



Neuropsychiatric Comorbidities in ADHD: A Current Review

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ABSTRACT

The COVID-19 pandemic can lead to neuropsychiatric complications worldwide. According to previous research, these symptoms can arise both during acute infection and in the post-infectious period. There are few studies on the pathophysiological origin of mental symptoms since most consider them secondary to infectious disease, and not due to the mechanism of virus infection itself. The immune response to SARS-CoV-2 can also directly affect the brain and behavior. More studies on the psycho neuro immunological aspect could prevent and shed new ideas for the control and treatment of both COVID-19 and neuropsychiatric manifestations.

Keywords

Neuropsychiatry, COVID-19, immunity, pathophysiology, cytokine neuro invasion

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is a neurobiological condition characterized by developmentally inappropriate and impairing patterns of inattention, hyperactivity, and impulsivity [1]. ADHD in adults is accompanied in 60% to 100% of cases of another psychiatric diagnosis [2,3].

In children, the main disorders likely to co-occur with ADHD are Oppositional Defiant Disorder (ODD) (50%-60%), Conduct Disorder (CD) (20%-50% in children and 40%-50% in adolescents), Depression (16%-26%) and Anxiety (10%-40%) Disorders, Bipolar Disorders (11%-

75%), Tic Disorders (20%), Obsessive-Compulsive Disorders (6%-15%), and Autism Spectrum Disorders (65%-80%) [4-10].

In a recent study with 2861 subject described the prevalence of the different comorbidities find in ADHD children and adolescents. They showed that 34% of the subjects had only ADHD, while 66% had at least one comorbid psychiatric disorder (learning disorders, 56%, sleep disorders, 23%, oppositional defiant disorder, 20%, anxiety disorders, 12%).

It seems clear that prevalence rates depend on the different origins of the studied population. Cross-sectional studies, retrospective studies, and

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follow-up studies have shown that the lifetime probability of having at least one mental illness is up to 80% [11-13]. These include both the area of personality disorders and that of mood disorders [14].

In adulthood, found the existence of ADHD in the first place in 85.6% of cases when it is a mood disorder, in 99% of cases when it is disorders related consumption of psychoactive substances and in 68.5% of cases when it comes to anxiety disorders, aside from specific phobias [15].

Depression

The lifetime prevalence of depression is 35% to 50% (compared to 15% in the general population). The characteristics of depressed ADHD and non-ADHD patients appear to be identical in terms of depression profile and response to treatment [16]. Certain characteristics confuse them. In both cases, we can find concentration problems and difficulty in carrying out distinct tasks. The interrogation teaches us that in the ADHD patient, the lack of interest and motivation are linked to boredom before the routine and not linked to ashenia or drunkenness. Depression can manifest as psychomotor restlessness but does not have a chronic course like ADHD.

Some studies suggest a family and genetic link between ADHD and depression. Depressed ADHD patients are less likely to respond to psycho stimulant therapy. This is why depression must be treated as a priority over ADHD.

Concerning bipolar disorder, the distinction between ADHD and bipolar disorder is sometimes complicated due to the proximity of clinical signs. Hypomania, in particular, shares certain characteristics with ADHD (Psychomotor Agitation, Tachypsychia, Tachyphemia, distractibility, risky activities). ADHD is distinguished from hypomania because the patient recognizes his difficulties most of the time and expresses a functional complaint. This is indeed less frequent in hypomanic patients who often have anosognosia, euphoria, and ideas of grandeur. Besides, the signs of ADHD appear from childhood, and there is no free interval in the symptomatology.

Some studies give very high percentages of the co-occurrence of the two disorders. It seems that the disorders are less associated than one might

have supposed 9.5% for Sachs and These in 2000, 5.3% for Kessler.

For this reason, many authors see the manifestations of hyperactivity in some children as an early form of bipolar disorder.

From a therapeutic point of view, carried out in 2012 a review of the literature which recommended treating bipolar disorder first. In a second step, the management of ADHD must be subject to certain precautions, in particular, due to the risk of decompensation of the mood disorder secondary to the psychos stimulant treatment (methylphenidate y amphetamines). For the author, Bupropion seems a better alternative since it has certain efficacy in the treatment of ADHD and is better tolerated from a thymic point of view [17].

Anxiety Disorders

40% to 60% of ADHD patients are said to suffer from anxious comorbidity, social phobia being the most frequent expression. These anxious patients would present a clinical picture of ADHD more marked by the intentional dimension of the disorder.

ADHD is a source of anxiety in the field of social, academic, or professional, as well as organizational skills. ADHD patients can develop anxiety over any new situation as they undergo negative experiences. In the end, the resulting clinical picture is often suggestive of generalized anxiety.

