CHILDREN WITH ADHD AND INTERVENTION PROGRAMMES

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ABSTRACT

Inattention, hyperactivity (restlessness in adults), disruptive behavior, and impulsivity are common in ADHD. Academic difficulties are frequent problems. The symptoms can be difficult to define as it is hard to draw a line at where normal levels of inattention, hyperactivity, and impulsivity end and significant levels requiring interventions begin. Symptoms must be observed in two different settings for six months or more and to a degree that is greater than other children of the same age.

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD, similar to hyperkinetic disorder in the ICD-10) is a psychiatric disorder of the neurodevelopmental type in which there are significant problems of attention and/or hyperactivity and acting impulsively that are not appropriate for a person's age. These symptoms must begin by age six to twelve and be present for more than six months for a diagnosis to be made. In school-aged children the lack of focus may result in poor school performance.

ADHD is approximately three times more frequent in boys than in girls.. About 30 to 50 percent of people diagnosed in childhood continue to have symptoms into adulthood and between 2 and 5 percent of adults have the

condition. The condition can be difficult to tell apart from other disorders as well as that of high normal activity.

ADHD management usually involves combination of counselling, lifestyle changes, and medications. Medications are only recommended as a first-line treatment in children who have severe symptoms and may be considered for those with moderate symptoms who either refuse or fail to improve with counseling. Long term effects of medications are not clear and they are not recommended in preschool aged children. Adolescents and adults tend to develop coping skills which make up for some or all of their impairments.

HISTORY

Hyperactivity has long been part of the human condition. Sir Alexander Crichton describes "mental restlessness" in his book an inquiry into the nature and origin of mental derangement written in 1798. ADHD was first clearly described by George Still in 1902. The terminology used to describe the condition has changed over time and has included: in the DSM-I (1952) "minimal brain dysfunction", in the DSM-II (1968) "hyperkinetic reaction of childhood", in the DSM-III (1980) "attention-deficit disorder (ADD) with or without hyperactivity". In 1987 this was changed to ADHD in the DSM-III-R and the DSM-IV in 1994 split the diagnosis into three subtypes, ADHD inattentive type, ADHD hyperactive-impulsive type and ADHD combined type. Other terms have included "minimal brain damage" used in the 1930s.

CHARACTERISTICS OF ADHD:

1. Difficulty in remaining seated: leaves seat in class or other places where staying seated is expected, such as during mealtimes or social gatherings; fidgets with hands, feet, or squirm in seat.

2. Talks excessively: blurts out answers before questions have been completed.
3. Tendency to interrupt: interrupts or intrudes on others, such as butting into conversations or games.
4. Difficulty engaging in quiet activities.
5. Be easily distracted, miss details, forget things, and frequently switch from one activity to another
6. Have difficulty maintaining focus on one task
7. Become bored with a task after only a few minutes, unless doing something enjoyable
8. Have trouble completing or turning in homework assignments, often losing things (e.g., pencils, toys, assignments) needed to complete tasks or activities
9. Not seem to listen when spoken to
10. Daydream, become easily confused, and move slowly
11. Have difficulty processing information as quickly and accurately as others
12. Struggle to follow instructions
13. Fidget and squirm in their seats
14. Dash around, touching or playing with anything and everything in sight
15. Have trouble sitting still during dinner, school, doing homework, and story time
16. Be constantly in motion
17. Have difficulty doing quiet tasks or activities
18. Blurt out inappropriate comments, show their emotions without restraint, and act without regard for consequences

19. Have difficulty waiting for things they want or waiting their turns in games. Often interrupts conversations or others' activities
20. People with ADHD more often have difficulties with social skills, such as social interaction and forming and maintaining friendships. The most important factor in reducing later psychological problems, such as major depression, criminality, school failure, and substance use disorders is formation of friendships with people who are not involved in delinquent activities.
21. Difficulties managing anger are more common in children with ADHD as are poor handwriting and delays in speech, language and motor development. Although it causes significant impairment, particularly in modern society, many children with ADHD have a good attention span for tasks they find interesting.

ASSOCIATED DISORDERS:

In children ADHD occurs with other disorders about 2/3rd of the time. Some of the commonly associated conditions include:

1. Oppositional defiant disorder (ODD) and conduct disorder (CD),

Which occur with ADHD in about 50% and 20% of cases respectively? They are characterized by antisocial behaviors such as stubbornness, aggression, frequent temper tantrums, deceitfulness, lying, and stealing. About half of those with hyperactivity and ODD or CD develop antisocial personality disorder in adulthood. Brain imaging supports that conduct disorder and ADHD are separate conditions.

