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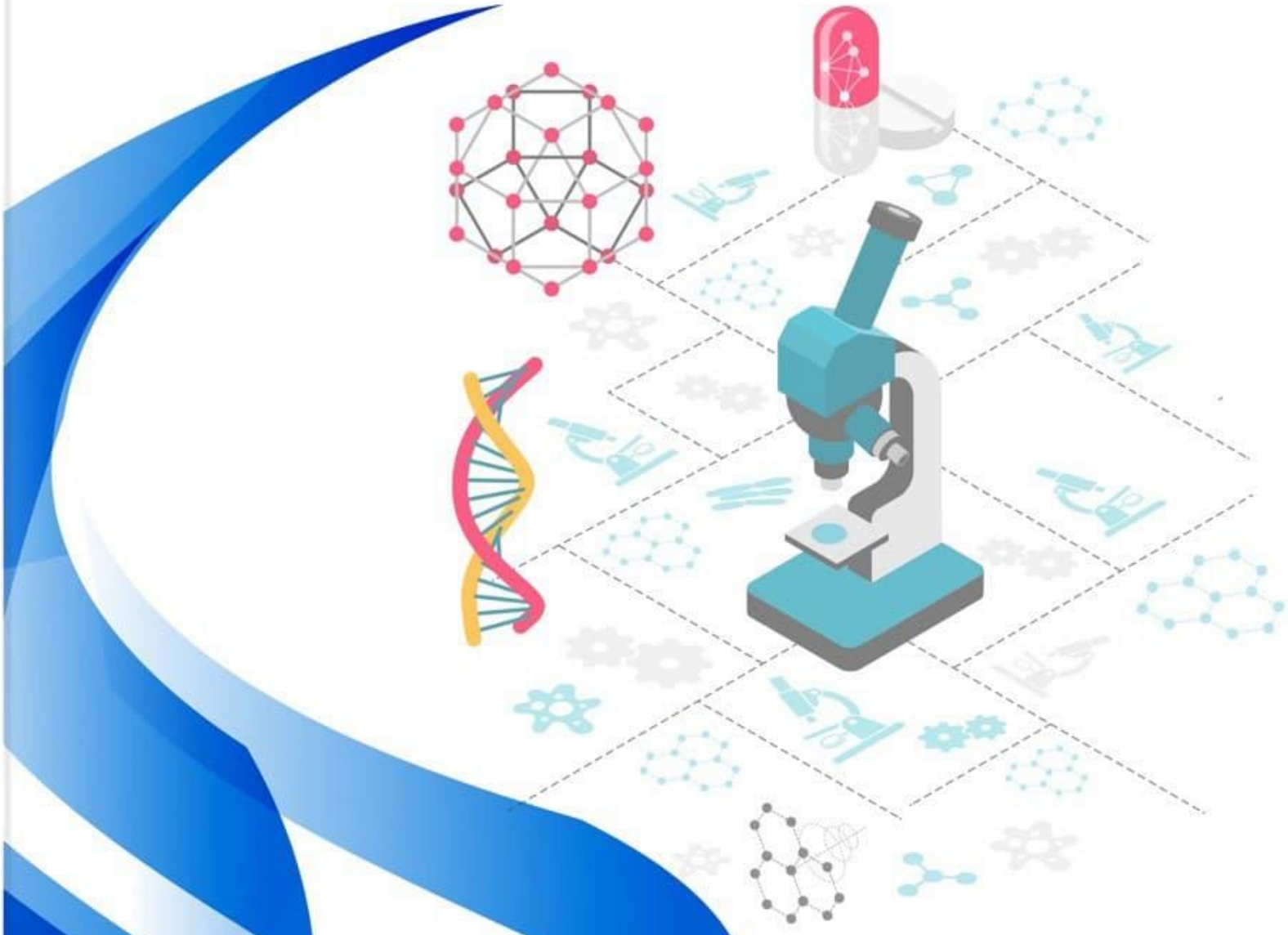

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THE INFLUENCE OF CORTISOL ON THE DEVELOPMENT OF HYPERTENSION IN MENOPAUSAL WOMEN

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Abstract: Menopause is an important stage in a woman's life, accompanied by numerous physiological and hormonal changes. One of the most significant changes is the decrease in estrogen levels, which in turn affects many functions of the body, including the cardiovascular system. One factor that is of great importance for the development of hypertension during menopause is cortisol, a stress hormone that can have a significant impact on blood pressure.

Keywords: Arterial hypertension, cortisol, menopause.