We can evoke the presence of Obsessive-Compulsive Disorder (OCD) in front of verification behaviors, and intolerance to change. However, these behaviors in ADHD patients do not assume the absurd nature of OCD, and are, on the contrary, an adaptation to significant organizational difficulties.

Consumption of Psychoactive Substances

52% of ADHD patients are abusive users of Psycho Active Substances (PAS) compared to 17% to 27% in the general population [18,19], representing a relative risk of more than twice. Some American authors consider that 25% to 35% of abusive or addicted SPA users would suffer from ADHD [20]. This very high prevalence is not found in all studies since only 7% of these consumers have ADHD in Spain.

Among the products used, we would find canna-

bis in 67% of cases, alcohol in 35%, opiates in 33%, cocaine in 23%, and other stimulants in 18% of subjects (MDMA, other amphetamines, etc.).

Cocaine, nicotine, and amphetamine stimulants would be used to improve cognitive performance, while alcohol, cannabis, and opiates would be used to fight emotional deregulation, internal agitation, and “hyper-arousal.” Cocaine and other psycho stimulants, in the intoxication phase, can mimic hyperactivity or an attention deficit disorder. The clinical presentation of a patient who uses psychoactive substances, in particular alcohol, presents similarities with the clinical picture of ADHD. These similarities are observed both during acute intoxication and during withdrawal. The same goes for coffee and tobacco. The literature, therefore, recommends a very cautious diagnosis in consumers of psychoactive substances.

All the authors note, in hyperactive patients, an earlier start of consumption, a dependence more quickly established and higher consumption levels. The prognosis is poor, with a higher number of treatment failures. However, these considerations should be weighed because the populations studied combine other risk factors for PPS abuse. These patients are particularly prone to impulsivity and personality disorders. Some authors consider that personality disorders and conduct disorder are confounding factors in the diagnosis of ADHD. Lee carried out in 2011 a meta-analysis of 27 studies on the subject. He was surprised by the few studies taking these comorbidities into account before concluding that there was an increased risk of substance abuse or dependence in ADHD patients. Most of the studies which take into account the role of conduct disorder and personality disorders (in particular of the antisocial type) in the genesis of addiction in subjects with ADHD ultimately find a risk identical to the general population. In this sense, two studies highlight a higher risk of having an addiction when the conduct disorder is added to ADHD and a lower risk when ADHD is isolated.

The transition from adolescence to adulthood is a period, particularly at risk of PPS abuse for ADHD patients. As a rule, this period is subject to a suspension of treatment, and the adolescent leaves the child psychiatric care structures. In parallel, like any adolescent or young adult, but very often in a more obvious way, he is in a search for experimentation and sensations. He is exposed to different psychoactive substances that he can feel relief from his attention difficulties, hyperactivity, and impulsivity.

These situations are very at risk of developing dependence. Prevention and information on addiction are necessary at this age, especially when a psychiatric pathology exists.

Disorders linked to substance use should be treated as a priority in relation to ADHD. According to Sobanski, one month of withdrawal is sufficient but necessary before treating ADHD, so as not to ignore an ADHD picture secondary, linked only to SPA consumption.

Eating Disorders

Bulimia and binge eating would be slightly more common in ADHD adults. Besides these two disorders, ADHD patients often have an uncontrolled eating rhythm. They find it hard to tolerate sitting at the table for a long period of time and regard meals as a waste of time. These patients will prefer to snack several times during the day, often commercially prepared dishes, to the detriment of good nutritional balance.

Sleep Disorders

ADHD adults complain of difficulty falling asleep, poor quality of sleep, and difficulty in staying awake during the day [21]. They struggle to have calm activities that promote sleep. They often get up after reviewing the things they forgot to do after they went to bed. Patients treated with psycho stimulants, although this may seem paradoxical, have a better subjective quality of sleep, and less nocturnal movements [22].

Libido Disorders

Some ADHD patients complain about libido disorders. They have difficulty concentrating, and their mind wanders during intimate moments with their partner. On the contrary, other patients develop their energy, their search for sensations and novelty in a sexuality which can sometimes involve risks (absence of contraception, occasional and multiple partners).

Personality Disorders

ADHD and personality disorders are sometimes difficult to distinguish. ADHD shares with the dependent personality, the difficulty of initiating projects or carrying out specific tasks alone, with the antisocial personality, impulsiveness and apparent indifference to the negative consequences for oth-

ers, and finally with the borderline personality, impulsivity, moodiness, and difficulty controlling emotions. For some authors, personality disorders appear as well as differential diagnoses as

comorbidities. Eighteen to 23% of young adults with ADHD have an antisocial personality disorder [23-25].

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