2. Primary disorder of vigilance, which is characterized by poor attention and concentration, as well as difficulties staying awake. These children tend to

fidget, yawn and stretch and appear to be hyperactive in order to remain alert and active.

3. Mood disorders (especially bipolar disorder and major depressive disorder). Boys diagnosed with the combined ADHD subtype are more likely to have a mood disorder. Adults with ADHD sometimes also have bipolar disorder, which requires careful assessment to accurately diagnose and treat both conditions.

4. Anxiety disorders have been found to occur more commonly in the ADHD population.

5. Obsessive-compulsive disorder (OCD) can co-occur with ADHD and shares many of its characteristics.

6. Substance use disorders. Adolescents and adults with ADHD are at increased risk of developing a substance use problem, most commonly with alcohol or cannabis. The reason for this may be due to an altered reward pathway in the brains of ADHD individual This makes the evaluation and treatment of ADHD more difficult, with serious substance misuse problems usually treated first due to their greater risks.

CAUSES AND FACTORS OF ADHD

The cause of most cases of ADHD is unknown; however, it is believed to involve interactions between genetic and environmental factors. Certain cases are related to previous infection of or trauma to the brain.

1. Genetics

   Twin studies indicate that the disorder is often inherited from one's parents with genetics determining about 75% of cases. Genetic factors

are also believed to be involved in determining whether or not ADHD persists into adulthood.

2. Environment: Environmental factors are believed to play a lesser role. Alcohol intake during pregnancy can cause fetal alcohol spectrum disorder which can include symptoms similar to ADHD. Exposure to tobacco smoke during pregnancy can cause problems with central nervous system development and can increase the risk of ADHD.

A combination of a genetic predisposition with tobacco exposure may explain why some children exposed during pregnancy may develop ADHD and others do not. Children exposed to lead, even low levels, or polychlorinated biphenyls may develop problems which resemble ADHD and fulfill the diagnosis. Exposure to the organophosphate insecticides chlorpyrifos and dialkyl phosphate is associated with an increased risk; however, the evidence is not conclusive.

Very low birth weight, premature birth and early adversity also increase the risk as do infections during pregnancy, at birth, and in early childhood. These infections include among others: various viruses (measles, varicella, rubella, enterovirus) and streptococcal bacterial infection. At least 30 percent of children with a traumatic brain injury latter develop ADHD and about 5 percent of cases are due to brain damage.

3. Per social construction theory it is societies that determine the boundary between normal and abnormal behavior. Members of society: including physicians, parents, and teachers determine which diagnostic criteria are used and, thus, the number of people affected. This leads to the current situation where the DSM IV arriving at levels of ADHD three to four times higher than those obtained with the

ICD Thomas Szasz, a supporter of this theory, has argued that ADHD was "invented and not discovered."

4. Neurotransmitters: People with ADHD may have a low arousal threshold and compensate for this with increased stimuli, which in turn results in disruption of attention and increases hyperactive behavior. The reason for this is due to abnormalities in how the dopamine system responds to stimulation. There may additionally be abnormalities in the adrenergic, serotoninergic and cholinergic or nicotinergic pathways.

5. Executive function: One theory of suggests that the symptoms arise from a difficulty in executive functions. Executive functions refer to a number of mental processes that are required to regulate, control, and manage daily life tasks. Some of these impairments include: problems with organizational skills, time keeping, excessive procrastination, concentration problems, processing speed, regulating emotions, using working memory and short-term memory problems. People usually have decent long-term memory.

MANAGEMENT OF ADHD

The management of ADHD typically involves counseling or medications either alone or in combination. While treatment may improve long term outcomes it does not get rid of negative outcomes entirely. Medications used include stimulants, atomoxetine, alpha-adrenergic agonists and sometimes anti-depressants. They have at least some effect in about 80% of people. Dietary modifications may also be of benefit with evidence supporting free fatty acids and reduced exposure to food coloring. Removing other foods from the diet is not currently supported by the evidence.

ASSESMENT OF CHILDREN AND ADOLESCENT WITH ADHD,

A multimethod assessment approach is strongly recommended. A multimethod assessment approach involves using different measures, informants (parent, teacher, student, peers), and settings (home, school) to glean information about the areas of concern; and then using this information to develop intervention strategies to address the areas of concern. In a clinical setting, a comprehensive evaluation is conducted and typically includes one or more clinical interviews with the parent(s) and child or adolescent, a medical examination, and completion of behavioral rating scales. Intelligence tests, academic achievement tests, neuropsychological tests, personality and/or projective tests, and observations may also be included in the assessment battery to aid in differential diagnosis or to assess the severity of collateral impairments that may occur with this disorder (Gordon & Barkley, 1998).

