Use of Capsule Brahmos In ADHD

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Parents and professionals faced with the challenging task of treating ADD and ADHD in children commonly face an unfortunate situation in which behavior problems at home and/or school have placed yet another pressure to opt for medication as the primary treatment.

There is little doubt that the majority of these 'medicated' children will have benefits in their attention span, behavior, and other components of their disorder. And yet, the benefits of medication come with built-in risks from misdiagnosis, side effects, abuse, and unforeseen long-term complications.

Although complementary and alternative therapies have shown promise in treating ADD and ADHD, the task of matching the patient to the most appropriate of these therapies remains elusive to many parents who have explored the options, as well as professionals. Many treating physicians are waiting for better studies, and conventional standards, to help establish appropriate treatment protocols.

The use of herbal medicine in the treatment of ADHD is of high interest to many families and professionals looking for alternatives to drug therapy. This interest has no doubt heightened in recent years due to problematic and near epidemic-proportion use of stimulants in children. The following review of an alarming trend to medicate ever-increasing numbers of school- and pre-school age children will help serve to emphasize the need for greater research into natural alternative treatments.

Conventional pharmaceutical treatment for ADD/ADHD commonly includes methylphenidate or amphetamine substances that have the highest abuse potential and dependence profile of all drugs that have medical utility.

According to statistical records, the production of methylphenidate by the drug manufacturers in the world has increased by more than 500 percent since 1991. The production of amphetamine has increased by over 2,000 percent in the same nine-year period of time. More than 50 percent of the methylphenidate and amphetamine prescriptions are written by pediatricians.

Ayurveda, which means "life sciences" in Sanskrit, is a holistic system of Indian medicine that evolved between 3000 and 5000 years ago. It is becoming more and more popular in the India and abroad and is still used by the majority of people in India to treat a variety of health problems, because not only is it time-tested for its safety and effectiveness, it is accessible and inexpensive.

Bacopa monniera is a main ingredient of Capsule Brahmos . It is used in the form of vacuum distilled extracts and is standardized. It contains all the two important alkaloids of Brahmi i.e Bacoside A and B. A part from that it contains Withania somnimera and N. jatamansi .All the major effects of capsule Brahmos are attributed to Bacopa monniera . Hence it is very important to review this herb in detail in the context of ADHD.

Bacopa monniera-named Brahmi in the Ayurvedic texts, probably for Lord Brahma, the Hindu creator of the world and originator of Ayurveda-is recognized as a powerful brain enhancer.1 It is still considered to be the greatest herb in Ayurveda for treating age-related mental decline, as well as for improving cognitive processes, including comprehension, memory and recall. It also enhances the crucial coordination of these three aspects of mental functioning, and helps increase one's ability to solve problems

BRAHMI has been used since time immemorial as a tonic for improving memory. In the gurukuls of ancient India there was the practice to regularly administer Brahmi to young students to help them learn sacred hymns.

Bitter and astringent in taste and light and slightly hot in effect, Brahmi is a pacifier of all the three doshas — mainly kapha and vata. Although people in India, especially ayurvedic physicians, knew about Brahmi's benefits thousands of years ago, modern research on it was conducted recently by the central Drug Research Institute, Lucknow. The trails have resulted in establishing that this long treasured herb, besides possessing antioxidant properties, also has the amazing ability to facilitate learning and enhance memory and concentration.

Ayurvedic tests describe Brahmi as medhya, a medicine that braces the mind to carry cognitive functions and intellectual pursuits. But ancient authors seem to believe that the healing effects of Brahmi extend far beyond mind and brain. Brahmi is not only a memory-booster and intellect-promoting herb; it is also a a muscle relaxant, an anti-convulsant, a blood purifier, and an anti-pyretic, carminative and digestive agent.

Though Brahmi is beneficial for maintaining the tridoshic balance, ayurvedic physicians believe it to be the drug of choice for counteracting the vitiated vata dosha — the factor which governs the nervous system.

Brahmi is known for its salutary effect in anxiety, depression, hypertension, sleeplessness, mental retardation, insanity and hysteria. Acharya Chakradutta has written that Brahmi is beneficial in all types of epilepsy. Ancient texts describe the use of Brahmi in a number of other disorders like biliousness, ulcers, splenomegaly, asthma, skin diseases and in general and senile debility.

Brahmi enhances the mind's ability to learn and concentrate. As it simultaneously calms and invigorates the mind, it is a very good medicine for reducing the effects of stress and nervous anxiety. It also helps maintain the clarity of thought and has proved effective in treating ADD (Attention Deficit Disorder) in hyperactive children, and age-related mental disorders in old persons

In a double-blind, randomized trial conducted at the Department of Pediatrics, BRD Medical College, Gorakhpur, India, 19 ADHD children, aged 8-10 years old, were given 50 mg. of Bacopa twice daily. 17 ADHD children received a placebo. After 12 weeks of treatment, the children took a battery of specialized tests. The data revealed a significant improvement in the areas of sentence repetition, logical memory, and pair-associative learning (matching things that go together; e.g., "test" and "grade") in all 19 children who took Bacopa. Evaluation did not occur until four weeks after stopping Bacopa usage, indicating that it had a lasting effect. .5

Now, thanks to this study and other numerous studies conducted by the Central Drug Institute (CDRI) in Lucknow, India, it is being introduced to the rest of the world and tested by scientists outside of India, who have found that Bacopa:

- Increases mental agility and alertness
- Improves memory
- Increases ability to learn new information and skills
- Calms the mind, while promoting relaxation
- Improves academic performance
- Helps concentration and focus

According to scientists at the CDRI, a number of compounds have been identified in Bacopa, including bacosides A and B, two chemicals that improve the transmission of

impulses between nerve cells in the brain. These bacosides regenerate synapses and repair damaged neurons, making it easier to learn and remember new information. Bacopa also increases serotonin levels, a neurotransmitter that promotes relaxation.7

Additionally, a recent study at the University of Catania, Italy found that Bacopa's antioxidants have a protective effect on human DNA fibroblasts (connective tissue cells), suggesting that this Ayurvedic herb may be useful in the treatment of diseases in which free radicals play a key role.8

We all know that an optimal level of nitric oxide (NO) is important. This is because NO is a key mediator in many body functions, most notably cardiovascular health and circulation. However, like most good things, too much nitric oxide can be as dangerous as too little.

There is growing evidence that excessive concentrations of nitric oxide (NO), generated within overly activated brain cells, might be involved in a variety of neurodegenerative diseases, such as Alzheimer's disease and epilepsy. A rodent study of brain cells exposed to toxic levels of nitric oxide showed that Bacopa inhibited the DNA damage that occurs in these diseases, suggesting that it may be significant in preventing/or treating them.12

Ayurvedic texts describe three aspects of mental ability: dhi (the power of acquisition or learning), dhriti, (the power of retention), and smriti (the ability to recall). When the three mental functions are not in balance, either individually or in their coordination with one another, then learning problems can crop up. Children who have learning problems often feel like failures in school, which leads to frustration and low self-esteem.

When these three mental functions are coordinated, then the child's memory is quick and bright. If impurities (ama) are obstructing the channels of communication between these three functions, then not only learning problems but behavioral problems can begin. The high incidence of Attention Deficit Hyperactivity Disorder (ADHD) in this country is a prime example of a learning/behavioral problem for millions of children. According to a study in Advanced Pediatrics, the frequency of ADHD among school children has been estimated to be as high as 20 percent.

To understand how Bacopa monniari can help nourish the memory and attention span in children, it's important to understand the three subdoshas involved in memory. These are Prana Vata, which governs the brain, sensory perception, and the mind; Sadhaka Pitta, which governs the emotions and their effect on the functions of the heart; and Tarpaka Kapha, which governs the spinal fluids, sinus

cavities, and sensory organs. In ayurveda, three types of imbalances of the mind are described, and each is associated with a different subdosha. We can correlate diminished learning ability combined with a hyperactive mind, with a breakdown in Prana Vata. A disturbance in Sadhaka Pitta is associated with a learning imbalance that carries over from childhood into adolescence and young adulthood -- the Pitta time of life. And imbalances in Tarpaka Kapha correlate with problems with learning that occur without hyperactivity involved.

Two chemicals in bacopa, bacosides A and B, improve the transmission of impulses between nerve cells in your brain. These bacosides regenerate synapses and repair damaged neurons, making it easier for you to learn and remember new things. Bacopa also increases level of serotonin, a brain chemical known to promote relaxation. The herb's ability to boost brain function while reducing anxiety may explain why it helps treat ADHD.

An unpublished double-blind study conducted in India in 1998 examined bacopa's effects on 8- to 10-year-old children with ADHD. In it, 19 children took 100 mg of the herb daily while 17 took a placebo. After 12 weeks, those who used the herb performed significantly better on learning tests than the placebo group.

The texts mention that Brahmi is both medhya and hridya, meaning that it supports both the heart and the mind. A study in the Journal of Ethnopharmacology shows that Brahmi improved acquisition, retention and delayed extinction of newly acquired behavior in rats.

Bacopa apparently provides a specialized cleansing and repair system for our nervous system. Its “memory chemicals” are unique saponins known as bacosides. Saponins are natural detergents present in many plants and are commonly used in soaps because of their foaming action. They help flush out damaging chemicals, such as free radicals and excess cholesterol, from the body, protecting molecules such as DNA from damage. The key ones in bacopa, bacoside A and B, are a mixture of saponins that further serve to repair damaged nerve cell connections by aiding protein synthesis, thereby allowing nerves to transmit signals more effectively. The bacosides, combined with many other chemicals in the plant — such as useful alkaloids, sterols and flavonoids — provide a well-stocked cache of brain and nerve foods to boost learning and memory.

The main feature of this ailment is a loss of nerve-cell function in the brain’s hippocampus, and animal studies indicate bacosides have antioxidant activity in the hippocampus as well as the frontal cortex and striatum. This suggests they may

help protect the integrity of the brain's nerve cells in these regions and perhaps deter the onset or development of the disease.

According to Ayurvedic practices, herbs typically are taken in combination with other herbs to offset toxicities or enhance benefits. Thus, bacopa in Capsule Brahmos is fortified with Ashwagandha and Jatamansi which are the herbs acting on CNS. Ashwagandha also has a potent anti oxidant property and exerts its effects on neuro transmitters thus potenting effect of Brahmi. In Capsule Brahmos ashwagandha exhibits a nootropic-like effect in naive and amnesic mice.. Clinical research has provided proof that such combinations work. (For example, an initial study reported recently in the journal *Human Psychopharmacology* found no evidence for enhanced cognitive benefits using bacopa plus ginkgo, at least over the course of a few weeks' treatment.).

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