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Depression: a new look at etiopathogenesis and treatment

Abstract

Depression is considered a multifactorial disease, the trigger of which is unknown. Eye diseases and depressive disorders may have a common trigger - excessively constricted pupils (experimental data). The hypothesis of the occurrence of depression: in genetically predisposed individuals, long-term negative emotions cause - through cortico-nuclear pathways - excessive narrowing of the pupils. Narrowed pupils (reduction of light flux) through the optic-vegetative system trigger pathological biochemical processes in the body, which leads to deterioration of the mental and physical conditions of patients. It is proposed to investigate experimentally (taking into account the principle of «direct - feedback» in the optic-vegetative system), whether the terms of treatment of patients with postpartum depression will be shortened when dilating one pupil with atropine (simulation of Adi's syndrome) against the background of standard therapy. With a positive effect of treatment, the above method can be used for other types of depressive disorders.

Keywords: depression, pupil, optic-vegetative system, adi syndrome

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Introduction

Depression is an emotional illness that manifests itself in persistently low mood and is accompanied by a low level of personal activity. This disease is one of the most common. Around the world, a depressive state is detected at the same time in approximately 500 million people.[1] The consequences of depression are negative on the mental and somatic levels. Characteristic: relapses, resistance, suicidal behavior, reduced quality of life.[2–4] There is no single theory of etiopathogenesis of depression. Depression is considered a multifactorial disease, the trigger of which is unknown.[1]

Treatment of depression with antidepressants is long (months and even years), in case of ineffectiveness, electroconvulsive therapy (a very traumatic method) is used. The purpose of the work: to develop a hypothesis of the development of depression and to propose a new method of its treatment. Depression is genetically coded: there is a high prevalence of depression among close relatives.[3] We drew attention to the connection between eye diseases and depression: the most common ophthalmopathology - glaucoma, age-related macular degeneration, diabetic retinopathy - is complicated by emotional and mental disorders.[5–8] Whether the diagnosis of eye pathology causes depression, whether depression causes eye diseases, or whether these are parallel phenomena is an open question. But I would like to note the following. We proposed a hypothesis of the etiopathogenesis of eye diseases, in which the trigger of the pathological process in the eye is considered to be the weakness of accommodation.[9,10] The anatomical basis of weak accommodation is a genetically programmed small distance between the equator of the lens and the ciliary body (less than the age norm). Visually, this manifests itself in an excessive narrowing of the pupils (synergistic parasympathetic innervation of the sphincters of the iris and the ciliary muscle).

What is interesting?

It is known that in the elderly, depression often turns into dementia, Alzheimer's disease.[1] And it was established that the narrowing of the pupil with drops of pilocarpine can cause, in addition to eye diseases, depression or exacerbation of Alzheimer's disease in susceptible people.[8] That is, in other words, eye and brain conditions may have a common trigger - excessive narrowing of the pupil. Indeed, everything in the human body is interconnected. The eye is an important component of the optic-vegetative system: eye - hypothalamus - pituitary gland. 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 - 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.

Thus, the hypothesis of the occurrence of depression is as follows: in genetically predisposed individuals, long-term negative emotions through the cortico-nuclear pathways cause excessive constriction of the pupils. Narrowed pupils (reduction of light flux) through the optic-vegetative system trigger pathological biochemical processes in the body, which leads to deterioration of the mental and physical conditions of patients. Let's consider postpartum depression and Adi syndrome in the light of what has been said. Postpartum depression occurs, as a rule, after a long painful pre-natal depression. Strong long-term pain (distress) causes excessive narrowing of the pupils and, accordingly, disturbances in the physical and mental state of a person.

Adi syndrome is characterized by a tonically dilated pupil in one eye (80% of cases), loss of tendon reflexes (knee and Achilles). This is a benign condition of unknown etiology. It often occurs after a severe pain syndrome, is observed in women aged 20-40. We have seen Adi syndrome in a number of women after painful, prolonged childbirth. They did not have postpartum depression, their physical condition was satisfactory. We consider Adi syndrome as a compensatory reaction of the body. In our opinion, a tonically dilated pupil prevents serious somatic and mental disorders in a person. Based on the above, we suggest that patients with postpartum depression simulate Adi's syndrome: dilate the pupil of one eye with drops of atropine for a certain time, until the depression clinic is completed (on the background of standard therapy). In our opinion, this will make it possible to shorten the period of treatment of women with postpartum

depression and return mothers to their newborn babies faster. Perhaps this approach - artificial modeling of Adi syndrome - will give a positive result in the treatment of other types of depressive disorders.

Conclusions

A. Depression is a multifactorial disease, the trigger of which is unknown.

B. Eye diseases and depressive disorders may have a common trigger - excessively constricted pupils (experimental data).

C. Hypothesis of the occurrence of depression: in genetically predisposed individuals, prolonged negative emotions through the cortico-nuclear pathways cause excessive constriction of the pupils. Narrowed pupils (reduction of light flow) through the optic-vegetative system trigger pathological biochemical processes in the body, which leads to deterioration of mental and physical conditionspatientsIt is proposed to experimentally investigate (taking into account the principle of «direct - feedback» in the optic-vegetative system) whether the terms of treatment of patients with postpartum depression will be shortened if they have one pupil dilated with atropine (simulation of Adi's syndrome) against the background of standard therapy. (Dilating the pupil with atropine and treating depression as standard. It's necessary to investigate whether the duration of treatment will be reduced in comparison with one standard therapy).

D. With a positive effect of treatment, the above method can be used for other types of depressive disorders.

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None.

Conflict of interest

None.

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