In a school setting, the assessment of students with ADHD may be conducted within a problem-solving model, a model used to identify and resolve problems that a student may be experiencing. Parent, teacher, child, and possibly peer interviews, direct observations (in and outside the classroom), and behavioral ratings scales make up the core of the assessment battery used in the schools and within this model. In recent years, other techniques such as functional behavioral assessment—used to identify the function of a behavior—and curriculum-based measures—used to assess students' fluency in basic skills (e.g., reading and math)—have also been used in the assessment of some students with ADHD who exhibit behavioral or academic difficulties, respectively.

If interventions selected and implemented based on the assessment results from the previously administered instruments do not produce positive change in the area(s) of concern, a comprehensive evaluation is likely to follow and may include intelligence tests, academic achievement tests, and other measures,

depending on the area or areas of concern. Based on the assessment results of this comprehensive evaluation and discussion among school personnel and the parent(s) and possibly the child or adolescent, placement in special education or implementation of a 504 plan (i.e., accommodations in the regular education classroom) may result.

A variety of strategies have been used in the treatment of children and adolescents with ADHD. Evidence suggests that a multimodal approach, where two or more strategies are combined—such as medication and behavioral modification techniques (e.g.,methods used to change behavior by rewarding appropriate behavior and ignoring or punishing inappropriate behavior)—may be more effective in the treatment of ADHD than the use of medication alone. Stimulant medication such as Ritalin or Concerta is the most common type of medication used to treat children and adolescents with ADHD. Tricyclic antidepressant medications have also been used, especially if a tic disorder (i.e., repetitive motor movements and/or vocalizations) such as Tourette's syndrome is present. Psycho stimulant medication tends to increase tic behavior when children and adolescent shave both of these disorders. When monitored effectively by school personnel and physicians, stimulant medication is effective, in the short-run, in reducing inattentiveness and decreasing disruptive behaviors as well as facilitating learning and social functioning. However, there are some significant concerns associated with the use of stimulant medication with these children and adolescents, including:

1. Medication costs
2. Stigmatization associated with taking the Medication
3. Adherence to medication regimen
4. Dosage levels that are either too high or too low

5. Quick-fix approach rather than the selection of intervention strategies to change behavior on a permanent basis
6. Short-term side effects (e.g., stomach aches, weight loss, appetite suppression, sleep problems)
7. Long-term side effects (e.g., depression, sleep difficulties, height and weight suppression, increased blood pressure)

TYPES OF INTERVENTION WITH ADHD

Multidisciplinary teams composed of physicians, psychiatrists, psychologists, educators, teachers, parents or tutors, neurologists, and neuropsychologists will always be an important part of the work. This type of team will provide tailored organization of long-term treatments through cognitive and behavioral therapies combined with medication. Moreover, it is important:, facilitating the release of noradrenaline (NA), or norepinephrine, as well as dopamine

I. to create awareness among parents, tutors, or teachers through training workshops on ADHD, and different educational intervention methods used in school and at home (Valett, 1981; Armstrong, 2001);
II. to provide practical training to get accustomed to compiling specific information on children with ADHD's behaviors—assessment protocls or sclaes administered by clinicians, such as Conners' Rating Scales and the the Behavior Assessment System for Children or BASC (Reynolds and Kamphaus 1994).
III. to establish routines using specific and timely information on ADHD in order to reduce stress resulting from the great amount of energy

spent by parents and educators; and to improve function in children with ADHD (Caron, 2006).

IV. to improve symptoms of maladjustment in children with ADHD through problem-solving and emotional management training (Caron, 2006 p. 9); to increase the number of playful and sport activities; restructure the school and home atmosphere in which the child is developing—such as turning the television, radio, or computer off, especially in times when the child or teenager should be doing homework or sitting for meals—, and to develop programs, off-programme schedules of the children's activities and leisure time, and to enhance self-esteem, etc. (Lavigueur, 2002)

V. to follow the American Academy of Pediatrics (AAP) recommendations according to which leaving young children aged 2 years old or less watching television, playing computer, or video games without any supervision is inappropriate. Children aged 2 years, or less, should be imposed daily limits of one or two hours of high-quality television programs under the supervision of adults.

VI. to use pharmacotherapy, but not as the sole solution for the treatment of children affected by this disorder. Several types of medication can be used to treat ADHD. Stimulants, non-stimulants, and antidepressants are sometimes used as options for treatment. Yet, they must be used under the supervision of a medical practitioner due to their side effects.

