

Case Study on ADHD with Supportive Literature

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Attention-deficit/hyperactivity disorder

Case Study No. 1

Patient's Gender: Male.

16-year-old is the appropriate age.

He has had attention deficit hyperactivity disorder (ADHD) since he was a child. He participates in sports and attends a premium school, but he has always had difficulty focusing on both school and sports.

Initially, he used 10 drops of the Proprietary mix 1 in the morning hours and at night, followed by 10 drops during the night. After three months, he began taking two capsules of the proprietary combination. The Proprietary mix 2 capsules were introduced to him in a one-a-day dose at the beginning, but after two weeks, he increased the dosage to two Proprietary blend 2 capsules during the morning hours and two in the afternoon. He gives them 30 minutes of his time before he begins the exercises.

Results: His mom and dad, and coaches stated that he showed substantial progress in his ability to maintain attention and follow directions, as well as in his ability to complete particular school projects and remain focused during his basketball and soccer games. On days when he does not participate in sports, he will often take a proprietary mix of two capsules in the morning and a second capsule in the afternoon. He takes the Proprietary mix of two capsules without a meal and has seen a considerable improvement in his ability to concentrate as a result of the supplement.

There have been no known adverse effects.

Case Study No. 2

Patient's Gender: Male.

Twelve-year-old boy.

History: The mother states that after her son had the M.M.R. vaccination when he was one year old, he regressed and experienced a significant drop in appetite that lasted for nearly four years, as well as being hyperactive and preoccupied. In 2018, he was diagnosed with hyperactivity disorder (ADHD).

His treatment/method began at the age of twelve when he began using a Proprietary blend of 1, 5 drops B.I.D. He was diagnosed with ADHD.

Result: He claims that his “head feels clearer and less confused, that he has been trying to concentrate and focusing considerably better, that he sleeps better, and that it is easier to get out of bed in the morning” He claims that he is sleeping for longer periods of time and that he is feeling less hectic.

Follow-up is scheduled for six months.

Supporting literature

People with ADHD may struggle to pay attention and control impulsive actions (doing things without thinking about the implications) or being highly active, as shown in the two scenarios. ADHD is a chronic disorder that affects millions of children and often continues into maturity (Banaschewski et al., 2017). ADHD is characterized by a variety of long-term difficulties, such as difficulty focusing, hyperactivity, and impulsive behavior. ADHD may lead to low self-esteem, troubled relationships, and poor academic performance in children. As people get older, they may see a reduction in the symptoms. Some people fail to completely recover from their ADHD symptoms. Children, on the other hand, may learn to use successful strategies. ADHD symptoms often occur at an early age and become more noticeable whenever a child’s environment changes, such as when they start school (Tong ET AL., 2020). The majority of cases are discovered between the ages of three and seven; however, they may also be discovered later in life. When ADHD is not detected as a child, it is often diagnosed in maturity. Even though the manifestations of ADHD usually improve with age, some people who were diagnosed with the illness as children continue to struggle (Tong ET AL., 2020). Additional challenges, including sleeping and anxiety problems, may be present in people with ADHD. In children, ADHD becomes the most frequently diagnosed psychiatric abnormality. It is more common in boys than in females.

Epidemiology

ADHD, as characterized by the D.S.M. standards, is among the most prevalent mental diseases in children and adolescents and has an epidemic incidence on a global scale of 5.3 percent. The implementation of the tighter ICD-10 research standards results in reduced prevalence estimations of 1-2%. As per the DSM-IV criteria, ADHD affects roughly 2.5 percent of the senior population. Among clinical populations (3-4: 1), Men have a higher incidence than women, according to epidemiological studies. An economically disadvantaged position is linked to ADHD, regardless of the fact that worldwide diagnosis rates have risen considerably in recent decades.

Rising diagnostic rates are therefore related to better diagnosis or an improvement in functional disability instead of an actual rise in incidence.

Increased motor excitement, lack of attention, and lack of impulse control are common characteristics of individuals with ADHD. The modern definition of ADHD, as described by the American Psychiatric Association’s DSM-IV-TR (American Psychiatric Association 2000), is relatively recent. However, a review of historical literature indicates that youngsters exhibiting signs of attention deficit, restlessness, and recklessness have been recorded by a number of writers throughout the past 200 years (Tong ET AL., 2020). A continuing trend of inattention and hyperactivity-impulsivity that affects overall functioning or growth is characteristic of attention deficit hyperactivity disorder (ADHD). Individuals who have ADHD have a recurring tendency of the following side effects:

Inattention is defined as a person’s failure to stay focused, maintain discipline, or stay on task, and it is not triggered by opposition or a lack of comprehension. Hyperactivity is characterized as a person who seems to walk around constantly, even if it is not desired, or who fidgets, bangs, or talks excessively. Adult hyperactivity might take the form of extreme restlessness or inappropriate talking.

