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Attention Deficit Hyperactivity Disorder: Current Principles of Diagnosis and Treatment

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Abstract: Attention Deficit Hyperactivity disorder (ADHD) occurs in 1 out of 20 modern children and adolescents. The article considers new diagnostic criteria for ADHD according to the American statistical classification of mental disorders DSM-V, which contains the following main changes: the age of manifestation is up to 12 years; the requirement for cross — situational character of symptoms is strengthened; the age dynamics of ADHD is reflected and a threshold number of symptoms is introduced for adult patients; comorbidity with autism spectrum disorders is allowed. The features of the survey of children and adolescents with ADHD are discussed. Treatment of the syndrome should be comprehensive and include methods of behavior correction, psychotherapy, and neuropsychological correction. Drug therapy requires sufficient duration, since the improvement of the condition should extend not only to the main manifestations of ADHD, but also to the socio-psychological side of patients ' lives. A study of a group of children with ADHD showed that during long-term treatment with hopantenic acid, treatment periods of at least 4-6 months are necessary to overcome not only the main symptoms, but also disorders of adaptation and socio-psychological functioning (improving self-esteem, communication with others, and social activity). The development and application of comprehensive correction for ADHD should be carried out in a timely manner and should be individual in nature.

Keywords: attention deficit hyperactivitydisorder, diagnostic criteria, age dynamics, complex treatment, pharmacotherapy.

Introduction:

Attention deficit hyperactivity disorder (ADHD) occurs in approximately 1 in 20 modern children and adolescents [1]ADHD attracts considerable interest due to its high prevalence and social significance. The results of studies confirm that in approximately 50% of patients, the symptoms of ADHD, undergoing опредеа certain transformation, continue to be present in adulthood [2]Consequently, in many cases, ADHD is characterized by a long, chronic course. The clinical picture of ADHD in children is determined by attention disorders, hyperactivity and impulsivity, which are permanent, cross-situational and not age-appropriate [3]At the same time, ADHD has a significant negative impact on various aspects of patients ' lives and their socio-psychological functioning at all age periods, from school to professional activities, from living in a family with parents to independent personal and social life. In Europe, the ratio of ADHD cases in boys and girls varies from 3: 1 to 16: 1 [4]These разлидifferences may indicate that, along with more frequent referrals to specialists for boys with ADHD, girls may not recognize this disorder. [1]This is due to the fact that complaints in girls with ADHD are more often registered at school age, and they are associated with attention disorders, while boys with ADHD are more likely to have more pronounced behavior problems that manifest themselves already in

preschool age. Indeed, ADHD symptoms in many patients are detected from the age of 3-4 years. First of all, this applies to hyperactivity and impulsivity. Usually, hyperactivity is the first sign of ADHD that the child's parents address to specialists for the first time [5]During school years, attention disorders become apparent. Compared to their peers, children with ADHD have poor academic performance, poor behavior, and typically have strained relationships with family members and classmates. More frequent requests for medical help are associated with accidental injuries, including traumatic brain injuries [6].By adolescence, the most vivid manifestations of hyperactivity disappear, but cognitive disorders continue to persist: unformed control functions, attention and working memory disorders [4]Along with low school performance and frequent conflicts with others, lack of independence, inability to work without help, anxiety and low self-esteem become obvious. At the same time, there may be risky behavior, difficulties in following the rules, obeying norms and laws. Adolescents with ADHD are at risk for developing deviant and antisocial behaviors. behavioral disorders, alcoholism, and drug addiction [3, 6]. Manifestations of ADHD in a child can serve as a reason for parents ' initial treatment to various specialists, including doctors (pediatricians, pediatric neurologists and psychiatrists), psychologists, speech therapists, and speech pathologists. Very often, the symptoms of ADHD are first noticed by preschool and school teachers. With this in mind, it is important for professionals involved in helping children with ADHD to interact with each other and adhere to a number of common positions, starting with the principles of assessing existing disorders. Criteria for diagnosis. The diagnosis of ADHD is based on standard international criteria, which are lists of the most characteristic and clearly traceable signs of this disorder. The diagnosis of ADHD is made by a doctor, but teachers and psychologists should also be familiar with the diagnostic criteria for ADHD, especially since it is important to get reliable information about the child's behavior not only at home, but also at school or in preschool to confirm the diagnosis. Inattentiveness: 6 (or more) of the following symptoms persist continuously for at least 6 months to a degree of severity that does not correspond to the level of development and negatively affects directly social and educational / professional activities. Note. Symptoms are not solely related to protesting, defiant, or hostile behavior, or an inability to understand tasks and instructions. For older adolescents and adults (aged 17 and over), it is necessary to have at least 5 symptoms.

