

REVIEW ON SIGNIFICANCE OF MEDHYA RASAYANA FOR ADHD IN CHILDREN

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is most common neurobehavioural disorder of childhood, among the most prevalent chronic health condition affecting school-aged children, and one of the most extensively studied neurodevelopmental disorder of childhood. ADHD is characterized by inattention, hyperactivity, impulsivity; affected children usually experience academic underdevelopment, problem with interpersonal relationship with family members, peers, and low esteem. ADHD often occurs with other emotional, behavioural language and learning disorder. The prevalence of ADHD in India is about 4-12% with ratio 3:1 in male and female. Management of ADHD

in contemporary science includes only behavioral therapy, psychostimulant medications and has limited success, but in *Ayurveda* it can be managed by *Medhyarasayana* as mentioned in *Charaka Samhita*. *Medhyarasayana* strengthens the body, maintains normal body functions. It contains 4 drugs they are *Mandukaparni Swarasa* improves the learning and memory process, *Guduchi Swarasa* helps in good coordination of grasping, retention and recalling, *Yastimadhu Churna* brings the soothing effect, *Stairya* and *Dhrithi*, *Shankapuspi Kalka* enhances the alertness and quick understanding. Thus an attempt was made to explain the role of *Medayarasayana* for ADHD in children.

KEYWORDS: ADHD, Medhyarasayana.

INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is the most common neurobehavioural disorder of childhood characterized by persistent hyperactivity, impulsivity, and inattention

that significantly impairs educational achievement and social function.^[1] ADHD often co-occurs with other emotional, behavioural, language, and learning disorder. Evidence also suggests that for many people, the disorder continues with varying manifestations across the life cycle, leading to significant under and unemployment, social dysfunction and increased risk of antisocial behavior, difficulty maintaining relationships. No single factor determines the expression of ADHD; it may be a final common pathway for a variety of complex brain development process. Mothers of children with ADHD are more likely to experience birth complications, such as toxemia, lengthy labor, and complicated delivery etc. the diagnosis of ADHD is clinically established by review of symptoms and impairment.^[2]

MATERIALS AND METHODS

The classical text like *Charaka Samhita*, *Astanga Hridaya*, *Bhavaprakasha* etc and modern textbooks along with journals, articles and internet source were referred for details on ADHD, *Medhyarasayana*.

PATHOPHYSIOLOGY OF ADHD

Brain MRI studies in children with ADHD indicates a reduction or even loss of the normal hemispheric asymmetry in the brain, as well as smaller brain volumes of specific structure, such as the prefrontal cortex and basal ganglia. Children with ADHD have approximately a 5-10% reduction in the volume of these brain structures, MRI findings suggest low blood flow to the striatum. Functional MRI data suggest deficits in dispersed functional networks for selective and sustained attention in ADHD that includes the striatum, prefrontal region, parietal lobe, and temporal lobe. The prefrontal cortex and basal ganglia are rich in dopamine receptors. This knowledge, plus data about the dopaminergic mechanism of action of medication treatment for ADHD, has led to the dopamine hypothesis, which postulates that disturbances in the dopamine system may be related to the onset of ADHD.^[3]

CLINICAL MANIFESTATION

Development of the Diagnostic and Statistical Manual of Mental Disorder, fifth edition (DSM-5) criteria leading to the diagnosis of ADHD has occurred mainly in field trials with the children 5-12 years of age. DSM-5 identifies three presentations of ADHD.

The inattentive presentation is more common in female and associated with relatively high rates of internalizing symptoms (anxiety and low mood). The other two presentations, hyperactive-impulsive and combined, are more often diagnosed in males. Clinical

manifestation of ADHD may change with age. The symptoms may vary from motor restlessness and aggressive and descriptive behavior, which are common in preschool children, to disorganized, distractible, and inattentive symptoms, which are more typical in older adolescents and adults. ADHD is often difficult to diagnose in preschoolers because distractibility and inattention are often considered developmental norms during this period.^[6]

MEDHYARASAYANA

Medha means intelligence or power of retention and *Rasayana* means rejuvenation therapy. By *Rasayana* one gets the excellence of Rasa and apart from the excellence of Rasa, the individual is endowed with psychic excellence like sharp memory etc. *Charaka Samhita* described four *Medhyarasayana*.^[7]

