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ADHD and Autism

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Autism Spectrum Disorders (ASDs) include autistic disorder, Asperger's syndrome, and pervasive developmental disorder not otherwise specified (PDD-NOS). The chief characteristic of this group of disorders is the restricted social functioning, communication, and repetitive limited behavioral or hobby patterns.

Attention deficit hyperactivity disorder (ADHD) is a common comorbidity in this group. It is thought, from existing studies, that the incidence of both co-occurring in the same individual may be between 25-50%.

This is significant in that the presence of either disorder complicates the diagnosis and treatment of the other. This is especially true with respect to social skills intervention, which does not work as well in children with autism who also have ADHD.

This is because the carefully planned and regularly divided steps by which a complex behavior can be practiced until learned are much more difficult to organize and carry out in the presence of ADHD. The overall quality of life is diminished as a result.

All this means that symptoms of ADHD should probably be screened for as a first measure when a child is diagnosed with ASD, as its presence is a risk factor for more severe social dysfunction, poorer adaptive capabilities and greater difficulties with social skills training.

Diagnosis

The DSM-IV criteria did not allow ADHD to be diagnosed if an ASD had been diagnosed. This was in contradiction to several studies on twins, which showed that these conditions, though differing from each other, had several overlapping symptoms. Thus the present opinion is that ADHD is present in a high percentage of ASDs.

The DSM-V recognizes this phenomenon of comorbidity between autism and

ADHD. This will now change the shape and form of future studies on these conditions, which will help distinguish them as well as clarify the similarities in their etiology and clinical features. Symptoms of ADHD are thus present in up to 75% of children.

Conversely, ASD features co-exist with those of ADHD. Overall, this overlap has a prevalence of 30%.

It is noteworthy that children with ASD have a high prevalence of ADHD, which is six-fold that in the general child and adolescent population. The presence of the converse adds to the almost certainty that this coexistence can only be a product of some common etiopathogenetic process.

Several hypotheses have been put forth, such as the thought that both reflect the same risk factor in different ways, or the chance that there are correlations between the risk factors, which are specific for both the disorders, explaining their common occurrence in the same group of people. Or it may be that one serves as a risk factor for the other condition.

Risk Factors

Genetic

Both ADHD and ASD have high heritability characteristics, and it is thought that the variance of each is largely due to genetic factors. At the same time, family members of children with ADHD are more likely to show some symptoms of ASD, whether they also have ADHD or not.

Neurotransmitter abnormalities involving low levels of dopamine and norepinephrine may lead to dysfunction of several crucial neural networks that are necessary for inhibition of impulsivity and are associated with hyperactivity.

Other pathways are also involved, and genetic as well as environmental risk factors interact to produce a spectrum of severity.

Rare mutations may make the child more vulnerable to the conditions, and that too with increased intensity of symptoms, while other risk factors may be milder and may require that they be present in multiples to produce the least

severe of effects.

It is quite possible that such acquired risk factors act by epigenetic or other reversible genomic changes, which do not affect the actual sequence of nucleotides, but have long-term effects on the person's cognitive and behavioral processes.

Environmental

Biological factors are well-known to increase the risk for ADHD, such as obesity in a woman before she becomes pregnant with the affected child; smoking during pregnancy, which significantly increases the risk of hyperactivity and impulsivity, as well as of other behavioral disorders, in the child Younger maternal age has also been implicated, while increased paternal age at conception is a risk factor for ASD.

Psychosocial

Psychosocial factors also play a considerable role in ADHD, such as family conflict, parental divorce, maternal depression, personality disorder in the father, and low socioeconomic position of the family. These may increase the chances for such symptoms in children with ASD as well.

It is already found that the presence of family risk factors predict the occurrence of more ASD symptoms in a child with both disorders.

In short, the overlap of genetic and environmental factors may promote the coexistence of both disorders.

On the other hand, the presence of risk factors for both conditions may lead to the occurrence of both disorders in an independent fashion. Still other children may have signs of both, because of strong correlation between the specific risk factors of both disorders.

Neuropsychological Findings

Neuropsychological findings show both similarities and disparities in the cognitive abilities of children with both or either disorder, including reward processing, attention capabilities, and social relationships.

Brain imaging also shows some differences as well as some common features. ASD in general reflects more global dysfunction and failure of appropriate neural connectivity, but both disorders also show deficits in the functioning of the medial frontal and prefrontal cortext as well as the basal ganglia, which deal with default mode function.

Treatment Options

Treatment of ADHD in children is currently started with methylphenidate, which shows great effect among other agents. Cognitive behavioral therapy (CBT) combined with methyphenidate is also equally effective.

Psychotherapeutic treatment is often required for co-occurring ASD, though the same drug has an anti-hyperactive effect on children with ASD and hyperactivity symptoms when used in lower doses. Another alternative is the non-stimulant atomoxetine, which is also effective in allaying hyperkinetic symptoms in both conditions.

Other options in ADHD with ASD include biofeedback therapy, especially EEG neurofeedback, which shows the effects on the theta wave-beta wave proportion when attention lapses and impulsivity are curbed and has been proved beneficial in some cases of ADHD.

It is probable that family and individual psychotherapy, as well as behavioral therapy, will also need to be applied at some point to resolve the symptoms of ASD in these children.

References

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Further Reading

- What is ADHD?
- ADHD Causes and Risk factors
- ADHD Symptoms
- ADHD Diagnosis
- ADHD Treatment

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