Impulsivity is defined as a person’s proclivity to act without thought or to battle with self control. Impulsivity can also be characterized as a need for immediate pleasure or an unwillingness to endure it. Somebody who is impulsive may cause problems for others or make key decisions without considering the long-term consequences.

Many healthy children are inattentive, restless, or impulsive at some time in their life (Rsov, 2019). Preschoolers are notorious for their short attention spans and inability to concentrate on a single activity for long periods of time. Even among older adolescents and teens, the number of interests influences focus and concentration. Hyperactivity works in a similar way. Youngsters are inherently lively, and they may keep going long after their guardians have worn out. Furthermore, many children are born with a greater degree of activity compared to others. Children must never be labeled as suffering from ADHD just because they are not like their classmates or siblings (Tong ET AL., 2020). Teenagers who have difficulties in the classroom but get along really perfectly when they are at home or even with their peers are most likely experiencing anything other than ADHD. This is similar for youngsters who become hyperactive or distracted at home yet still have no effect on their academics or friendships.

Symptoms

Symptom levels fluctuate throughout sectors of life and environmental stresses. In this regard, circumstances requiring focus, patience, and impulse management are frequently the earliest in which symptoms manifest (e.g., Classroom conduct, assignments, activities in the chair circle, etc.). However, substantial motor disturbance under four years is difficult to discern from normal activity. Furthermore, novelty, particular high incentive or reward anticipation, and powerful external behavioral controls might alleviate symptoms in specific instances (RÍsovÁ, 2019), but not permanently. The absence of symptoms within a constrained observational circumstance does not exclude the diagnosis. Inattentiveness increases in youngsters of elementary-age as outside pressures rise.

Inattentiveness, poor planning abilities, and impulsivity frequently linger throughout adolescence. Adults with ADHD may have more severe emotional disturbance symptoms, such as lower frustration endurance, impatience, and mood changes.

Longitudinal investigations have indicated a progressive decrease of main symptoms. G generally, roughly 5-15% of individuals meet the clinical definition for ADHD in maturity, despite 70% having chronic symptoms or impaired functioning (RÍsovÁ, 2019); however, results vary substantially between studies owing to methodological discrepancies and other factors. Comorbid illnesses may overshadow ADHD within the medical picture. Insufficiency in early infancy, parental psychopathology, intense core manifestations, and concomitant mental diseases (especially conduct problems and clinical depression) constitute risk variables for a poor course and longevity of ADHD (RÍsovÁ, 2019).

ADHD is linked to poor psychosocial functioning and perceived health-related standard of living. ADHD kids are four substantially less likely than their classmates to graduate from college and have a poorer socioeconomic level (Schug et al., 2015). Many of their engagements are tumultuous (10, 12). Their delinquency risk is increased by 2-3(Cortese, 2020). Their lifespan likelihood of suicide is fourfold greater compared to their peers; the degree of ADHD is significantly connected to the prevalence of suicidal behavior. The 50% rise in deaths among people with ADHD throughout all age categories is due to their accident-proneness, notably in motor vehicle accidents(Cortese, 2020).

It is natural for youngsters to have problems concentrating and acting at one point or another(C.D.C., 2020). Furthermore, individuals experiencing ADHD do not merely grow out of such habits. The symptoms remain, may be intense, and can create trouble in class, at home, or with colleagues.

- i. A youngster with ADHD might.
- ii. Be daydreaming a lot.
- iii. Misplace or lose belongings a lot.
- iv. Squirm or fidget.
- v. Speak too much (C.D.C., 2020).
- vi. Make foolish errors or take needless risks.
- vii. Have a difficult time rejecting temptation.
- viii. Having problems taking turns.

Running head: ADHD 8 ix. Having problems connecting with others.

Clinically meaningful functional psychosocial disability has to be evident in several situations, such as at home, school, or job, in order to diagnose the illness (Sears & Zierold, 2017). Such fundamental indicators are dimensionally dispersed over a continuum within the overall population, with the higher end defining medically significant ADHD symptoms.

Approximately 75% of people experiencing ADHD also have another mental condition (Forns et al., 2014), while 60% have several comorbid mental illnesses, which might impact prognosis and demand particular treatment strategies (Banaschewski et al., 2017). Anxiety illnesses, tic abnormalities, and oppositional-defiant disorder (O.D.D.) begin earlier during child development.

The onset of depression and severe behavior problems usually occurs after the completion of elementary schooling and the start of puberty. In adolescence generally these disorders are connected with drug addiction and dependency, as well as the emergence of personality problems. ADHD affects around one in 4 kids, and more than 50 % of people with ADHD experience chronic depression (Lee et al., 2018). Comorbid disorders typically develop in successive phases with age, especially when comorbid disorders are distinct risk variables for subsequent mental illness progression. As a result, the age-dependent advancement of comorbidities frequently takes place in distinctive sequential stages, especially since comorbid abnormalities are specialized risk variables for the growth of additional mental disorders.