- ✓ Often unable to focus on details and makes mistakes due to inattentiveness, carelessness in school assignments, work, and other activities (for example, skips or loses details, or performs work inaccurately).
- ✓ Often has difficulty maintaining attention when completing tasks or playing games (for example, has difficulty concentrating during lectures, conversations, or long-term reading).
- ✓ It often seems that he is not listening to the speech addressed to him (for example, his thoughts are floating somewhere even if there is no obvious distraction).
- ✓ Often doesn't adhere to the suggested instructions and can't fully complete lessons, homework, or workplace responsibilities (for example, starts a task but quickly loses focus on it and is easily distracted).
- ➢ Often experiences difficulties in organizing tasks and their activities (for example, it is difficult to organize the task from consecutive actions, it is difficult to keep materials and things in order, the work is performed inaccurately and unorganized, poorly distributes time, does not meet the assigned deadlines)
- ✓ Often avoids, resents, and resists engaging in tasks that require long-term mental effort (for example, school assignments, homework, and for older teenagers and adults — preparing reports, filling out forms, and studying long texts).
- ✓ Often loses items that are necessary for performing any work or tasks (for example, school supplies, pencils, books, tools, wallets, keys, work papers, glasses, mobile phones).

- ✓ Often easily distracted by extraneous stimuli (for older teenagers and adults, these may be extraneous thoughts).
- ✓ Often shows forgetfulness in everyday situations (for example, doing housework, running errands, for older teenagers and adults — answering phone calls, paying bills, coming to appointments)
- ✓ Hyperactivity and impulsivity: 6 (or more) of the following symptoms persist continuously for at least 6 months to a degree that is not consistent with the level of development and directly affects social and educational/professional activities тельности. Note. Symptoms are not solely related to protesting, defiant, or hostile behavior, or an inability to understand tasks and instructions. For older adolescents and adults (aged 17 and over), it is necessary to have at least 5 symptoms.
- ✓ Often there are restless movements in the hands and feet; sitting on a chair, spinning, twirling. * Frequently leaves his seat in situations where it is necessary to sit (for example, he gets up in class during lessons, in the office or at work, or in other situations when it is necessary to stay in his seat).[7]
- ✓ Often runs back and forth, climbs somewhere in situations where this is unacceptable (in adolescents and adults, this symptom may be limited to a feeling of anxiety, inability to stay still).
- ✓ Often can't play quietly or do anything at his leisure.
- ✓ Often in constant motion, behaves as if a motor is attached to it (unable or uncomfortable if it is necessary to sit quietly for a long time, for example, in a restaurant, at a meeting; others may regard it as a restless person who is difficult to deal with). [8]
- ✓ Often talkative.

Methodology

Research determines the characteristics of Attention Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD) while investigating their roles when occurring individually or together. The research design combines longitudinal and cross-sectional study methods to monitor how ADHD and ASD progress throughout the different periods of development. The research participant demographic consists of five to forty-year-old individuals between children and adults who satisfy either the ADHD or ASD diagnosis from both the DSM-IV-TR (2000) and ICD-10 (1994) diagnostic manuals.[9]

Study participants qualified with an officially diagnosed ADHD or ASD condition following clinical assessments and scoring from standardized tools (Conners Rating Scales and Autism Diagnostic Observation Schedule - ADOS) together with parent and teacher assessments. The study excludes participants who present severe medical conditions or intellectual disabilities that affect diagnosis of ADHD or ASD.[10]

Research on the comorbidity of Attention-Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorders (ASD) reveals shared deficits in executive functions, particularly in attention, response inhibition, and verbal working memory [11]. Children with both ADHD and ASD exhibit complex difficulties, including impairments in theory of mind skills and behavioral problems [11]. The co-occurrence of these disorders negatively impacts social interaction, communication, and broader psychopathology [12]. Neurocognitive approaches suggest that comorbidity correlates are rooted in functional connectivity networks associated with executive control [12]. Psychosocial interventions targeting motor coordination, executive functions, and socialization deficits are crucial for both disorders [13]. Further research is needed to elucidate genetic risk factors, neurodevelopmental effects, and structural and functional neural correlates of ADHD and ASD comorbidity [12].

