

**ATTENTION DEFICIT HYPERACTIVITY DISORDER AND ITS AYURVEDIC
MANAGEMENT – A REVIEW**Susmitha C.¹, Vinod R.², Dinesh K. S.³, Sreekumar N.⁴ and Jithesh M.⁵¹Manasikarogyam Project Medical Officer, Ramavarma District Ayurveda Hospital, Trissur.²Associate Professor, Dept. of Kayachikitsa, VPSV Ayurveda College, Kottakkal.³Professor & HOD, Dept. of Kaumarabhrthya, VPSV Ayurveda College, Kottakkal.⁴Rtd DMO & Spandanam Project Head, ACACC Purakkattiri, Kozhikkode.⁵Professor & HOD, Dept. of Kayachikitsa, VPSV Ayurveda College, Kottakkal.***Corresponding Author: Susmitha C.**

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ABSTRACT

In the context of neuro-developmental disorders such as Attention Deficit Hyperactivity Disorder (ADHD), there is a real need to understand the role of mind along with bodily factors in its psychopathology, leading to the manifestation. Characteristic descriptions of symptoms of ADHD including hyperactivity, inattention and impulsivity can be incorporated under the various areas in Ayurveda such as *unmāda* spectrum disorders, *mānasika doṣa* and *mānasika prakṛti* (psychic constitution and trait) and *sarīra doṣa* and *sarīra prakṛti* (bodily constitution and trait). The basic psychopathology in ADHD can be explained as the derangement of the mental functions and the faculties related with *manas* such as *dhī*, *dhṛti* and *smṛti*. Ācārya Caraka explained *mano vyāpāra* or the functions of *manas* as *indriyābhigraha* and *svanigraha*. ADHD symptoms when critically analyzed can be linked to the disease *unmāda* with various neuro-behavioural symptoms categorised under the eight factors known as *aṣṭa vibrama*. Causative factors, prodromal features, symptoms and treatment modalities are being explained as per the Ayurveda context. ADHD is characterized by the three core symptoms such as inattention, hyperactivity and impulsivity, which is to be explained as per the concepts of Ayurveda manifesting as *vāta-pitta pradhāna vyādhi* with *dhī*, *dhṛti* and *smṛti vibrama*.

KEYWORDS: ADHD, Ayurveda, *Manas*, *Prakṛti*, *Unmada*.**INTRODUCTION**

Ayurveda asserts that health or ill health, comfort or discomfort arises primarily in the mind, since it is considered to be the controller of all the senses as well as the body. The term *manas* is used in preference to mind in Ayurveda classics but it has broader functions as compared to mind and its processes. The *manas* is having core importance in the pathophysiology of any disease manifesting in our body or mind and both are interrelated as if hot vessel containing ghee transfers its heat causing the ghee to melt.^[1] Thus in the context of neuro-developmental disorders including Attention Deficit Hyperactivity Disorder (ADHD), the prime importance should be given to understand the role of mind along with bodily factors so as to explain the psychopathology.

In Ayurveda, variety of psychiatric conditions have been dealt under the term *Unmāda* spectrum disorders and is said to be the excited state of mind caused by aggravated *sarīra doṣa* as well as the *manasika doṣa*.^[2] This results in impaired functions of mind, intellect, consciousness, knowledge, memory, desire, manners, behaviour and motor functions of an individual collectively known as

aṣṭa vibrama (eight alterations in normal functions leading to causation of any psychiatric disease).^[3]

Pathophysiology of ADHD

Satva (mind), *ātma* (soul) and *śarīra* (body) are considered to be the tripods of life. Among them *satva* synonymous to *manas*, which is mentioned first in the sequential order, occupies very important place in this tripod and is considered to be the interlink that connects *ātma* and *śarīra*, resulting in their appropriate functioning.^[4] Also *manas* is said to be '*ubhayātmaka*' it is a dual faculty which has both sensory and motor functions.^[5] It can control as well as co-ordinate all other faculties and can get hold of it being connected to the soul. The basic psychopathology involved in the context of ADHD can be explained as the derangement of mental functions and the faculties related with *manas* such as *dhī*, *dhṛti* and *smṛti*. Caraka explained *manovyāpāra* or the functions of *manas* as *indriyābhigraha*, *svanigraha*, which means controlling the senses as well as itself.^[6]

Mānasaprakṛti and ADHD

Manasa prakṛti or the *satva* is formed right through the conception itself.^[7] *Sarīra* and *mānasa prakṛti* both influences each other. The description of *sātvika mānasa prakṛti* is that of an ideal and socially accepted behavior. Ācārya Caraka has opined *sātvika prakṛti* as *śuddha satva* while that of *rājasika* and *tāmasika mānasa prakṛti* involves a description of abnormal behaviors^[8] such as *raudra* (terrifying temperament) in *asura satva*, *amaṣṣiṇa* (intolerant/ impatience) in *rākṣasa satva*, *sahasa priyata* (fond of adventures) in *paisāca satva*, *anavasthitatva* (instability) in *matsya satva* are some of the features of psychological traits which is relevant in the context of ADHD. Even though we couldn't correlate ADHD directly to a specific disease, glimpses of features of *manasa prakṛti* can be considered so as to understand the symptoms.