Pathophysiology

Genetics

ADHD runs in families. ADHD becomes five to 10 times more likely among first-degree families. According to twin research, 70-80% of phenotypic variation is hereditary (Tran & Miyake, 2017), sometimes in combination with environmental influences (epigenetic alterations of gene expression owing to particular environmental circumstances) (Banaschewski et al., 2017). The remaining variation is described by non-twin environmental variables. Shared environmental impacts are secondary. The etiology of ADHD has been linked to genes producing receptors and transporters for catecholaminergic and serotonergic neurotransmitter pathways. Common variations (variations with a prevalence greater than 5%) account for about 40% of genetic diversity (Banaschewski et al., 2017) but only slightly raises the risk.

The nicotinic and glutamatergic processes, as well as genes that affect brain growth and synaptogenesis, all play a role in ADHD etiology. There are also some genetic disorders linked to ADHD symptoms, such as fragile X syndrome, microdeletion 22q11 syndrome, tuberous sclerosis, and Williams-Beuren syndrome (Tran & Miyake, 2017).

Environmental risk variables

ADHD has been linked to many environmental variables in epidemiological research. Environmental toxins (organophosphates, P.C.B.s, lead) (Banaschewski et al., 2017), adverse psychosocial settings (severe poverty, maternal hostility), and dietary variables (maternal tension, smoking or drinking in pregnancy, reduced birth weight, preterm) are among the most important (Vrijheid et al., 2016). Many of these potential environmental risk variables have yet to be proved causal: The reported relationships could be attributable to confounding elements and selection influences. Moreover, ADHD may cause greater exposure to particular environmental elements. Multiple research has demonstrated that unfavorable mother-child relationships may generate (but not create) early childhood ADHD abnormalities and that maternal aggression adversely impacts symptoms later in life (Banaschewski et al., 2017). Contrary to popular belief, confounding variables do not account for the ADHD-related relationships with lower birth weights, preterm, and lead exposure (Vrijheid et al., 2016). Confounding elements appear to play a role in the relationships between ADHD and early exposure of the mother to stress and cigarettes. On the other hand, the causal significance of severe early childhood impoverishment has been demonstrated.

Neuropsychology

Research has demonstrated that various neuropsychological deficits in executive (inhibitory regulation, cognitive skills, planning abilities) and non-executive functions (stimulation and arousal modulation (Banaschewski et al., 2017), temporal processing, remembering, and reaction-time variation) in group comparisons. A sensitivity to postponed rewards, as well as impaired behavioral regulation and error encoding systems, influence motivational systems and learning procedures. Behavioral regulation and error processing systems are also decreased. Due to the small impact sizes, such abnormalities and their pattern are also shared with healthy control participants (Pellow et al., 2011). Only around 50% of ADHD sufferers have neuropsychological damage. It is still unclear if the related anomalies are causative or merely epi-phenomenal to the etiological pathways.

Anomalies in the structural and functioning of the brain

Gray matter is destroyed excessively, leading to a 3-5% loss in total brain volume. The development of the cortical regions, especially the prefrontal regions, is retarded. The gray matter is harmed more than the white matter. Prefrontal, basal ganglia, and cerebellar volume decreases correlate with the intensity of ADHD manifestations. Prefrontal development is slowed. The severity of these anomalies varies by brain area and client type. ADHD symptoms persisting into maturity correlates with such neuroanatomical defects. Within the prefrontal cortical regions the anterior cingulate gyrus, plus related parietal, striatal, as well as cerebellar regions, functional M.R.I. indicates hypoactive activity trends (Pellow et al., 2011).

Diagnostic evaluation

The diagnosis of ADHD involves a multi-step process. There is no singular examination to diagnose ADHD, and the symptoms of anxiety, depression, sleeplessness, and learning problems overlap with those of ADHD (Felt et al., 2014). A medical checkup, including ear and eyesight exams, is one stage in the process. When diagnosing ADHD, parents, teachers, and occasionally the kid is asked about their child's background.

One of the most important aspects of the diagnostic examination is the complete developmental and familial background (Pellow et al., 2011). Children and adolescents have their present medical manifestations and severity evaluated by their parents or even other people who connect with them. Observations from diverse sources should always be examined. In maturity, the individual becomes the major source of information, while data from relatives or other parties (e.g., school records) might be valuable (Pellow et al., 2011). Organized or semi structured conversations and checklists may help clinicians make clinical judgments, while disorder-specific questionnaires can help patients understand how teachers and families see them. Symptoms have to significantly hamper the client's productivity or social competence to be diagnosed (Li et al., 2020). The intensity of the main symptoms of ADHD/HKD is not only dependent on age or developmental stage. Questionnaires and checklists provide for easy, systematic, and consistent data gathering but might give deceptive results. If there are any differences in the patient's evaluation, extra information could be collected via the cellphone (e.g., from instructors or caretakers) or in person.

