

ROLE OF BRAHMI GHRITA LEHANA IN CEREBRAL PALSY

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ABSTRACT

Cerebral palsy is commonest motor disability affecting a large pediatric population worldwide. Children affected with the disease presents with developmental delay and motor deficits and may have one or more associated problems like mental retardation, seizures, feeding difficulties along with ophthalmologic and hearing impairments. In the ayurvedic literatures consumption of *ghrita* is highly recommended in the management of psychiatric disorders as it is having lipophilic action and it acts on brain so; it is well established that it can cross the Blood Brain Barrier (BBB). *Brahmi Ghrita* contains *Brahmi* (*Bacopa monneri*), *Vacha* (*Acorus calamus*), *Kushtha* (*Saussurea lappa*), *Shankhapushpi* (*Convolvulus pluricalis*) and *Purana Ghrita*, indicated for treatment of *Apasmara* (seizures) and *Graha* (syndromic disorders). This *ghrita* was first mentioned in *Charak Samhita* and in due course of time, this formulation was modified by various *Acharya* as per requirement of patients, nature of disease, *Desh*, *Kala*, etc. *Acharya Kashyapa* has mentioned *Lehanakarma* in *Lehadhyaya* in which *Brahmi Ghrita* is having *Medhajanana karma*. It is given with *Madhu* in unequal quantity in early morning before food. Multiple clinical and experimental studies have been conducted on *Brahmi Ghrita* which has shown its results in improved learning and memory, anticonvulsant action, CNS depressant activity, anti-amnestic actions, antinociceptive action, its effect on depression and in ADHD children and many are on its neurocognitive actions.

KEYWORDS: Cerebral palsy, *Brahmi ghrita*, blood brain barrier, *Lehanakarma*, Neurocognitive action.

INTRODUCTION

Cerebral palsy is a clinical presentation of a wide variety of cerebral cortical or sub-cortical insults occurring during the first year of life,^[1] which is characterized by a motor disorder resulting from a non-progressive insult to the developing brain. Its worldwide incidence is 2 to 2.5 per 1000 live births,^[2] while in India it is 2-4 per 1000 live birth.^[3]

Cerebral palsy of children can be correlated with paralysis of elder one in which muscular as well as neurological function should be hampered. There is no such a treatment which can cure the patient affected with cerebral palsy completely, but the living status of that patient will be ameliorated by treating them with supportive medication.

There are two types *doshas* in *Ayurveda*, *shaaririk* (physical) and *maansik* (mental). The imbalance in physical (*vata*, *pitta*, *kapha*) and mental (*raja* and *tama*) *doshas* can cause any kind of disorder. These disorders should be treated by *Ayurvedic* drugs which would show beneficial results.

As it is the neuro motor disorder, enhancement of the memory and the learning capacity should be done. *Brahmi* is the best drug having the property of enhancement of memory and concentration. It also acts on nervous system, so it is the best drug for CNS.

Charak Samhita has mentioned the use of *Brahmighrita* mainly for *Unmada*, *alakshmi*, *apasmara* and *papjanya vikaras* (diseases due to sinful acts).^[4] As per *Sushruta Samhita*, it is mentioned for *kustha*, *vishamajvara*, *apasmara*, *unmada*, *visha*, *bhutagrahavesha*,^[5] and according to *Ashtanga Hridaya* it is recommended for *unmada*, *kustha*, *apasmara*, infertility for enhancement of speech and memory.^[6]

Acharya Kashyapa has mentioned *Brahmi ghrita* in *Lehadhyaya*. *Lehanakarma* is one of the 16 *samskaras* mentioned by *Kashyapa*. As per the indication of *lehana*, it is the primary therapy which should be the part of a treatment in cerebral palsy. *Lehana* increases *Medha* (intelligence), *agni* (digestivepower) and *bala* (physical power).^[7] The *lehan* with Gold (*suvanprashan*) for 1 month will make the baby *param-medhaviand* for 6

months, *shrutadhara*.^[8] He has mentioned several drugs for *lehana*, of which *Brahmighrita* is the better one.^[9]

In the *Ayurvedic* literatures consumption of *ghrita* is highly recommended in the management of psychiatric disorders as it is having lipophilic action and acts on brain so; it is well established that it can cross the Blood Brain Barrier (BBB).

Ghrita (i.e. Lipids) are mostly consumed in the form of triglycerides. They form the major constituent in foods of animal origin and much less in foods of plant origin.^[10] Lipids play a major role in providing energy for muscle and body processes. It is energy dense, containing 9 calories per gram. Lipid plays an important role in insulation and protection. It keeps the internal body temperature normal despite of external temperature and protects the organ from injury.

Lipids are essential for proper digestion and absorption of food and nutrients. Bile acids produced from lipid in liver allow fat and water to mix in intestines and aid in the breakdown and absorption of food. Lipids are then needed to transport the fat soluble vitamins, A, D, E and K from intestine to blood stream. Then cells use these vitamins to maintain the health of eyes, skin, bones, teeth and blood.^[11]

Lipids provide structure and support for the walls of every cell also the communication between cells is dependant upon lipids in cell membranes.