Sarīra doṣa and ADHD

Vāta is considered as the most important doṣa as far as *manas* is concerned, among the three bodily humors.

Table 1: Major features of doṣa prakṛti that can be considered in ADHD.

Vāta Prakṛiti		
<i>Adhṛti</i>	Lack of control of mind	Su.Sa 4/63
<i>Atana</i>	Wandering too much	Su.Sa 4/63
<i>Avyavasthitamati</i>	Disorganized mind	Su.Sa 4/65
<i>Anavasthitātma</i>	Unsteady mind	Su.Sa 4/64
<i>Drutagati</i>	Quick walking	Su.Sa 4/64
<i>Alpasmṛti</i>	Short memory	Ca.Vi 8/98
<i>Anavasthita śira, pāṇi, pāda</i>	Unsteady head, hands and legs	Ca.Vi 8/98
<i>Atibahupralāpa</i>	Delirious, talkative	Ca.Vi 8/98, Su.Sa 4/63, A.H.Sa 3/85
<i>Sīgrasamrambakṣobha</i>	Quick action, getting irritated	Ca.Vi 8/98
<i>Sīgrarāgavirāga</i>	Lack of emotional control	Ca.Vi 8/98
<i>Cala dhṛti, smṛti, buddhi</i>	Unstable psychic faculty	A.H.Sa 3/85
<i>Na jitendriya</i>	Without self control	A.H.Sa 3/85
<i>Na dṛḍha</i>	Indefinite	A.H.Sa 3/85
Pitta prakṛiti		
<i>Kṣiprakopa-prasāda</i>	Short tempered, Mood swings	Su.Sa 4/64
<i>Kleśaasahiṣnuta</i>	Diminished adaptability	Ca.Vi 8/97
<i>Sāhasabudhi</i>	Impulsive nature	Su Sa 4/70, A H Sa 3/90

Caraka opines that '*kapha* is concerned with *jñānam*' and controls feelings, emotions, concentration, calmness, stability.^[13] *Tarpaka* and *avalambaka kapha* in their normal state confer knowledge^[14] and intelligence and it seems vitiated in ADHD. Due to their significant contribution in many of the higher intellectual functions, the *śārīrika doṣa* when vitiated eventually vitiates functions of mind.

Sarīra prakṛti and ADHD

All the Acāryas have explained the symptoms of *deha prakṛti* which includes physical, psychological symptoms. *Deha prakṛti* of the parents also exerts its influence on the psychic constitution of the child. Except *sama prakṛti* ie, constitution with equivalence of doshas, Ācārya has described that all the other six variants of *prakṛti* to be abnormal as there is definite predominance

of particular *doṣa* in them.^[15] Thus on the symptom wise analysis, psychic traits along with *sarīra doṣa*, *sarīra prakṛti* play an important role in the manifestation of disease.

Pitta which is related to the functions of *medha*^[10] and among the components of *pitta*, *sādhaka pitta* is mainly responsible for *medha* (intellect), *buddhi* (intelligence), *abhimāna* (self esteem) and the capacity that enables one to achieve one's own aspirations.^[11] Caraka describes the functions of *sādhak apitta* as *śaurya* (courage), *bhaya* (fear), *krodha* (rage), *harṣa* (elation of spirit), *moha* (delusion) etc.^[12] The functions such as concentration, response and other cognitive functions can also be attributed to *pitta*.

ADHD symptoms when critically analyzed can be correlated to the disease *unmāda* with various neuro-behavioural symptoms. When we scrutinize the symptoms of *unmāda*, in a child with ADHD, symptoms such as loss of control over senses in the form of reaction to an unwanted stimulus, loss of inhibitory functions is characteristic of *mano vibhrama*. When child has perverted intellect by which he cannot take right decision leading to impulsive or hyperactive behavior, it is resulting from *buddhi vibhrama*. Inability to perceive

experience of physical burns etc can be due to *saṃjñajñāna vibhrama*.

Due to *smṛti vibhrama* child doesn't remember past learned experiences and does things without control of senses and mind. Due to *bhakti vibhrama* the child shows excessive odd interests like pica, biting nails, watching TV etc. Due to *cheṣṭa vibhrama*, the child has abnormal, excessive activity like fidgeting, runs about in inappropriate situations. When the child has *acāra vibhrama* he/she may be having impaired learned socialization skills, following commands etc.^[3] Thus the cardinal symptoms of ADHD resemble features of *unmāda* with the doṣa predominance as *vata-pitta*.