Result and discussion

Research suggests that the age of onset criterion for ADHD diagnosis in DSM-IV and ICD-10 may be problematic. Studies have shown that retrospective reporting of symptom onset before age 7 can lead to under-identification of ADHD cases, particularly for the inattentive and combined subtypes [14]. The arbitrary nature of the age 7 cutoff lacks scientific justification and may discriminate against older adolescents and adults [15]. Consequently, DSM-5 increased the age of onset criterion to 12 years. However, even this revised criterion may not capture all valid ADHD cases, as late-onset ADHD (after age 12) shows similar patterns of impairment, comorbidity, and familial transmission compared to ADHD with earlier onset. These findings suggest that a more flexible approach to age of onset may be warranted when diagnosing ADHD, especially in adults. The main characteristics of ADHD are presented in such a way that they more fully describe the symptoms in patients of different ages, reflecting the age dynamics of ADHD manifestations. It is important to note that during the diagnosis of ADHD and dynamic monitoring of patients, it is necessary to assess not only the severity of the main symptoms of this disorder, but also indicators of socio-psychological functioning and adaptation difficulties in people with ADHD of various ages. In section "D", the list of mental disorders that should not be noted in a patient when диаг making a diagnosis of ADHD is not mentioned as a criterion for excluding ASD. Indeed, the symptoms of two disorders can be combined with each other. Concomitant hyperkinetic disorders are known to be one of the most common comorbid conditions in patients with ASD, especially those with high-functioning autism and Asperger's syndrome. Two independent studies have shown that many children with a confirmed diagnosis of Asperger's syndrome also meet the DSM-IV diagnostic criteria for ADHD: 59 [10] and even 78% [11]. Dual diagnosis is not possible according to the ICD-10 classification, but this approach has been changed in the DSM-V. Indeed, from the neurobiological point of view, ASD and hyperkinetic disorders can "overlap" and occur simultaneously in a number of patients, which is confirmed in modern neuropsychological, neuroimaging, and genetic studies [12, 13]. In 2013, the results of a study were published [14], which evaluated autistic traits in 242 children with ADHD without a concomitant diagnosis of autism and 227 peers of the control group. It was found that autistic traits were much more often observed in children with ADHD compared to the control group (18 and 0.87%; $p < 0.001$). According to the data obtained, the presence of autistic traits determines speech development disorders in children with ADHD, difficulties in school education, difficulties in relationships with peers and siblings, involvement in conflicts and fights, and the formation of emotional disorders (anxiety and depression). Howeverменее ASD is included in the list of conditions for differential diagnosis, which is an appendix to the diagnostic criteria for ADHD.

Currently, the diagnosis of ADHD is based on clinical criteria. To confirm ADHD, there are no special tests or markers based on the useof modern psychological,oneurophysiological, biochemical, molecular genetic, neuroradiological and other methods. During the clinical examination, both the main symptoms of the disease and the manifestations of comorbid disorders are evaluated [6, 15]. The following methods are used: * clinical interview • * observation of behavior; • filling out questionnaires, questionnaires, assessment scales; • obtaining additional information (from a teacher, school psychologist, from videos); • research of neurological status; • psychological examination using neuropsychological and psychometric methods. The diagnosis of ADHD is considered justified only in cases where the symptoms observed in the child are characterized by a sufficient degree of severity, constancy, and are combined with each other. Individual and temporary characteristics in children's behavior that are noted by parents or other adults around the child, even if they have some similarities with ADHD, cannot be considered a basis for making this diagnosis. The differential diagnosis should exclude somatic diseases accompanied by cerebrastenic symptoms; side effects of drug therapy (for example, for bronchial asthma); endocrine diseases (thyroid pathology); nsorineural hearing loss; epilepsy (absence symptoms). forms; symptomatic, locally determined forms; side effects of antiepileptic therapy) [6].

Treatment of ADHD should be comprehensive and include methods of behavior correction, psychotherapy, and neuropsychological correction [6, 15]. Drug therapy requires a sufficient duration, since the improvement of the condition should extend not only to the main symptoms of ADHD, but also to the socio-psychological side of patients ' lives, so it is advisable to plan it for several months until the entire school year. Approaches to drug therapy for ADHD vary from region to region of the world. Russian specialists in the treatment of ADHD traditionally use nootropic drugs. In recent years, an effective drug specially developed for the treatment of ADHD, atomoxetine hydrochloride, has become widely used. In the United States, Canada, and a number of Western European countries, central nervous system stimulants are used in the pharmacotherapy of ADHD.

Conclusion

The research wants to increase understanding about ADHD together with ASD by examining their co-occurrence with the additional challenges of proper diagnosis for both disorders. The study applies extensive diagnostic assessment methods together with ongoing observation of patient behavior alongside time-dependent data analysis to provide profound knowledge about symptoms persistency and life-cycle developmental patterns as well as the obstacles individuals encounter during their life stages. The analysis of ADHD-ASD relationship patterns will distinguish shared and dissimilar traits while making diagnostic methods clearer. The study findings will help clinicians improve their current treatment strategies and develop better approaches for customer care. This scientific research will support better adapted support systems for ADHD and ASD patients leading to improved long-term results and better knowledge about their neurodevelopmental characteristics.

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