Relevance. Arterial hypertension is one of the main medical and social problems of modern humanity in terms of prevalence, severity and material damage caused to society [1, 3, 8].

For our country, this problem is many times more urgent than in most economically developed countries (A.G. Gadaev. Internal Medicine 2024).

Symptomatic arterial hypertension (SAH) with an established cause accounts for 5-10% of all arterial hypertension [A.G. Gadaev. Internal diseases 2024]. According to other authors [2, 3, 7], the prevalence of SAH can vary from 20 to 25%. An important role in the structure of secondary hypertension is given to endocrine forms, their frequency is about 20% [8].

It has been established that hypertension of adrenal origin is complicated by a malignant course at an earlier stage than other forms of symptomatic hypertension;

refractoriness to the therapy often develops, which undoubtedly contributes to early disability and premature mortality [5, 3, 8].

Timely and correct diagnosis of hypertension is extremely important from the standpoint of choosing pathogenetic therapy (surgical - for hormonally active tumors), which is the key to success in the treatment of these patients [5, 7, 9, 12].

Target.A study of the literature devoted to the influence of cortisol on the development of hypertension in menopausal women.

Cortisol is produced by the adrenal glands and plays a key role in a number of physiological processes, including metabolism, immune response, and stress responses. Normally, blood cortisol levels rise in response to stressful situations, allowing the body to mobilize resources to combat threats. However, when cortisol levels remain elevated for a long time, it can lead to a variety of diseases, including hypertension[1].

During menopause, there is a significant change in hormonal levels. The level of estrogens, which have a cardioprotective effect, decreases. This can affect the regulation of blood pressure. In addition, menopause is often accompanied by an increase in stress and anxiety, which can contribute to an increase in cortisol levels. Against the background of reduced activity of the system regulating cardiovascular risks, this process can lead to the development of hypertension [5, 3, 8, 13].

A decrease in estrogen levels is also associated with a deterioration in the sensitivity of blood vessels to vasodilators (substances that dilate blood vessels), which increases the load on the heart and contributes to an increase in blood pressure [5, 3, 8]. At the same time, an excess of cortisol can intensify this process, increasing vascular resistance and worsening their elasticity.

Elevated cortisol levels may contribute to the development of hypertension through several mechanisms [12,13]:

- **Increased activity of the sympathetic nervous system**: Cortisol can increase the activity of the sympathetic nervous system, which leads to vasoconstriction and increased blood pressure.
- **Effect on the kidneys**: Cortisol can affect the kidneys by increasing the reabsorption of sodium and water, leading to increased blood volume and increased blood pressure.
- **Deterioration of vascular function**: Chronically high cortisol levels can reduce the ability of blood vessels to dilate in response to changes in blood pressure, contributing to stiffness and increased pressure.

In menopausal women, cortisol levels often increase due to stressors such as changes in their personal life, difficulty adjusting to new hormonal levels, and physical ailments such as hot flashes and night sweats. These factors can reinforce each other, contributing to chronically high cortisol levels.[5, 3, 8] This level of stress and hormonal changes makes menopausal women more vulnerable to developing hypertension.

In addition, menopausal women may have an increased risk of developing cardiovascular disease due to a combination of factors: aging, hypertension, hyperlipidemia, and metabolic syndrome [13]. Given that high blood pressure is an important risk factor for heart disease and stroke, its early diagnosis and control are especially important during this period of life.

Due to the possible risks of developing hypertension, menopausal women are advised to pay special attention to the prevention and treatment of high blood pressure. Important aspects are [1,12,13]:

- **Stress management**: Stress reduction practices such as meditation, yoga, and breathing exercises may be helpful in lowering cortisol levels and preventing hypertension.
- **Diet**: A diet rich in vegetables, fruits, lean proteins and limited salt can help control blood pressure.

- **Physical activity**: Regular physical activity improves cardiovascular health, helps reduce stress levels and maintain normal cortisol levels.
- **Hormonal therapy**: In some cases, hormone replacement therapy may be recommended to compensate for estrogen deficiency and reduce the risk of cardiovascular disease.

Conclusion. Cortisol plays an important role in the regulation of many physiological processes, and its impact on the development of hypertension in menopausal women is significant. Excessive amounts of this hormone, associated with increased stress levels and hormonal changes, can contribute to the development of hypertension and an increased risk of cardiovascular disease. It is important to consider this factor in the treatment and prevention of hypertension in menopausal women, as well as actively work to reduce stress and improve overall health to maintain normal blood pressure.

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