



BRIEF OVERVIEW ON EFFECT OF ASHWAGANDHA ON ATTENTION DEFICIT HYPERACTIVITY DISORDER IN CHILDREN

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ABSTRACT :

Attention deficit hyperactivity disorder (ADHD) is the most common neurobehavioral disorder of childhood and one among the most prevalent chronic health conditions affecting school age children, its symptoms include difficulty in staying focused, paying attention controlling behavior and hyperactivity.

The reason for ADHD as per ayurveda is vitiation of dhee (rational thinking), dhriti (retaining power of mind), smriti (memory) which causes abnormality and abnormal conduct resulting in improper contact of senses with their objective and give rise to inattention, hyperactivity, and impulsivity. The current practice of ADHD treatment is use of stimulant medicine which have various side effects, Hence Ayurveda gives an better treatment option in the form of its herbal medication. Ashwagandha is a drug having both vatashamaka and rasayan property. As ADHD is having features like Anavasthita chitta, manovibhram, buddhi vibhram, achara, chesta vibhrama, smriti vibhrama which shows predominancy of vatadosha hence, Ashwagandha is the drug of choice for this disease. This article deals with positive effect of ashwagandha in children with ADHD.

Keywords: ADHD, Ayurveda Ashwagandha, Ayurveda, CNS etc.

INTRODUCTION

Attention deficit hyperactivity disorder (ADHD) is the most common neurobehavioral

disorder Affected children's commonly experiences academic under achievement, problems with interpersonal relationship with family members and peers and have low self-esteem. It has been estimated that approximately 1/3rd of children's attending a pediatric clinic suffer not from physical but primarily from psychological aspect, which will have to be handled. According to WHO, mental diseases are to be increased by 50% by 2020 and become on international level one of the main cause of morbidity in children. This increase is regarded as one of the crisis of 21st century. Worldwide studies rewards prevalence of ADHD in children to be between 3% to 9%. Prevalance rates of ADHD in Indian subcontinents vary from 5% to 15.5% with male to female ratio ranging from 3 to 6.4:1. Indian Council of Medical Research reported prevalence rate of hyperkinetic disorders to be 1.6% among children aging between 4-16 years with higher rates in urban middle class (3.7%), than slum (1.2%) and rural areas (0.5%)

In ayurveda, regarding abnormal behaviours are discussed under features of vataprakriti, anavasthitha chitta, lakshanas mentioned under unmad like mano, buddhi, smriti, sheel, chesta and achara vibhrama. These features can be correlated with ADHD. The reason for ADHD as per ayurveda is vitiation of dhee (rational thinking), dhriti (Retaining power of mind), smriti (memory), which causes abnormality and abnormal conduct resulting in improper contact

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of senses with their objectives (asaatmya indriyaartha sanyoga) and give rise to inattention, hyperactivity, and impulsivity.

The current practice of ADHD treatment is use of stimulant medicines, which are not safe as they cause various side effects like cardiovascular events, sudden cardiac arrest, hypertrophic obstructive cardiomyopathy etc. Hence there is a need of better drug and other therapeutic approach with least adverse effect. Vatashamaka and rasayana drugs mentioned in ayurveda has been proven better option for management of ADHD. Ashwagandha is a drug having both vatashamaka and rasayana property. It is also balya i.e. it gives strength to sharirika and maansika bala.

According to modern point of view sitoindosides VII-X and withaferin isolated from aqueous methanol extract of roots of cultivated variety of *Withania somnifera* were studied on brain cholinergic, glutamatergic and GABAergic receptors in rats, inducing Acetyl cholinesterase (AChE) activity, thus having nootropic effect.

Attention deficit hyperactivity disorder as per modern view

Definition:

Attention deficit hyperactivity disorder is a neurodevelopment disorder characterized by persistent hyperactivity, impulsivity and inattention that significantly impairs educational achievement and/or social functioning.

Epidemiology:

There is no data available from India to the prevalence rates of ADHD. Data from western countries indicate that 8-12% of school-going children have ADHD.

Etiopathogenesis:

- Recent functional magnetic resonance imaging (MRI) studies indicate that the

disorder may be caused by atypical functioning in the frontal lobes, basal ganglia, corpus callosum and cerebellar vermis.

- Pharmacological studies have also implicated dysregulation of frontal-subcortical-cerebellar catecholaminergic circuits (dopamine and norepinephrine neurotransmitter systems) in the pathophysiology of this disorder.
- Family studies have provided strong evidence that genetics play a major role in conferring susceptibility to ADHD. Studies have indicated that low-birth weight and psychosocial adversity (for example, severe parental discord, low-social class, and foster placement) are predisposing risk factors for ADHD.

