Attention disorder with hyperactivity: possible persistence in the adult and working difficulty

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Abstract

The attention disorder with hyperactivity (ADHD) is a common behavioral disorder of developmental age that may persist in the adult. Frequently this disorder, misunderstood and underestimated, can be a source of great discomfort in the family and in society, compromising the performance at school and work. The ADHD must be timely diagnosed by a psychiatrist and adequately treated, also with drugs. Parents, educators, teachers and even the medical community should be more informed about this disease and how to fight it.

KEY WORDS: ADHD, developmental age, school, work fitness.

Introduction

The attention disorder with hyperactivity (usually referred to by the acronym ADHD: Attention-Deficit/Hyperactivity Disorder) is a neurobehavioral condition of childhood and adolescence, often persisting in adult age, causing problems in the family, school, social and occupational settings (1). ADHD afflicts 7-8% of school-age children and 4-5% of the adult population (2, 3). In fact, while some “outgrow” the disorder, symptoms persist beyond adolescence in as many as 65% of individuals (4, 5).

The causes and pathogenetic mechanisms of the disorder are not clear. Identified risk factors include family history, male gender, psychosomatic developmental delay, concomitant health problems, family difficulties, low socioeconomic status, urban residence, maternal smoking during pregnancy, and exposure to environmental lead or polychlorinated biphenyls (6, 7). Heritability has been estimated at 76%, and meta-analyses of candidate-gene association studies have shown strong associations between ADHD and several genes involved in dopamine and serotonin pathways (8). The disorder is present in 20%-50% of children with epilepsy (9).

Recently, advances in technology have enabled researchers to elucidate neuroanatomical and neurophysiological underpinnings of the disorder that were previously undetectable. Magnetic resonance imaging has been a critical tool for examining brain development in ADHD, demonstrating that the prefrontal cortex and other brain regions are implicated in the origin of the disorder. In particular, neuroimaging studies have shown that ADHD is associated with a delay in cortical maturation (10, 11).

ADHD has long been thought to reflect dysfunction of prefrontal-striatal circuitry. Recent studies suggest that the pathophysiological features also encompass large-scale neural networks, including frontal-to-parietal cortical connections (10, 11).

The clinical presentation of the disorder is characterized by inattentiveness, hyperactivity, and/or impulsivity (1). For example, the subject makes frequent mistakes in school or work tasks (sometimes without completing them), fails to concentrate, seems not to listen, is easily distracted by external stimuli, presents difficulties in organizing his/her own activities, loses objects and notes. Hyperactivity/impulsivity signs include sensation of “internal agitation”, inability to relax and sit properly (at the table, in the classroom, in the office, at the movies...), difficulties in recreational activities, tendency to interrupt and meddle in other people’s conversations and activities, excessive verbosity (often speaking before thinking), difficulty in waiting one’s turn. The association (comorbidity) with other psychiatric disorders (e.g., anxiety, mood disorders, and substance abuse) is frequent (12, 13).

ADHD is associated with low rates of high-school graduation and completion of postsecondary education (14), and poor peer relationships (15), even when it is appropriately managed (16), leading to high economic and social burdens (17, 18).

In the absence of biomarkers, diagnostic criteria focus on behavioral symptoms. Since the same characteristics may be observed in children and adolescents during typical development, the diagnosis of ADHD calls...
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for symptoms that are severe, out of proportion to expectations according to the child’s age or developmental level, persistent, and for which there are no appropriate alternative explanations (19). Children with ADHD do not reliably demonstrate core traits in clinical office settings. Thus, the diagnostic process often requires obtaining information about children in more than one everyday setting, typically home and school (20).

Criteria from the Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association guide diagnosis, which is based on the presence of at least six of nine symptoms in either or both of two domains: inattention and hyperactivity-impulsivity (1). ADHD must be distinguished (differential diagnosis) by other mental disorders: schizophrenia and other psychoses, anxious-depressive syndromes, manic states, personality disorders (13).

The International Classification of Diseases, 10th edition (ICD-10), uses the alternative term “hyperkinetic disorder”. A diagnosis of ADHD according to this classification requires the presence of both impaired attention and activity problems (21). Thus, there is a lower prevalence of ADHD according to the ICD-10 criteria than according to the DSM criteria (19).

Medical help is necessary in the event of continued attention disorder with behavioral symptoms, especially if there are problems at school or work. The diagnosis and treatment falls within the competence of the psychiatrist.

The risk factors for ADHD (see above) are difficult to control. Consequently, the possibilities of primary prevention are scarce. On the other hand, it is possible – and duteful – to diagnose the disorder as early as possible, in order to intervene with appropriate and timely treatment measures, and to prevent problems in social life. Functional assessment at the time of diagnosis is useful for documenting the type and extent of functional difficulties, and identifying meaningful goals for management (13, 20).

Perspectives

ADHD is a long-term condition that is often misunderstood and underestimated, even within the medical community. In children and teenagers, the disorder may cause serious problems at school, starting from early childhood (for example when entering the nursery or kindergarten), and is often mistaken for an intellectual deficit (whereas, at the contrary, the young patients have normal or even higher intelligence). Children with disruptive and hyperactive behaviors are the most likely to be referred for clinical evaluation, while in those who do not have these behaviors, ADHD may remain unidentified or untreated (19).