They are *Mandukaparni* -(*Centella asiatica*) act as neuroprotective, brain growth promoter, inhibits the memory impairment induced by scopolamine through the inhibition of AChE.^[8]

Yastimadhu-(*glycyrrhiza glabra* Linn.) It increases the circulation into the CNS system, improves learning and memory on scopolamine induced dementia.^[9]

Guduchi (*Tinospora cordifolia*)- It is having learning and memory enhancing effect, antioxidant action, enhances the cognition in normal. It is useful for treatment of *Bhrama*, improving behavior disorders, mental deficit and IQ levels.^[10]

Shankapuspi (*Convolvulus leuicaulis* chois.)-effective in *Chittodvega* (anxiety disorder), reverses the social isolation stress-induced prolongation of onset and decrease in pentobarbitone-induced sleep, increased total motor activity and stress-induced antinociception in model.^[11]

PHARMACODYNAMICS PROPERTY OF MEDYARASAYANA^[12]

<i>Medyarasayana drugs</i>	<i>Rasa</i>	<i>Guna</i>	<i>Virya</i>	<i>Vipaka</i>
<i>Mandukaparni</i>	<i>Tikta</i>	<i>Laghu</i>	<i>Sita</i>	<i>Madhura</i>
<i>Yastimadhu</i>	<i>Madhura</i>	<i>Guru, Snigdha</i>	<i>Sita</i>	<i>Madhura</i>
<i>Guduchi</i>	<i>Tikta, Kashaya</i>	<i>Guru, Snigdha</i>	<i>Ushna</i>	<i>Madhura</i>
<i>Shankapuspi</i>	<i>Tikta</i>	<i>Snigdha, Picchila</i>	<i>Ushna</i>	<i>Madhura</i>

DISCUSSION

In *Ayurveda* *Medha* is described much vastly, it means power of grasping, retention, discrimination and recollection of knowledge and *Rasayana* means rejuvenation. In

Ayurvedic system many medicinal plants are classified as brain tonics or rejuvenators. In ADHD children main treatment goal is to repair mental impairment and behavioral modification by boosting the brain functions and make brain healthier. *Medhyarasayana* are group of medicinal plants described by *Acharya Charaka* to improve the memory and intellect by *Prabhava*. *Acharya Charaka* described four *Medhya Rasayana* e.g., *Mandukaparni Swarasa*, *Yastimadhu Churna*, *Guduchi Swarasa* and *Shankhapushpi Kalka* to improve the intelligence. These drugs can be used in single or in combinations.^[13] ADHD is generally associated with inattention hyperactivity impulsivity, memory loss, cognitive deficits, impaired mental functions etc. *Medhya Rasayana* is established to boost the brain functions and make the brain healthier also. They act as a vasodilator against the veins and small arteries in the brain.^[14] *Medhya* drugs activates the brain functions by improving the *Agni* and get better circulation of *Rasa* by cleaning the micro channel. Main function of *Medhya Rasayana* is to improve power of grasping, power of retention, power of discrimination and power of recollection.

MODE OF ACTION

Medhya Rasayanas drug are known to have specific effect on mental performance by producing neuro-nutrient effect and improve cerebral metabolism. These drugs support the intellect (*Dhi*) Retention power (*Dhriti*) and memory (*Smriti*).^[15] The pharmacodynamics action of *Medhyarasyana* having *Shita Virya* and *Madhura Vipaka* promotes *Kapha* and enhance “*Dharana Karma*” (retention of cognition) e.g., *Yastimadhu*, *Mandukaparni*, *Bramhi* and *Shankhapushpi*. *Medhyarasayan* having the *Ushna Viry* and *Tikta rasa* promotes *Pitta* and enhances *Grahana Karma* (grasping power and Memory).

CONCLUSION

Medhya Rasayana helps in improvement of memory power, sharpen the concentration, improves the grasping, without the side effect, tolerance or withdrawal. *Rasayana* concept of Ayurveda is believed to be useful to overcome challenging disease to modern medicine i.e., regeneration of tissue after disease condition like psychiatric disorders generally associated with inattention, hyperactivity, impulsivity, memory loss, cognitive deficit, impaired mental function etc.

Medhyarasayana helps to improves the intellectual, strengthen the body and maintain normal functions, *Medhyarasayana* helps in increasing circulation to brain and reduce the brain inflammation, activates formation of new cells and prevent the brain from free radical

damage. Hence it is useful in ADHD to improving cognitive function and behavioral performance.

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