Ayurvedic view of Attention deficit hyperactive disorder

There is no clear cut description of any disorder matching that of Attention deficit hyperactive disorder. But, it can be correlated with various abnormal behavior's which are described in text as Anavasthitachittatva, Manovibhrama, Smritivibhrama, Sheelavibhrama, Chestavibhrama, Acharavibhrama (as explained in Charak samhita Unmaad Nidaan). In ADHD, mana (mind) is affected and as it is the function of Mind to have control on all sense organs and itself so, the function of all sense organs is hampered. Also, there is vitiation in all the components of Pragya (intellect) i.e. Dhee, Dhriti, Smriti. Dhee is the understanding and discriminating capability between beneficial and non-beneficial, Dhriti controls all the factors, whereas Smriti is the recollection of thoughts. Hyperactivity or impulsivity is result of Dhee vitiations which affects the capability of the child to differentiate between good or bad. it is hard



for him/ her to discriminate between useful and useless tasks. Dhriti vitiation prevents the child from staying at one task that leads to continuous purposeless tasks and smriti vitiation causes inability to learn from past experiences. Among Sharirikadoshas there is vitiation of vata, which is pravartaka (initiative factor) of all chesta (Activity) and controller of mind and all the senses.

Diagnostic criteria

The two main guidelines used for the diagnosis of ADHD are DSM-V and ICD-10. DSM-V criteria is followed more because of its broader spectrum.

DSM-V Criteria for ADHD- In making the diagnosis, children should have six or more symptoms of the disorder and people above 17 should have at least five symptoms.

Inattentive presentation:

- Fails to give close attention to details or makes careless mistakes.
- Has difficulty sustaining attention
- Does not appear to listen
- Struggles to follow through on instruction
- Has difficulty with organization
- Avoids or dislikes tasks requiring a lot of thinking
- Loses things
- Is easily distracted
- Is forgetful in daily activities

Hyperactive-impulsive presentation:

- Fidgets with hands or feet or squirms in chair
- Has difficulty remaining seated
- Runs about or climbs excessively (in children); extreme restlessness(in adults)
- Difficulty in engaging in activities quietly

- Acts as if driven by a motor; adults will often feel inside like driven by motor.
- Talks excessive
- Blurts out answers before questions have been completed
- Difficulty in waiting or taking turns
- Interrupts or intrudes upon others.

Combined inattentive and hyperactive-impulsive presentation:

- Have symptoms from both of the above presentations.

Modern management and its pitfalls

Behavior therapy and stimulant pharmacotherapy forms the basis of management of ADHD.

Psycho stimulant such as methylphenidate, amphetamines and its derivatives are first line Drug therapy for ADHD in modern medicine while second lines include Tricyclic antidepressants(TCA). These drugs improve some academic skills but their side effects such as loss of appetite, weight loss, tics, mites, social withdrawal and obsessive compulsive disorder limits their use. These drugs on prolonged use develop abuses and addiction. Behavior therapy is very much effective but time consuming, much more focus is given on parents behavior rather than Childs behavior.

Medhya drugs and vata shamaka drug therapies are main stay of treatment of ADHD as aetiopathogenesis points towards involvement of manashikadvsha (brain) and vatadosha (humors). Therefore, drugs which possess nootropic, cognitive, learning aid, neuroprotective & anticonvulsant properties are employed in ADHD.

Ashwagndha as an nootropic agent



Ashwagandha is well known Ayurvedic rasyana, and belongs to a sub-group of rasyana known as Medhyarasayanas. Medhya typically refers to the mind and mental/ intellectual capacity. Thus, medhyarasayana like Ashwagandha is used to promote intellect and memory.

Considering both modern and Ayurvedic point of view of pathogenesis of ADHD, Ashwagandha is useful.

As per Ayurveda,

“ अश्वगन्धा अनिलश्लेष्मशिवत्रषोथश्यापहा ।
बल्यारसायनीतिक्ताकशायोश्णातिशुक्रला” ॥

(भा.प्र)

Due to its Rasa, Guna, Veerya, Vipaka, Ashwagandha helps in eliminating Vata, by eliminating vata dosha it helps in managing ADHD.

As per modern point of view

The active principle of *Withania somnifera*, sitoindosides VII-X and Withaferin A (glycowithaolides) have shown an antioxidant effect in the brain and may be responsible for its diverse pharmacological properties. It improves the capability of brain by increasing the capacity of muscuranic receptors. As per literature, leaf and fruit extracts of *Withania somnifera* consists of mixture of sitoindosides VII-X and withaferin-A produces an increase in the cortical muscarinic acetylcholine capacity, which may partly explain cognition enhancing effect.

Studies have shown effect of sitoindosides that activity of AchE levels is enhanced in lateral septum and globus pallidus, where it is decreased in vertical diagonal band. Similarly, the activity of M1 cholinergic receptor binding is enhanced in lateral septum and frontal cortex, whereas M2 receptor binding is increased in frontal and parietal cortex region. The data suggests that compounds sitoindosides VII-X and withaferin preferentially

affect events in cortical cholinergic-signal transduction cascade. The increased cortical muscuranic acetylcholine receptor capacity may explain the cognition enhancing and memory improving effects of Ashwagandha.

CONCLUSION:

In a nut shell it is concluded that single herbal drug Ashwagandha can provide an ideal solution to ADHD affected children, which is absolutely side effect free and calm down anxiety opting modern stimulant medicine. Among all Ayurvedic herbs Ashwagandha in various forms is proved to control inattention, hyperactivity, impulsivity and distractibility. However more clinical studies are required to establish it in scientific world.

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