VII. to recognize that methylphenidate is the most commonly used medication in many cases (Barkley, 1997). This medication, widely known under its popular name Ritalin, is a chemical stimulant that intensifies the frontal; lobe's capacity, reduces physical and verbal

activity, and helps in maintaining sustained attention. Moreover, it activates neuronal communication between the frontal and prefrontal lobes, and controls the amount of neurotransmitters carried by blood to cerebral structures 5hat penetrate into the brain up to the synapses. This is where some components of the drug attach themselves to neurotransmitters DA) (Lavigueur, 2002);

VIII. that pharmacology professionals must inform, in a timely manner, parents and educators of the potential attendant risks of medication use, as drugs can be harmful to children and teenagers in several ways. Moreover, a child may react positively to a treatment, yet negatively to another. In order to select the best combination of drugs for the treatment of a given patient, professionals such as a general practitioner or a neurologist can suggest different drugs and dosage regimens, especially if the patient is already receiving treatment for ADHD or another disorder;

IX. to prevent ADHD onset in childhood in order to apply, re-organize and tailor short-term, mid-term, and long-term treatments;

X. to assess therapy benefits and the learning models used.

RECOMMENDATIONS

1. Universal screening for ADHD should not be undertaken in nursery, primary and secondary schools.

2. The Department for Children, Schools and Families should consider providing more education to trainee teachers about ADHD by working with the Training and Development Agency for Schools (TDA) and relevant health service organizations to produce training programmes and guidance for supporting children with ADHD.

3. When a child or young person with disordered conduct and suspected ADHD is referred to a school, special educational needs coordinator (SENCO), the SENCO, in addition to helping the child with their behavior, should inform the parents about local parent-training/education programmes.

4. Following a diagnosis of ADHD in a child of pre-school age, healthcare professionals should, with the parent or carers' consent, contact the child s nursery or pre-school teacher to explain:

- the diagnosis and severity of symptoms and impairment
- the care plan
- Any special educational needs.

5. Following a diagnosis of ADHD in a school-age child or young person healthcare professionals should, with the parents or carers' consent, contact the child or young person's teacher to explain:

- the diagnosis and severity of symptoms and impairment
- the care plan
- any special educational needs.

6. Following a diagnosis of severe ADHD in a school-age child or young person healthcare professionals should, with the parents' or carers'consent, contact the child or young person's teacher to explain:

- the diagnosis and severity of symptoms and impairment
- the care plan
- any special educational needs.

7. Teachers who have received training about ADHD and its management should provide behavioral interventions in the classroom to help children and young people with ADHD.

OTHER THERAPEUTIC ASPECTS OF ADHD

Compilation of the entire patient's clinical history is required, including signs and symptoms, medical and familial history such as allergies, behaviors in school or home settings, individual strengths and weaknesses, as well as associated pathological conditions, etc.

Diagnosing ADHD is not considered as a therapeutic intervention leading to global rehabilitation. Actually, it is the first step of the rehabilitation process, but it is crucial in several cases, since the lack of specific diagnoses and appropriate therapies increase aversion to therapies, drop-outs, or inclination towards offending and irresponsible behaviors, such as addictions to toxic substances in teenagers and adults (Galves Flores, and Rincón Salazar 2008).

There is also a need to organize work methods under the supervision, and with the help of parents and educators, providing feedback and a new assessment every 2, 4, or 6 months. If changes occurred during these steps, no neurological disorder is present; but if cognitive and motor impairments are persistent and no change is observed during control steps, significant neurological disorders are thereby confirmed.

Feedback must be addressed in simple terms to the patient with ADHD. At the same time, specific information must be provided to parents and educators in appropriate terms, by avoiding the use of stereotypes or to put the blame on anyone for the symptoms shown by patients with ADHD. The goal is to get parents and teachers' involvement in therapy in order to guide properly the rehabilitation

process of the persons affected with this disorder. In most cases, these persons are unaware of their impairment, and their parents do not know the strategies to use in order to face the impairment of their children.

It is also important to reinforce abilities in the management of personal hygiene during leisure time, as well as to use relaxation techniques, increase the number of playful and sport activities, implement balanced diets, and reduce the consumption of food increasing chemical imbalances in the brain that maintain ADHD symptoms—as this method actually works in some patients.

CONCLUSION

There is an urgent need to implement appropriate multidisciplinary treatments based upon the social, cultural, familial, and individual differences of patients with ADHD in order to intervene and provide relevant information that will allow them to learn how to manage their symptoms efficiently. Clear instructions should be given and mechanisms implemented in order to give numerous strategies to avoid limiting the motivation process that is so important in rehabilitation. Children with ADHD should learn how to use appropriate strategies to control their disruptive behaviors through either combined techniques of cognitive and behavioral therapies, proper dosage regimens of medication for every specific case, and this, after making sure that any other associated condition has been eliminated.

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