CAUSATIVE FACTORS

The causative factors have to be explained under various headings:

1. Diet and behaviour of mother during conception
Carakā has mentioned *māturāhāra* (diet of the mother) and *mātuvihāra* (conduct of the mother) as the antenatal factors which may lead to deformities in the foetus. The foetus is nourished through *upasweda* and *upasneha* ie. the essence of diet which mother adopts.^[16] Therefore whatever diet the mother is having, affects the foetus directly. Especially when the pregnant women eats food which vitiates *vāta*, the vitiated *vāta* in turn causes *jaḍata*, deafness, dumbness and other disorders due to aggravated *vāta* in the fetus.^[17]

Behaviour of the mother (*vihāra*) at the time of pregnancy definitely has its own role on the psychological development of the child. Various unwholesome regimens during pregnancy (*garbhopaghātakara bhāvā*) and their adverse effects are clearly at the psychological level. For example mother who is *śoka nitya* (incessant stress during pregnancy) the child may develop fearful personality in adulthood or *bhīta*. Similarly if the mother consumes alcohol on daily basis ie, *madya nitya* the born child may become anxious or prone to various psychiatric disorders resulting from the reduced mental strength.^[18]

2. Daurhda Vimānana

When the *indriya* develops in the fetus, the *manas* of the growing *garbha* starts revealing its desire through the mother and this phenomenon is explained as *daurhda*. In case of non- fulfilment of *daurhda*, woman gives birth to a child who would be affected by deformities such as lameness, defective vision, blindness or mental deficiency.^[19] Antenatal stress is proven to be one of the important causes in developing ADHD.

3. Breast milk

Vāgbhaṭa has instructed that a woman with psychological abnormalities should not feed the child.^[20] Among the *panca kṣīra doṣa* mentioned by Ācārya Hārīta, *alpa kṣīra doṣa* can cause *alpa satva* in the child and *uṣṇa kṣīra doṣa* may lead *alpatva* at both physical and mental level in the child. It has been proved by

various research studies that breast milk plays a major role in the mental development of the infant since it offers a high tryptophan to neutral amino acid ratio, which controls brain serotonin synthesis.^[21]

4. Dietary factors

Āhāra has been also included among one of the *upastambha* at which health depends. Carakā explains *prajñā*, *medha*, *tushṭi* etc. as to be dependent on food. Modern researchers have recently established the relationship between diet and ADHD, as diet modification have been observed to provide better results in controlling the hyperactivity.^[22]

5. Environmental factors

Among the *sārīrika nidāna* different types of *abhighāta* are mentioned as the causative factors for mental illness e.g. injury to *sīmanta maṛma* is have a chance to result in *unmāda*.^[23] Among the *mānasika nidāna* generally negative emotions such as *īṛṣya*, *śoka*, *bhaya*, *krodha*, *māna*, *dveṣa* are considered as exogenous causative factors leading to the mental illness.^[24]

DISCUSSION

ADHD is characterized by 3 core symptoms such as inattention, hyperactivity and impulsivity, which is to be explained as per the concepts of Ayurveda.

Inattention

Dhṛti is the controlling factor of *manas*. In ADHD, due to the *dhṛti bhramśa*, *manas* is unable to sustain focus on particular *indriyārtha* and it is frequently shifting from one *indriya* to another, attending unwanted or irrelevant stimuli. Due to the impairment of the controlling factor (*dhṛti*) over the *manas*, the person may move to indulging irrelevant tasks and dangerous activities leading to inattention.^[25] *Vāta* is having the *guṇa* such as *calatva* (*alteration*) and *anavasthātva* (*instability*). Due to these properties in the exaggeration of *vāta*, 'manovibhrama' takes place, resulting in losing the control over the *indriyās* in sustaining the perception for a specified time so as to perceive a cognizable knowledge.

Hyperactivity

Hyperactivity includes behaviour described as restless and fidgeting, is denoted by the term of '*ceṣṭa*' in Āyurveda. Arunadatta explains *Ceṣṭa* as activity of body, mind and speech. Cakrapāṇi comments *ceṣṭa vibhrama* as improper activities.^[3] These movements or activities are the properties of *vāta* and it is the originator and executor of bio-motor functions through *vyana vata*. So when it becomes vitiated, *calatva* increases and it causes excessive *ceṣṭa of manas*, resulting in excessive *kāya ceṣṭa* and *vāk ceṣṭa* and coupled by the impairment of *dhṛti* resulting in undesirable acts depicting *ceṣṭa vibhrama*. This can also explained by *aṭana śīlata* (*wandering*) and *bahu bhāṣitvam* (*increased speech*) characteristic of *rajo doṣa*.^[26] So *vāta* mainly *vyāna vāta*

and *rajo doṣa* are the predominant factors responsible for the hyper activity of the child.

