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### The effectiveness of color correction for deficiency syndrome attention / hyperactivityA.S. Puchkova, T.P. Teterina (Center of color therapy "TETTA", Moscow, Russia)

#### The urgency of the problem

Attention deficit hyperactivity disorder (ADHD) is one of the most common childhood behavioral disorders. Parents observe the first signs of hyperactivity in a child from the first months of his life. Moreover, such children show sufficient activity already during pregnancy; they move more and are physically stronger than other newborns. About 60% of children with ADHD are especially restless from infancy, cry a lot, calm down with great difficulty and sleep little both day and night, unlike other newborns. They often respond to numerous external stimuli by shouting.

During early childhood (at the age from 1 to 3 years), the psychoemotional status is characterized by pronounced instability.

At school age, ADHD manifests itself in a pronounced form at school, at home, and in extracurricular activities. Children with normal and, even, high intelligence and giftedness do not cope with tasks, lag behind in their studies. During lessons, they are easily aroused, distracted, extremely restless, hyperactive, mobile, noisy, sometimes aggressive, uncontrollable, which causes a lot of trouble for teachers.

In Russia, psychoneurologists use the expression "hysterics of the second year of life" or the term "neuropathy" to denote such a condition in young children. Observing school-age children with behavioral disorders such as motor disinhibition, distraction, impulsivity, the authors suggested that the cause of these changes is brain damage of unknown etiology, on the basis of which they proposed the term "minimal brain damage". Later, learning disorders (difficulties and specific disorders in teaching writing, reading, counting skills; speech disorders) were included in the concept of "minimal brain damage". Subsequently, the static model of "minimal brain damage" gave way to a more dynamic and more flexible model of "minimal brain dysfunction".

In 1980, the American Psychiatric Association developed a working classification - DSM-IV (the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition), according to which cases previously described as minimal cerebral dysfunction were proposed to be considered as attention deficit disorder and hyperactivity disorder. The underlying premise was that the most frequent and significant clinical symptoms of minimal cerebral dysfunction included impaired attention and hyperactivity. In the latest DSM-IV classification, these syndromes are combined under the same name "attention deficit / hyperactivity disorder". In ICD-10, the syndrome is considered in the section "Emotional and behavioral disorders, which usually begin in childhood and adolescence ", in the subsection" Disorders of activity and attention "(F90.0) and" Hyperkinetic disorder of conduct "(F90.1).

However, the family and school, as a rule, do not recognize this ADHD as a disorder of emotion, psyche, attention, and impose unbearable demands on such children. As a result, children have problems both at home and at school. In the family, the child is often subjected to severe physical, emotional and mental abuse. ADHD complicates the child's life in the family, makes it difficult to communicate with peers, affects the relationship with parents, and inattention and restlessness complicate school. Such children suffer from depression, leave home, drop out of school, become aggressive.

Often, the depressive state of children leads to suicide. ADHD is usually untreated. psychotropic drugs are contraindicated for children under 6 years old, which is associated with frequent side effects. These include stunted growth, irritability, sleep disturbances, decreased appetite and weight loss, tic problems, dyspeptic disorders, dry mouth and dizziness. Addiction may develop to the drug. Consequently, this syndrome remains for many years, which serves as a fertile ground among young people and adults for addiction to alcohol and drugs. In 30– 70% of adults, clinical manifestations of this syndrome continue (excessive impulsivity, irascibility, absent-mindedness, forgetfulness, restlessness, impatience, unpredictable, rapid and frequent mood swings, inability to work). This, in turn, leads to serious complications in the form of personality and antisocial changes, alcoholism, deviations in sexual behavior, criminal crime and even mental disorders. Consequently, the prognosis and outlook for children with attention deficit hyperactivity disorder is a very serious concern for parents and society.

Thus, the urgent problem is to find a safe and effective way to treat attention deficit / hyperactivity disorder, available not only for adults, but also for children, especially young children. Along with this, a unified approach to the principles of medical, preventive, pedagogical and psychological correction of the health of children with ADHD of preschool and school age is of great importance.

Purpose of the work: to study the effectiveness of color correction for ADHD in children.

#### Material and methods

A total of 39 people were under observation, including 35 children aged 3 to 6, 3 schoolchildren from 7 to 13 years old, and 1 adults. Boys - 31, girls - 8.

The method developed by us (patent No. 2395313) is carried out using the apparatus of T.P. Teterina. (patents No. 31721, 2230534, 2206300), in which the color correction program is set depending on the pathology. Color therapy in 35 children with ADHD was carried out in a kindergarten (Fig. 1) using a 5-channel device "ACT-04" (Fig. 2). The course of treatment consisted of 10 sessions. During the year, children received 2-3 courses of color correction.

