

# Global epidemics: a new look at etiopathogenesis and treatment

## Abstract

Global epidemics of non-communicable diseases - hypertension, type 2 diabetes, oncology, obesity - a scourge of the 21st century. The etiology of these diseases is not exactly known, there are no effective drugs. According to the author, the above diseases are the consequences of chronic stress, and the pathological process in the body is triggered by an excessively narrowed pupil, manifested by the activation of the parasympathetic nervous system. In the initial stages of these diseases, it is suggested to moderately expand the pupil (medically or surgically), in conjunction with lifestyle modification. This approach can be useful in the treatment of other diseases that arise as a result of chronic stress.

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## Introduction

The 21st century is characterized by global epidemics of non-communicable diseases: hypertension, type 2 diabetes, cancer, obesity. The aforementioned pathology ranks first in the global ranking of causes of mortality.<sup>1-4</sup> The etiology of these diseases is not exactly known. Treatment is symptomatic. There is no single effective medicine.<sup>5,6</sup> Since the prevention of these diseases is identical - giving up bad habits, normalizing weight, eating healthy, getting enough sleep, exercising, supporting the family - they may have the same trigger.<sup>7-11</sup> In our opinion, the cause of hypertension, type 2 diabetes, oncology, and obesity is chronic stress. Suppressed negative emotions, self-flagellation lead to the exhaustion of the body and the launch of pathological processes (psychosomatics). Psychosomatics is based on vegetative imbalance. Normally, the activity of the parasympathetic and sympathetic nervous systems changes cyclically during the day. With chronic stress, the parasympathetic nervous system is excessively activated, which compensatorily leads to overexcitation of the sympathetic nervous system, which triggers the mechanisms of hypertension, hyperglycemia, metabolic disorders, and neoplastic processes.<sup>12,13</sup>

Let's look at these disorders through the eyes of an ophthalmologist. It is known that «all diseases are caused by nerves.» In genetically predisposed individuals, chronic stress causes excessive constriction of the pupils (parasympathetic innervation of the iris sphincter) through cortico-nuclear pathways. Narrowed pupils (reduction of light flow) trigger pathological biochemical processes in the body through the optic-vegetative system, which leads to deterioration of the mental and physical conditions of patients. Where there is a «weak link» (genetically programmed) in the body, it «breaks» (a pathological process takes place). Comorbidity of pathologies is possible.<sup>14</sup> The Bible says: «Have mercy on me, Lord, ... my eyes, my soul, and my bowels are exhausted from grief» (Psalm 31:10).<sup>15-18</sup> Indeed, everything in the human body is interconnected. The eye is an important component of the optic-vegetative system: eye-hypothalamus-hypophysis. Thanks to the stimulating effect of light in the body, hormones are produced by the glands of internal secretion: pituitary, adrenal, thyroid, sex and others. That is, the eyes provide not only vision, but also the harmonious development of all organs and systems of the body. If the body - through the cerebral cortex, hypothalamus, reticular formation - acts on the size of the pupil, then, according to the principle of «direct connection - feedback», the size

of the pupil also affects the entire body. When the pupil is dilated - the mood is elevated, the person is physically and intellectually active; when the pupil is narrowed - the mood, physical and intellectual activity are reduced.<sup>19</sup>

In the light of what has been said, let's consider essential hypertension (90% of all types of hypertension). 50% of people with high blood pressure have I stage of hypertension, 30% have II stage, 20% have III stage. Stage I - the most common - has a «mild» asymptomatic course. It is treated with lifestyle modification, in case of ineffectiveness - with medication. All antihypertensive drugs affect only the links of pathogenesis, but do not act on the trigger of the disease. Such therapy is symptomatic, does not cure hypertension, so it is prescribed for life. It is not surprising that these drugs, blocking the sympathetic nervous system, cause many complications (depression, allergies, diarrhea, vomiting, bronchospasm, etc.), excessively activating the parasympathetic nervous system. We get a vicious circle: an excessively narrowed pupil (due to chronic stress) activates the parasympathetic nervous system too much; then the sympathetic nervous system is overexcited in a compensatory way, but its blockade by drugs again leads to the activation of the parasympathetic nervous system; and so the process «goes in circles». The disease gradually passes into the II-III stage (with damage to target organs). What do we offer? In the initial stages of hypertensive disease: 1. Modify lifestyle (all of the above prevention is aimed at moderate activation of the sympathetic system and moderate dilation of the pupil, which improves biochemical processes in the body); 2. If preventive measures do not completely normalize blood pressure - use mydriatics. Pharmacologists must develop a new class of eye drops that will moderately dilate the pupil and, preferably, minimally affect accommodation. It is advisable to carry out such therapy under the control of biomarkers of the activity of the parasympathetic and sympathetic nervous systems. 3. Due to the fact that the pupil progressively narrows with age, dosed surgical dilation of the pupil - laser mydriasis - is possible. Operation parameters should be established experimentally. This approach (if successful) can also be used for type 2 diabetes, obesity, oncological diseases, and other pathologies that arise as a result of chronic stress.

## Conclusion

- The etiology of hypertension, type 2 diabetes, oncology, obesity is not exactly known. There are no effective medicines.

- b) According to the author, the above-mentioned diseases are the consequences of chronic stress, and the pathological process in the body is triggered by an excessively narrowed pupil, manifested by the activation of the parasympathetic nervous system.
- c) In the initial stages of these diseases, it is recommended to moderately expand the pupil (medically or surgically) in conjunction with lifestyle modification.
- d) This approach can be useful in the treatment of other diseases that arise as a result of chronic stress.

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## Conflicts of interest

The author declares that there are no conflicts of interest.

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