Impulsivity

Impulsivity is a sudden action that without careful thought and can be explained by the term as *outsukyam*. Hemadri explains as indulging in activities without thinking of what is good or bad and appropriate or inappropriate to the situation. In the case of *buddhi vibhrama*, the person gets lost himself in the *viṣayā* and takes sudden decisions without considering the consequences and situations i.e., a proper decisive cognition doesn't occur in response to a sensory stimuli. It is associated with the impairment of *dhṛti* that should control the particular *kaṛmendriya* from performing the impulsive act. *Smṛti vibhramśa* leads to inability of the child to learn from past experiences resulting engaging in dangerous activities etc. Thus *vāta* along with *pitta* mainly *sādhaka pitta* gets disturbed, resulting in the impulsivity.^[25]

PATHOPHYSIOLOGY

The *nija nidāna* or the endogenous factors of ADHD mainly the *sahaja* and *garbhaja nidāna* leads to *sthāna vaigunya* or the initiation of pathogenesis at the site of *manovahasrotas*. Among the five functional types of *vāta doṣa*, *prāṇa vāyu* controls the functions of *buddhi* and *mana*, while *udāna vāyu* controls speech and helps in recalling the past experiences and *vyāna vāyu* that governs the motor activities of the body, which are vitiated leading to the inattention, hyperactivity and impulsivity.^[27] Simultaneously *buddhi vaiśeṣika ālocaka* and *sādhaka pitta* gets vitiated which is the controlling factor of emotions such as *kṛodha*, *baya* etc.^[28] Vitiating of *kapha doṣa* mainly that of *tarṇaka kapha* which is responsible for *indriya tarṇa* leading to abnormalities of the functioning of various *indriyas*.^[29]

Due to the *sthānavagunya* which is already in existence in the *manovaha srotas*, along with the vitiated *doṣa* gets localised at *hr̥daya*, which is explained as the *cetanā sthāna*. This leads to the vitiation of *rajo doṣa* predominantly associated with *tamo doṣa* of *manas* leading to alter the *manovaha srotas* which in turn leads to vitiation of *sareera doṣa* as well. So these factors together lead to manifestation of the disease ADHD, with core symptoms of inattention, hyperactivity and impulsivity.^[30]

ASPECTS OF MANAGEMENT

Basic pharmacological measures are considered according to disease nature as ADHD is *sannipata vyādhi* with predominance of *vata* and *pitta*. Initially, the role of *agni* needs to be kept in mind and medicines that are *agni deepana* and *pacana* such as *guloochyadi kwatha*, *ashta choorna* etc are ideal. Role of *śodhana*, *śamana* and *rasāyana* therapy do have an imperative role in the management of ADHD. The use of *medhya rasāyanā* and *sneha dravyā* especially *ghṛta* are also beneficial in the management. Various studies have

proven the importance of *ghṛta* in the management of ADHD especially *naladādi ghṛta*, *kūshmanda swarasa ghṛta* etc.^[31] *Nasya* is being in use effectively due to its direct effect on the *indriyas* and the drugs which are *vata-pitta samana* such as *kshīrabala* is in practise for *nasya*.

The *medhya rasāyana* which includes *mandūkāparṇi*, *madhuyasht'i*, *gulooci* and *śankhapushpi* that are specifically indicated for improving the intellectual abilities are also advisable.^[32] *Bāhya prayogas* such as *mūrdhataila*, and *sarvāṅga abhyanga* is also capable of pacifying the *vāta* and *pitta doṣa*.

The specific treatment for mental disorders is being described as *jñāna*, *vijñāna*, *dhairya*, *smṛti* and *samādhi* under the category - the *satvāvajaya cikitsa*. This proves the basis for incorporation of behaviour modification therapy or training measures in the management of ADHD. Counselling of the parents, family members, teachers and child itself is of great impact. The basic steps to be followed in the management of ADHD includes physical energy reduction method, followed by making the child to involve into group therapy, making them to play a role thereby improving attention, concentration, awareness about surroundings.

CONCLUSION

ADHD is one of the most common paediatric mental illnesses, with an estimated prevalence of 5–8% in children and often persisting into adulthood with impaired inhibition, attention and executive functions, as well as altered sensitivity to reward contingencies, all of which may contribute to impulsivity, risky behaviour, poor social, academic and occupational skills, increased rates of substance abuse, and traffic accidents. Ayurveda is having an effective management strategy in addressing various neuro-behavioural and developmental disorders including ADHD. Various clinical trials have been conducted in addressing the symptoms of ADHD including pharmacological and non-pharmacological measures.

CONFLICT OF INTEREST

Nil.

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