Three schoolchildren and one adult patient received treatment at the color therapy center.

### Results and discussion

The study of the anamnesis showed that hyperactivity in all patients was observed from birth.

The unfavorable factors causing hyperactivity were the pathology of pregnancy, especially toxicosis with the threat of miscarriage, prematurity of the newborn, asphyxia during childbirth due to the umbilical cord entanglement of the neck. In the first year of life, many children were under the supervision of a neuropsychiatrist for intracranial hypertension, encephalopathy.

When conducting a genealogical study, we established the congenitalhereditary genesis of ADHD. This is evidenced by the fact that the parents and grandparents of the patients also suffered from ADHD during childhood. Moreover, this disease is inherited according to the dominant type.

At the beginning of the treatment process, the children were agitated, disobedient, could not sit still, fidgeted in their chairs, talked loudly, tried to take off their glasses. Therefore, psychological correction was carried out simultaneously with color correction. From the 3rd session of color correction, the children were already calmer, which was also noted by the parents. After the completion of the treatment courses, the improvement in the health of children was noted in 100% of cases.

## **Clinical examples**

1. Boy B. Yaroslav, 4 years old. Diagnosis: hyperactivity, enuresis. Anamnesis found the following. Born in asphyxiation due to the umbilical cord entwined around his neck. Until 4 months he did not hold the head. The electroencephalogram showed intracranial hypertension. Suffers from frequent colds, headaches, increased neuropsychic irritability, imbalance, hyperactivity, enuresis almost every night, is often disobedient.

Conducted 10 sessions of the course of color correction in combination with psychological correction.

After treatment, the boy became calm, nocturnal enuresis is observed much less frequently (1-2 times a month), and headaches disappeared. Repeated 2nd and 3rd courses of color correction were carried out after 3 and 6 months. The dynamics of the child's health is positive.

2. Girl M. Olesya, 4 years old. Diagnosis: hyperactivity, depressive syndrome. According to her mother, from an early age, the girl suffers from hyperactivity, psychoemotional excitability, imbalance, irritability, aggressiveness, sleep disturbance (she did not sleep in the daytime in kindergarten, and at home after 22 hours she could not fall asleep for a long time). An electroencephalogram showed a displacement of the median structures of the brain. The girl is under the supervision of a neuropsychiatrist for depressive syndrome. She has been taking antidepressant medications (finlapam) for a long period of time, but there has been no improvement. The child underwent 3 courses of color correction. The first course was carried out in combination with treatment with an antidepressant drug. The psycho-emotional state was calm for 1 month. The 2nd course of color correction was performed after the antidepressant drug was discontinued. Signs of depressive psychosis, hyperactivity, aggressiveness did not appear for 2 months. After the 3rd course of color correction without drugs, the child's psychoemotional state and sleep improved significantly, signs of hyperactivity and depressive syndrome did not appear. The observation period was 2 years.

3. Boy F. Artyom, 6 years old. Diagnosis: deficiency syndrome attention / hyperactivity, delayed speech development (did not speak until 3 years old). According to the mother, the baby was born prematurely. From birth he was restless, and from the age of 2 years there was an imbalance of the psyche, hyperactivity, sleep disturbance, general fatigue. According to the kindergarten teacher, the child has an attention deficit. Conducted 10 sessions of color correction. After the treatment, speech, sleep, attention and general condition of the body improved. The child became calm, obedient, balanced. The repeated course of color correction was carried out after 3 months. The dynamics of the child's health is positive.

4. Girl V. Daria, 5 years old. Diagnosis: deficiency syndrome attention / hyperactivity. From the anamnesis it was found that from birth to the 1st year of life, the child had constant anxiety, increased excitability, pronounced expressiveness, tearfulness, accompanied by a loud cry, especially at night, automatism of movements of the upper and lower extremities, sleep disturbance. According to the parents, the child would not let them sleep at night. Until one year of her life, the girl was under the supervision and treatment of a neuropsychiatrist for intracranial hypertension. With age, the girl periodically exhibits increased neuropsychic irritability, aggressiveness, and quarrelsomeness with peers in kindergarten. According to the educator, when performing tasks during classes, symptoms of inattention are noted, distracted by external stimuli, fidgets when sitting, does not delve into the meaning of explaining the teacher's tasks.

Conducted 20 sessions (2 courses) of color correction. After the treatment, the girl became calm, balanced, obedient, in the classroom in the kindergarten, perseverance and attentiveness were noted when completing tasks.