Cholesterol is needed to produce important steroid hormones. Oestrogen, testosterone, progesterone and the active form of vitamin D are all formed from cholesterol and needed for various activities in the body such as regulation of calcium level in the body.

Brahmi is one of the medhya drug (nootropic action). *Brahmi ghrita* is polyherbal *ayurvedic* medicated *ghee* containing *Brahmi* (*Bacopa monneri*), *Vacha* (*Acorus calamus*), *Kushtha* (*Sassuria lappa*) and *Shankhpushpi* (*Convolvulus pluricalis*). The active compound in *Brahmi*, known as bacosides, positively influence brain cells that regenerate the brain tissues. In the newborn with hypoglycemic brain damage, the backside exhibit the neuron protective effect and protect it from hypoglycemic brain damage. *Brahmi* is the agent which stimulates and nourishes brain. It is used to improve memory and cures various brain related diseases. It improves learning ability, intellect, memory, concentration and brain function.^[12]

Another constituent in *Brahmi ghrita* is *vacha* having the active compound named *Acorin*, stimulates the brain and increases alertness and focus. It promotes cerebral circulation. It also enhances speech. *Vacha* acts as a remedy for mental stagnation of all degree.^[13]

Kushtha play an important role in *vatshaman*. It acts as a fine detoxifier as it has ability to flush out toxins.^[14]

Shankhpushpi is *Medhya* drug. It improves memory and intelligence. It reduces stress level and puts brain in relaxed state. It is beneficial in rejuvenating the brain and works as a psycho stimulant and tranquilizer.^[15]

Ghrita provides oleation to body in both manner i. e. internal and external. If it is taken internally, it enters the systemic circulation and can easily crosses blood brain barrier, thereby strengthens or stimulates the CNS. It aspires intelligence and good memory power.

Brahmi Ghrita has base as *Ghrita* i.e. Cow's *ghee* and acts as a beneficial therapeutic formulation by providing good absorption, assimilation and delivery to the target organs due to its lipophilic nature. In *Ayurveda*, It is stated that *Ghee* promotes memory, intellect and power of digestion etc. So *Ghrita* normalizes *doshas* and nourishes brain by its lipophilic action. These lipophilic medicaments are more helpful to regularize the function of intellect and mind as it crosses the blood brain barrier.

Brahmi ghrita lehana is given with *madhu* (honey) in unequal quantity in early morning before food when child is hungry. Honey contains a lot of antioxidants, several vitamins especially vit. B complex and vit.C with a lot of minerals.^[16] It is a natural humectants as it attracts and retains moisture. Its antioxidants property help to eliminate free radicals in the body. It is also a part of nutrient supply for growth of new tissue.^[17]

MATERIALS AND METHODS

Total 8 patients are selected randomly for this trial were children age ranging from 1 to 6 years.

Assessment of the patient was done by using **GMFCS** score.

Total 3 observations were done **GMFCS** on admission, after 2 months and after 4 months.

Brahmi ghrita is added with unequal quantity of *madhu* and is given early in morning before food when a child has urge to eat.

DRUG REVIEW

For the preparation of *Brahmighrita*, fresh *Brahmi* plants were collected. *Brahmi swaras* is prepared by crushing the small pieces till preparation of paste and then squeezed with clean cloth. It is used for *Bhavana dravya*. *Brahmi ghrita* is prepared by adding paste of *B. monneri*, *A. calamus*, *C. pluricaulis* and *S. lappa* in freshly prepared 3 litres juice of *B. monneri*. It is added in cow *ghee*. Above mixture was heated for 9 hrs and filtered after acquiring completion test (absence of sound when paste was put on fire, appearance of its own colour, smell

and disappearance of froth). In this way, *Brahmi Ghrita* was prepared.

Agewise Dose of Brahmi Ghrita

Age group	Dose (Once / day)
1 – 3 yrs	3 gm
4-6 yrs	6 gm

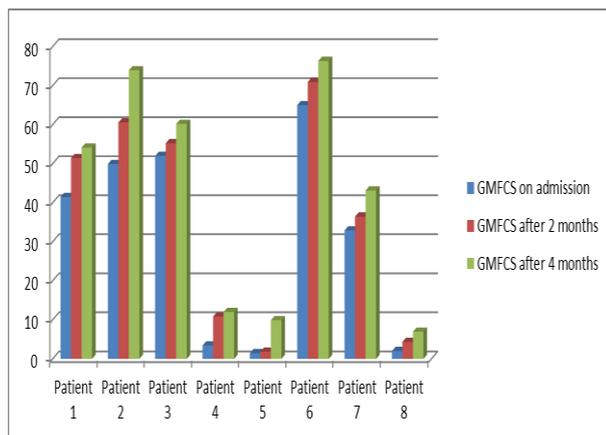
Drug administration

Brahmi ghrita is added with unequal quantity of *madhu* and is given early in morning before food when a child has urge to eat.

