



Attention Deficit-Hyperactivity Disorder

Alternative Names

ADHD
Hyperactivity of Childhood

Record Category

Disease phenotype

WHO-ICD

Mental and behavioural disorders > Behavioural and emotional disorders with onset usually occurring in childhood and adolescence

Incidence per 100,000 Live Births

101- ~

OMIM Number

143465

Mode of Inheritance

Autosomal dominant

Gene Map Locus

17p11, 16p13, 11p15.5, 6q12, 5p13, 5p15.3, 4p16.1-p15.3

Description

Attention Deficit Hyperactivity Disorder (ADHD) is a neurobehavioral disorder, which affects up to 3-15% of school children world-wide. ADHD is characterized by, hyperactivity, impulsivity, and/or pervasive inattention, and is classified into three types based on the manifestation: the hyperactive-impulsive type, the inattentive type, and the combination type. Hyperactivity is characterized in children by constant motion and activity, while impulsiveness is exemplified by an inability to curb immediate reactions, or to think before acting. Inattentiveness is displayed by children who get easily bored with tasks, and have difficulties in paying deliberate and conscious attention to a job at hand. Although ADHD first appears in childhood, it can continue up to adulthood, although the manifestations may change as age advances. In adults, hyperactivity may be manifested as a state of restlessness and inability to relax, while their

impulsive nature may cause personal and professional problems.

ADHD is usually identified only after affected children begin school. Diagnosis of the condition is fairly difficult, considering that features like hyperactivity, distractibility, and inattention are evinced by many healthy children too. Therefore, only a qualified behavioral therapist can make the distinction between a healthy normal child and one affected with ADHD. ADHD may be complicated in a third of affected patients with other conditions including conduct disorder, depression, anxiety disorders, learning disabilities, and Tourette syndrome. Interestingly, ADHD is seen to occur about eight times more frequently in boys than in girls, indicating either a difference in susceptibility between the two sexes, or a failure of diagnosis of the condition in girls. Medications used for treatment are primarily psychostimulants although they do not completely cure the condition, and have been shown to have adverse side effects. Of late, more emphasis is being given to psychotherapy, counseling, special accommodation in the classroom, and family and community support for the efficient management of ADHD.

Molecular Genetics

Although ADHD may develop due to a number of environmental causes, there is a definite genetic component to the condition, evidenced by its familial transmission. Interestingly, in families with natural and adopted children, the condition has been seen to affect only genetically related members. Most research points to ADHD being a complex genetic disorder, with more than two loci involved. In fact, a number of putative loci have been identified, with possible roles in the pathogenesis of ADHD. These include dopamine and dopamine transporter genes, norepinephrine (NE) and epinephrine (EPI) gene, norepinephrine transporter genes, serotonin genes, serotonin transporter genes; GABA genes; and androgen receptor and other genes.