There are pharmacological and non-pharmacological therapies. The first involve the use of stimulants (eg., amphetamines) and non-stimulants drugs (such as alpha2 receptor agonists and antidepressants), depending on the case (13). The use of psychotropic drugs in children is often frowned upon and opposed by parents and educators, the media, sometimes even by doctors. However, in the case of ADHD with serious impairment in school performance and/or relationships with family and peers, it often represents the only effective remedy.

Stimulant drugs remain the treatment of choice, with a high success rate (22-24). There have been concerns regarding potential neurodevelopmental effects of maintaining long-term stimulant treatments in children and adolescents (25). Recently, however, Friedman and Rapoport reviewed evidence indicating that psychostimulants have normalizing effects on both brain function and structure (11).

Nonstimulant medications play an important role in the management of ADHD when parents do not want their children to receive stimulants, when stimulants are contraindicated or have adverse effects, or when there is a history or high likelihood of addiction or diversion of medication for recreational use (19).

Non-pharmacological approaches include parent training in behavior management, interventions in the school setting, and cognitive behavioral therapy (26).

Behavior management is not as effective as medication in reducing core symptoms, but it improves functioning, which is important for those whose ADHD, and it increases parental satisfaction. Treatment should address a child’s areas of functional disability rather than focus exclusively on ADHD core symptoms. Management plans developed with the child and family members, including parents, should specify measurable target objectives that relate to broader functional outcomes, and are monitored in the evaluation of treatment effectiveness (19). obviously, diagnosis and treatment are also necessary in the forms that persist into adulthood, causing problems in the family and social relationships (14). In such cases, the previous school problems are transposed in the workplace: the patient may struggle to find and keep the job, have difficulties with colleagues and superiors, incur disciplinary sanctions, economic disputes and difficulties, and encounter obstacles in the advancement of career.

The clinical profile and manifestations of ADHD evolve with age: symptoms of hyperactivity and impulsivity decline in 50-80% of cases, although they occasionally persist, and sometimes are the presenting complaints of adult ADHD. On the other hand, deficits in attention tend to persist and to become more varied (27).

The manifestation of ADHD among adults has become an issue of growing interest, due to an increasing number of adults aged 50 years and older seeking assessment for ADHD for the first time (5).

The motor hyperactivity in children is in adults often replaced by an “inner” hyperactivity in the form of restlessness, excessive fidgeting and talking, inability to relax, and difficulty to sit quietly for long periods. Impulsivity in adulthood may appear as outbursts of anger, impatience, careless driving, and making decisions without thinking. Inattention will manifest as disorganization, forgetfulness, poor performance in planning and completion of tasks, task shifting, and time
management. Because of this developmental change in symptom expression, many adults will not fully exhibit the criteria for the diagnosis, while remaining significantly impaired (28). In addition to the core symptoms, ADHD in adults is strongly associated with emotional dysregulation (increased irritability, low tolerance for frustration and stress, emotional lability) (29). People with ADHD are a vulnerable group, in many cases with limited autonomy. They risk impaired function in terms of social interaction, education and professional life, and thereby social exclusion. Indeed, a number of controlled follow-up studies have shown that ADHD in adults is associated with impairment in several life domains, such as academic, occupational, and social functioning. The negative impact seems to persist into late adulthood (27).

In workers with ADHD, core symptoms of inattention, hyperactivity, and impulsivity are often associated with poor organization, time management, and interpersonal relationships. As a consequence, employment levels, earning power, and productivity are reduced. Additionally, the costs of employing individuals with ADHD are higher because of work absences and lost productivity (30, 31). Unfortunately, only a small majority of these workers are treated despite evidence that such treatment can be quite effective in improving functioning (30). In our personal experience, this appears to be particularly true in Italy. An early diagnosis creates opportunities for individualized support and treatment, which may reduce the risk of problems later in life. With aging, a series of changes occur that modify the pharmacokinetics and pharmacodynamics of psychotropic medication. This may influence the efficacy, tolerability, and safety of any psychopharmacologic treatment. Pharmacologic treatment in older adults should generally follow similar guidelines as with younger patients except that drug dosing and speed of titration should be slower and start lower. Side effect profile is a greater consideration than with younger patients (5).

Research on ADHD is proceeding exponentially. Recent advances have been exciting, opening new avenues of study. This is particularly true for structural and functional imaging as they relate to disease phenotype, progression, treatment, and heritability. Sadly, practitioners remain far from being able to use research data in the clinic (11). In recent years, the theories on the origin of the disorder and, consequently, treatment approaches have evolved and updated. Particular attention has been paid to the rational use of drugs, to tailor treatment to individual patients, to factors that influence compliance to prescriptions, in children as in adults (11, 26). In our experience, many patients treated for ADHD continue to have problems of “everyday functionality” and poor emotional self-control, even when the most severe symptoms are controlled. Future developments in this direction are therefore expected, in order to obtain a full remission of symptoms and reduce the disability load. Research will also have to address diagnostic challenges: the symptoms, especially those linked to hyperactivity, tend to wane in intensity passing from adolescence to adulthood, with significant differences in the clinical presentation. Helping physicians to understand and recognize these differences requires further efforts.

Conclusions

In Italy, ADHD is little known and seldom diagnosed, especially in adulthood, when the problems of the developmental age can persist, though modified. Interventions to raise awareness are necessary, for not only parents, teachers and educators, but for doctors, especially pediatricians and occupational physicians (who are responsible by law for sanitary surveillance and work fitness certification). It is essential that the disorder is promptly recognized and properly treated with a multimodal approach. The patient should be followed for years, and the treatment should consider psychosocial, familiar and occupational aspects.

References