People filling out surveys are generally hesitant to offer unfavorable replies about children, or they might possess other emotional motives.

Psychological exams may be used to help answer particular differential-diagnostic queries. Considering the disorder's basic symptoms, 50% of all ADHD patients have appropriate cognition testing results (Li et al., 2020). One should eliminate diminished intellect by using a legitimate intelligence examination (e.g., WISC or CFT-20R for a preliminary analysis). Testing for thyroid illness, vision and hearing problems, organic sleep abnormalities, and drug-induced illnesses might aid in the examination of fundamental somatic illness or for the diagnostic process. ADHD is commonly misdiagnosed as a behavioral problem or melancholy. The basic symptoms of ADHD (poor attention, impulsivity, hyperactivity) should be distinguished from the dissocial and violent characteristics of conduct disorder (Monro et al., 2013). A loss of concentration and increased irritation might be attributed to a depressed mood disorder rather than a persistent expression of ADHD. Attachment disturbances, schizophrenia, and bipolar prodromes are many other uncommon

clinical diagnoses.

Treatment

ADHD is usually treated as an outpatient. Whenever outpatient therapy fails because of poor cooperation, family finances, difficult drug modifications, or imminent school dismissal, partial or complete inpatient therapy might be required (Pellow et al., 2011). Other causes for inpatient therapy include difficult differential diagnoses or a heavy comorbidity load. There is no evidence that unsaturated fatty acid supplements have any impact on the basic manifestations of ADHD (32). No additional dietary measures are typically therapeutic.

The value of neurofeedback in a multimodal treatment approach is unknown. There aren't enough trials with high-quality learning regimens. These studies would definitely outperform other methods. Along with these therapies, medication (Muñoz et al., 2020) is an important part of treating ADHD (Muñoz et al., 2020). Several meta-analyses, such as the National Institute of Excellence's, have shown the effectiveness and tolerance of stimulant medication. A recent Cochrane study questioned the effectiveness of methylphenidate.

ADHD may be treated in numerous ways. However, evidence shows that multimodal treatment is optimal for many youngsters (Pellow et al., 2011). This entails combining different therapy modalities. Medication and counseling may help many ADHD symptoms. Therapists, physicians, educators, and parents must work closely together (Muñoz et al., 2020).

Medication. Stimulants remain the most often given ADHD treatments, despite concerns regarding overuse. They may reduce hyperactivity and enhance attention span. Inhibitors of impulsive behavior work on dopamine receptors within the brain. ADHD treatment may be pharmacological, nonpharmacological (Pellow et al., 2011), or both (Monro et al., 2013). These include stimulants (amphetamines and methylphenidate) and non-stimulants (atomoxetine, clonidine, and guanfacine extended-release). Stimulants are often considered first-line therapy. Following the discovery of an amphetamine molecule around 1937 and the F.D.A. authorization of methylphenidate around 1955, several research has been conducted regarding pharmacotherapy for ADHD.

Patient 1 began with 10 drops of Proprietary Mix 1 during the morning and evening hours. He began taking the Proprietary Blend 2 pills after three months. He began by taking one Proprietary mix 2 capsules each day, but after two weeks, he increased to two Proprietary blend 2 capsules in the morning and two in the afternoon. Inpatient 2, He waits 30 minutes before starting the exercises with them. At the age of twelve, he started utilizing a Proprietary mix of 1, 5 drops B.I.D. as a treatment/method. He was given an ADHD diagnosis.

Efficacy and Effectiveness

A meta-analysis¹⁰ of double-blind R.C.T.s demonstrated that ADHD medications outperformed placebo in reducing clinicians' ratings of lack of attention, restlessness, and impulsivity (KAREEM ET AL., 2019). The stimulating impact sizes were bigger compared to those observed in short-term R.C.T.s of psychiatric medicines in a number of different diseases. At the collective level, amphetamines outperformed methylphenidate, atomoxetine, and guanfacine. A greater reaction to amphetamines was shown in 28% of patients, whereas methylphenidate was seen in 16% of patients through crossover R.C.T.s (Muñoz et al., 2020). In case 1, the patient's mom and dad, and coaches stated that he showed substantial progress in his ability to maintain attention and follow directions, as well as in his ability to complete particular school projects and remain focused during his basketball and soccer games. On days when he does not participate in sports, he will often take a proprietary mix of two capsules in the morning and a second capsule in the afternoon. Inpatient 2, He claims that his "head feels clearer and less confused, that he has been trying to concentrate and focusing considerably better, that he sleeps better, and that it is easier to get out of bed in the morning"

He claims that he is sleeping for longer periods of time and that he is feeling less hectic.

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