, completely depleting it. Psychosocial risk factors, especially their social component - chronic stressors, which include events happening around us - are a constant trigger for increasing cortisol levels, which, of course, have a significant negative impact on health. For example, an increase in this hormone can lead to a deterioration in health and performance, quality of life, and cause various endocrine disorders.

Unfortunately, the current situation in Ukraine is a stressor for many Ukrainians. That is why this topic is so relevant at the moment.

Objective. To trace the relationship between elevated cortisol levels, chronic stress and negative effects on the human body.

Materials and methods. Review of Ukranian and foreign literature.

Results and discussion. Chronic stress is a consequence of continuous or

periodic prolonged exposure to emotionally negative factors accompanied by neuroendocrine and metabolic changes. Cortisol or stress hormone, or death hormone, is a steroid hormone produced by the cells of the adrenal fascicular zone of the adrenal cortex. It is synthesized from cholesterol, which enters the adrenal cortex cells with blood as part of LDL (low-density lipoprotein) or is formed from acetyl-CoA. Cortisol production is affected by daily fluctuations. At midnight, the level of the hormone rises and reaches its maximum around 9 am. During the day, its level decreases.

The production of cortisol requires a chain of commands. In stressful situations, our brain prepares the body for a "fight or flight" strategy. To do this, the hypothalamus produces corticotropin-releasing hormone, which acts on the anterior pituitary gland and causes the secretion of ACTH (adrenocorticotropic hormone). In turn, ACTH stimulates the adrenal cortex to produce cortisol, adrenaline, and aldosterone. The combination of these hormones ensures readiness for the "fight or flight" reaction and our body instantly changes the constant of body constancy towards adaptation of the so-called "combat readiness", which we observe in the form of certain changes in the body. But in the case of chronic stress, constant "combat readiness" causes considerable harm to the body.

What changes in the body occur during chronic stress and why does this lead to the slow death of the body? In order to survive stress, the body needs to mobilize all organ systems to achieve one goal - to survive, but not all body systems are "important" at this moment, as all support is mainly focused on the brain, sensory organs, cardiovascular system and musculoskeletal system, and the body will "take care" of reproduction, i.e. the reproductive system, nutrition, i.e. the digestive system and the immune system later. That is why we observe that the pain threshold increases, the respiratory rate increases, the heart rate increases, the volume of circulating blood increases, the blood vessels in many parts of the body constrict, and the muscle vessels dilate, blood pressure rises, blood viscosity increases, which can subsequently lead to intravascular thrombosis, body endurance increases, muscle strength and reaction speed increase, the liver increases glucose synthesis, and its

breakdown in the muscles is inhibited. The muscles do not use glucose, because the body does nothing and hyperglycemia occurs, which can lead to the development of diabetes mellitus and all its consequences, obesity. The pupils dilate, peripheral vision is turned off, that is, it becomes tunnel vision. Intestinal peristalsis is also reduced and the immune, reproductive and digestive systems are inhibited, which over a long period of time with chronic stress leads to frequent ARVI, exacerbation of chronic diseases, psoriasis, eczema, peptic ulcer, rheumatoid arthritis, insomnia, bronchial asthma. Men experience erectile dysfunction and, as a result, infertility, women may develop candidiasis, adnexitis, endometritis, and even cancer and infertility, meaning that our body goes into "combat readiness" and organ systems that are less needed when faced with stress are put on hold.

Chronic psycho-emotional stress causes prolonged peroxidation of cardiac lipids, activation of lipases and phospholipases, and contributes to the development of vascular atherosclerosis, coronary heart disease, and hypertension.

According to the Minister of Health of Ukraine, in 2022, the nation aged by 10 years. According to the World Health Organization (WHO), 1 in 4 people worldwide suffer from depression or anxiety disorders that can be caused by stress. In Ukraine, according to the National Association of Psychologists, the number of people seeking psychological help due to stress has increased almost 3 times over the past 5 years (data by 2022). According to the WHO, stress is one of the leading causes of health and disability in the world, affecting more than 300 million people.

To reduce cortisol levels, patients can go for a walk, exercise, meditate, get a massage, or listen to their favorite music. They should also follow a sleep/wake schedule for proper cortisol production.

Conclusions. Cortisol is our assistant, but only when there is not too much of it. During a stressful situation, it helps us out, but when a person is constantly stressed, the hormone begins to harm us, our metabolic processes are disrupted, which leads to a decrease in the body's overall resistance and its ability to adapt to adverse conditions.

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