Epidemiology in the Arab World



Oman

Al Sharbati et al. (2004a) carried out a study in schoolgirls to detect ADHD prevalence as well as its academic and psychosocial correlates. Out of 708 girls, 5.1% (36) were found to be in the hyperactive group with a CTRS score of at least 15. These girls had poor school performance with significantly lower intelligence on the Raven test and showed a more aggressive behavior than the normal group. The birth order and number of siblings, as well as the parental education was not significantly different between the two groups. Such a prevalence among girls and the association of aggression, poor school performance, and lower intellectual level with symptoms of ADHD were consistent with other studies, reflecting its existence among girls as well in Oman. Al-Sharbati et al. (2004b) similarly conducted a study on 1502 schoolboys (six to 14 years old) to determine the rate of hyperactivity and its psychosocial and academic attributes. Data was collected from school records and teachers, as they completed the Conner's Teacher Rating scale (CTRS) along with their view on the pupils' behavior. Out of 1502 boys, 7.8% (117) were in the hyperactive group (had a CTRS score >15%) with stealing, aggressive and lying behavior, along with poor school performance, which was explained as due to their disturbed cognitive functions associated with this disorder. There was no statistical difference between their birth order or their sibling numbers and that of the rest of the sample. Their paternal education on the other hand was significantly lower than that of the normoactive group, but the maternal education was found to be similar between the two groups. Al-Sharbati et al. (2004b) confirmed the existence of this disorder in Omani boys through these results, which were consistent with other studies reflecting the importance of planning its prevention at the primary, secondary and tertiary levels. In 2008, Al-Sharbati et al. updated their data by quantify the prevalence of hyperactivity in schoolboys residing in Oman. For this, 1,502 Omani schoolboys were screened for various indices of hyperactivity and psychosocial and academic functioning using the short version of Conners' Teacher Rating Scale and other ecologically valid assessment measures. Nearly 7.8 % of the sample exhibited hyperactivity, which was strongly associated with indices of conduct disorder, poor school performance, and behavioral disorders (such as aggression, stealing, and lying). Sociodemographic variables such as child's rank, number of siblings, and parental education were not significant. Later, Al-Sharbati et al. (2010) undertook a screening study for the presence of ADHD as well as investigated the psychosocial and educational history relevant for the diagnosis of ADHD among Omani schoolchildren attending

child psychiatric consultations, by using the Diagnostic and Statistical Manual for Mental disorders (DSM) criteria. A total of 221 schoolchildren suffering from ADHD were identified according to the DSM with a year of incidence calculated at 0.16. Males constituted the majority group presenting with ADHD. The contribution of consanguinity and a history of acquired brain injury were found to be common features. The majority were attending mainstream education as pharmacotherapy is the only option available for managing ADHD. Al-Sharbati et al. (2010) concluded that this study is one of the few from this part of the world using DSM criteria to diagnose ADHD.

Qatar

Bener et al. (2006) carried out a study to identify ADHD among primary schoolchildren in Qatar. A total of 1,541 school students (489 Qatari nationals), aged 6 to 12-years, were evaluated for ADHD symptoms by their teachers according to the Conners' scale, and the data evaluated using the SPSS package. Sociodemographic data on these children were also collected through questionnaires. Results revealed an overall prevalence rate of 9.4% for ADHD in Qatar (males: 14.1%; females: 4.1%). Of the 489 Qatari children, 71 (7.2%) were found to have a high ADHD rating. Bener et al. (2006) conjectured that the high prevalence rate could be due to the study having taken place in a classroom setting, since teachers are more accurate in their judgment. It was also noticed that children with a higher score for the ADHD symptoms had a poorer school performance as compared to those with a lower score. Significant associations were also found between the symptoms of ADHD and parents having multiple marriages.

Saudi Arabia

A study by Al Hamed et al. (2008) aimed to determine the prevalence of ADHD and associated family and psychosocial factors among male primary school children in Dammam city, Saudi Arabia. Saudi nationals made up 81% of the sample size that numbered 1287 students aged 6-13 years, who were selected by multistage systematic random sampling. The overall prevalence of combined ADHD was 16%, while the prevalence of hyperactivity-impulsivity was 12% and the prevalence of inattention disorders was 16%. Moreover, certain family-related factors were significantly associated with the disorder. For example, the prevalence ADHD was higher if the child is the 6th one in the family. Children living with single parents displayed higher prevalence of hyperactivity-impulsivity disorder. And children who were breastfed were less likely to have



inattention in comparison to those who depended on bottle feeding.

References

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Related CTGA Records

Solute Carrier Family 6 (Neurotransmitter Transporter, Dopamine), Member 3

External Links

<http://www.chadd.org/>
<http://www.emedicine.com/ped/topic177.htm>
http://www.kidsource.com/kidsource/content2/add_nimh.html
<http://www.mayoclinic.com/health/adhd/DS00275>
http://www.medicinenet.com/attention_deficit_hyperactivity_disorder_adhd/article.htm
<http://www.nimh.nih.gov/publicat/adhd.cfm>

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