5. Girl A. Sasha, 7 years old, 8 months old, 1st grade student. Diagnosis: syndrome attention deficit / hyperactivity disorder. From the anamnesis it was established that the girl was born in asphyxiation (there was an umbilical cord entwined with her neck). From birth, she often screamed, cried, did not let her parents sleep at night, was almost always restless. Intracranial hypertension was diagnosed at the age of 5 years. There was no treatment. The girl is hyperactive, lags behind in school at school, is often uncontrollable, irritable. A neuropsychic breakdown is accompanied by a loud cry.

Conducted 10 sessions of 2 courses of color correction. After treatment, neuropsychic breakdowns and irritability stopped, memory, attention, and performance improved.

6. Boy Arkady, 8 years old. Diagnosis: deficiency syndrome attention / hyperactivity.

According to his mother, the child was restless from birth. In the first year of life, a neuropsychiatrist diagnosed with encephalopathy, hypertensive type muscular dystonia syndrome, right-sided hemisyndrome. The child was agitated, tense, fearful, involuntary movements of the arms and legs were made, the muscle tone was increased on the left, and dystonic on the right. At the age of 5 years, a neurologist in a child discovered disinhibition, absent-mindedness, decreased attention, difficulty in writing, he held a pencil or pen in his hand with great difficulty. At the age of 6, the same symptoms were observed as well as hyperactivity. From the drugs prescribed by the neurologist, the child was much worse due to drug intolerance. At the age of 8 years, the child showed disinhibition, absent-mindedness, hyperactivity, restless sleep. During school, I experienced difficulties

After 2 courses of color correction, according to the mother, the child became more collected, obedient, calm. Perseverance and performance during school have improved.

7. Boy M. Yasha, 13 years old, 7th grade student. Diagnosis: deficiency syndrome attention / hyperactivity. According to his parents, the boy was born prematurely and in asphyxiation. From birth he was restless, there was a pronounced excitability to external stimuli. From preschool age, excessive hyperactivity, imbalance, and neuropsychic excitability are noted. At school, from the first grade, he has pronounced restless behavior, restlessness, impulsivity, fidgeting while sitting and jumping up from his seat during lessons, often interrupts the teacher's explanations. The boy is intellectually developed, but lags behind in his studies and does not have an interest in studying at school, cannot concentrate when completing written work and school assignments, is distracted by external stimuli, forgetful, disobedient.

Parents experience excessive fatigue and irritability from his behavior and uncontrollability. However, as the parents themselves note, in childhood they had similar behavior problems, both in preschool and school age. As adults, they experience periodic bouts of neuropsychic excitement, intolerance to the people around them, headaches, imbalance when communicating with relatives, decreased attention and memory.

The child underwent 2 courses of color correction. After the treatment, the boy became more balanced, attentive, calm, obedient, he became interested in learning.

8. Patient K. Andrey, 32 years old. Diagnosis: deficiency syndrome attention / hyperactivity, stuttering. Since childhood, she notes periodic nervous

mental agitation, imbalance, impulsivity, and at school age there were difficulties with academic performance and problems in relationships with teachers and peers. He suffers from stuttering since childhood. During the examination, it was found that the patient is intellectually developed, but when communicating with him, he often interrupts, imposes his opinion, interferes in the conversations of people around him, is eccentric, often talks too much, is inattentive, which makes it difficult to get a job.

The patient underwent 4 courses of 10 color correction sessions. After treatment, there was a noticeable improvement in communication with others. The patient became more balanced, calm, attention improved, stuttering disappeared, which gave him the opportunity to get a good job, from which he feels satisfaction.

# Conclusion

The above examples convincingly prove that color correction with the visible light spectrum through the visual analyzer is highly effective in correcting ADHD. This is due to the fact that the cause of this syndrome is a violation of the functions of regulatory structures (reticular formation, hypothalamus, pituitary, pineal gland) embedded in the limbic system of the brain.

It is known that the center of the psyche, emotions, mood, attention and behavior is the reticular formation of the brain, which is very sensitive to adverse factors, especially with complications during intrauterine development of the fetus, during childbirth and the postpartum period. In this case, the exchange of mediators in the brain is disrupted: dopamine, serotonin and norepinephrine. The reticular formation is closely connected with the hypothalamus, with which the retina has a direct connection. In this regard, there is reason to believe that the method of color correction we have developed with the spectrum of visible light through the visual analyzer can implement the central mechanism for correcting attention deficit and hyperactivity disorder in children of congenital and hereditary genesis.

Therefore, the method of color correction with the help of the Teterina apparatus "ACT-02" is the main etiopathogenetic method of treating ADHD in patients of different ages, including young children (from 6 months to 3 years).

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