OBSERVATION

It was observed that the **GMFCS** score has been improved in all patients with the help of *Brahmi ghrita lehana*.

Name of patients	GMFCS on admission	GMFCS after 2 months	GMFCS after 4 months
Patient 1	41.48	51.41	54.14
Patient 2	49.91	60.55	73.94
Patient 3	51.99	55.23	60.21
Patient 4	3.43	10.86	12.01
Patient 5	1.45	1.83	9.92
Patient 6	65	70.93	76.32
Patient 7	32.90	36.45	43.15
Patient 8	2	4.35	6.97



DISCUSSION

Cerebral palsy can be compared with *vaataj vyadhi* in *Ayurveda* such as *Ekaangvaat*, *Ardhaangvaat*, *Sarvaangvaat*, *Phakka*. A complete cure of cerebral palsy children is not possible. But one should try for betterment of patient by any means. *Ayurveda* has mainly four nootropic drugs such as *Brahmi*, *Guduchi*, *Shankhpushpi* and *Yashtimadhu*. Other drugs are *vacha*, *jatamansi*, *gyotishmati*, *shatavari*, *ashwagandha*, etc. By using these drugs, the clinical trial should be taken that would be beneficial for improvement of compromised cognitive functions and also to improve their mental status and would build their confidence of living. Like

Brahmi ghrita, several *ghritas* have been formulated by *ayurveda* like *Samvardhan ghrita*, *panchagavyaghrita*, *kalyanakghrita*, *mahakalyanakghrita*. *Ghrita* crosses the blood brain barrier and carries the important components along with itself towards brain. Also *madhu* acts as *Yogvahi dravya* in *lehankarma*. It carries its own properties along with the properties of *ghrita*. Therefore it is used along with many *dravyas* as *anupana* because of its *sukshmaguna*.

Lipids are precursor to various metabolic processes. It increases vitamin D and calcium uptake. It is precursor to fat soluble vitamins and also provides insulation to the body and stores energy. In severe neurological disorders like seizures, ketogenic diet is advised in which proteins and lipids are present. It has lipophilic action and hence crosses blood brain barrier. Amino acids are very essential for child development.

CONCLUSION

Brahmi ghrita lehana is found beneficial in cerebral palsy children. It crosses blood brain barrier due to its lipophilic action. The *medhya* properties of contents of *Brahmi ghrita* has already been proven. *Brahmi ghrita* also has anticonvulsant & anti-amnesic action. It is also found beneficial in improving memory, learning and neurocognitive activity.

REFERENCES

- Shevell MI, Bodensteiner JB. Cerebral palsy: defining the problem. *Semin Pediatr Neurol*, 2004; 11(1): 2-4. <http://www.ncbi.nlm.nih.gov/pubmed/15132247> assessed on dated 25/09/2013 <http://dx.doi.org/10.1016/j.spen.2004.01.001> PMID: 15132247.
- Rosen MG, Dickinson JC. The incidence of cerebral palsy. *Am J Obstet Gynecol*, 1992; 167(2): 417-23. <http://www.ncbi.nlm.nih.gov/pubmed/1497045> assessed on dated 25/09/2013 [http://dx.doi.org/10.1016/S0002-9378\(11\)91422-7](http://dx.doi.org/10.1016/S0002-9378(11)91422-7).
- D Nagarajappa, Rana Laxmi. Home management of the child with cerebral palsy. *Nursing journal of India*, 2003; 94(10): 234-6. <http://www.i-md.com/docsearch/doc/16e9f10c-ae96-493d-8eca-107f17bc2026> assessed on dated 25/09/2013 PMID: 15310095.
- Pro. Ravidutta Tripathi Chaukhamba prakashan *Charak sanhita* part 2.Reprinted, 2013; 251.
- Dr. Brahmanand Tripathi Chaukhamba prakashan *Ashtang Hridaya* Reprinted, 2012; 924.
- Kaviraj Ambikadutta Shastri Chaukhamba prakashan *Sushrut sanhita* part 2.Reprinted, 2014; 155.
- Pandit Hemraja Sharma Chaukhamba Prakashan *Kashyap samhita hindi edition* Reprinted, 2013; 4.
- Pandit Hemraja Sharma Chaukhamba Prakashan *Kashyap samhita hindi edition* Reprinted, 2013; 5.
- Pandit Hemraja Sharma Chaukhamba Prakashan *Kashyap samhita hindi edition* Reprinted, 2013; 5.

10. K. Sembulingam, Prema Sembulingam, Essentials of medical physiology Sixth edition, 2013; 292.
11. www.healthyeating.sfgate.com>Diet>Fat.
12. www.globalhealingcenter.com.
13. www.dharmonyherbs.com.
14. www.planetaryurveda.com.
15. www.planetaryurveda.com>convolvulus.
16. www.omicsonline.org.
17. www.benefits of honey.com.