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CEREBRAL PALSY - AN AYURVEDIC COMPREHENSION

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ABSTRACT

Cerebral palsy is the leading cause of childhood disability affecting cognitive function and developments in approximately 1.5 to 3 cases per 1,000 live births It is a group of non progressive but often changing motor impairment syndromes which are secondary to anomalies or lesions of brain arising in early stages of its development. There is no similar disease or symptom complex in Ayurveda similar to Cerebral Palsy. It is considered as Shiro Marma abhigathaja bala Vata Vyadhi and classified under Janma Bala Pravritti Vyadhi. The diagnosis of Phakka roga is considered while approaching the cases of cerebral palsy. There is no specific treatment for cerebral palsy as there is no cure for it. All the treatment modalities focus around improving the functional capacity of the child. The Ayurvedic treatment of cerebral palsy focuses on treating the presenting symptoms and attempting to reverse the brain damage. Overall goal of treatment is to help the individual with cerebral palsy reach his or her greatest potential physically, mentally, and socially. It is to improve the quality of life by establishing optimal independence. Therapies like Abhyanga swedam, Nasyam, Pichu, Shirodhara, Pizhichil, Navara or mamsakizhi, Vasti along with oral drugs are the Ayurvedic options based on the presentation.

KEYWORDS: *Cerebral Palsy; Janma bala pravrutta Vyadhi; Phakka roga;.Vata Vyadhi; Shiro Marma Abhighata.*

INTRODUCTION

Cerebral Palsy is a group of permanent, but not unchanging, disorders of movement and /or posture and of motor function, which are due to a **non-progressive** interference/lesion, or abnormality of the developing/ immature brain. Here the word Palsy refers to Paralysis. It is the leading and most common Neuro – motor and non progressive disability in childhood affecting the cognitive function and developments in approximately 2.5 cases per 1,000 live births, with male, female ratio being 1.33:1.[1] It includes heterogeneous clinical states of variable aetiologies with severity ranging from a minor incapacitation to total handicap. Most of the cases have multiple neurological deficits and variable mental handicap. In fact, it is a presentation of cerebral cortical and Sub-cortical insults occurring during first year of life.

Mechanism of CP in a larger proportion remains unclear and a variety of Pathological lesions can be observed. The etiological factors of CP are diverse and multi-factorial. Factors may operate during Pre-natal, Peri-natal or in the Post-natal periods.[2] Pre-natal factors account for 75 – 80% cases while birth-trauma or asphyxia constitute for less than 10% of cases.[3] Its incidence increases with premature and low birth weight babies regardless of quality of care. Due to recent advances in neo-natal and obstetrics care, the cases of CP are increasing with increasing survival of pre-term and low-birth weight infants.

Presentations may change with time due to growth and developmental plasticity and maturation of Central nervous system.[4] Spasticity is the most common feature found in 80% of cases.[5] Affected limbs demonstrate increased deep tendon reflexes, tremors, muscular hyper tonicity, weakness with characteristic scissors gait with toe walking.

Chronic spasticity can lead to muscular stiffness, contractures, atrophy and fibrosis; there by making prone for orthopaedic problems like scoliosis, equines deformity, subluxation, dislocation of joints etc. Mental retardation is common in 60% of cases, visual impairment, and disorders of ocular motility common in 28% of cases. Increased presence of strabismus, amblyopia, nystagmus, optic atrophy and refractive errors are also seen. Hearing impairment occurs in about 12% of cases and epilepsy in 35 – 62% of cases as associated feature.

CLASSIFICATION

S.No.	PHYSIOLOGICAL	MOTOR	LIMBS AFFECTED	STATISTICS
1.	Spastic **(70-80%)**	Spastic **(70-80%)**	Monoplegia	About 10, 000 babies born each year will develop CP
2.	Ataxic **(6%)**	Non – Spastic **(30%)**	Diplegia	**Male : 57%** **Female: 43%**
3.	Dyskinetic **(6%)**	Mixed	Triplegia	Cognitive disability **(40%)**
4.	Hypotonic	---	Quadriplegia	Epilepsy **(35%)**
5.	Mixed	---	---	Vision impairment **(15%)**
6.	---	---	---	Developmental disability **(60%)**
7.	---	---	---	Limited Motor ability **(41%)**
8.	---	---	---	Requiring assistance to move **(31%)**
9.				Estimated life-time cost for CP care **1 million $**

S.No.	PREVENTION	TREATMENT	MODALITIES
1.	Prevention of Maternal Infections	**Cerebral palsy is chronic, permanent, non-life threatening, non-contagious, non-curable and non-progressive, manageable condition.**	
2.	Prevention of Peri-natal injuries	Prevention of contractures	Physiotherapy
3.	Prevention of foetal injuries	Maintaining range of motion	Speech therapy
4.	Good maternal care	Inhibition of spasticity	Rehabilitation therapy
5.	Good neonatal care	Achieving postural balance	Occupational therapy
6.	Early diagnosis	Suppression of abnormal movement	Stem – cell therapy
7.	Regular exercise	Facilitation of normal movements	---
8.	Prompt & adequate management	Symptomatic treatment for seizures etc..	---
9.	Attending all ante-natal appointments	**There is no cure for Cerebral Palsy and the main aim is to maximize the Functional Capacity of the Child.** **The team may include a Clinician, Pediatrician, Neurologist, Physiotherapist, Speech therapist and Education Psychologist**	
10.	Avoidance of alcohol, tobacco & other illegal drugs during pregnancy		

AYURVEDIC PERSPECTIVE

There is no similar disease or symptom complex similar to Cerebral Palsy in Ayurveda. Some consider it as, *Vata vyadhi*[6] and some as *Janma bala pravritta vyadhi*[7] (congenital disorder) while others state that *Shiro marma abhighata bala vata vyadhi*[8](disease caused by injury to head in children), few compare with *Bala samvardhana vikara*[9] (growth and developmental disorder of children) and some *Balaka pakshaghata*[10] (paralysis in children). This creates a major diagnostic and management dilemma in clinical Ayurvedic paediatric practice while approaching a case of CP.

Causative factors will produce undesirable effects on the foetus in-utero and they hamper the normal growth and development of the child and cause several diseases, deformities, and even death.[11]

ETIOLOGICAL CONSIDERATIONS

According to Ayurvedic etiolo-pathogenesis, Cerebral Palsy is viewed as disease with vitiation of all the three doshas with predominance of vata. More precisely, it is considered as Shiro marma abhighata janya Vata vikara manifesting clinically all over the body (Vatadhika sannipataja sarvanga roga) with primary lesion in brain (Mastishka). The important causative factors have been categorized under the following four groups.

GARBHA POORVA	GARBHA KALEENA	PRASAVA KALEENA	PRASAVOTTARA KALEENA
Tulyagotra Vivaha	Improper Garbhini paricharya	Vilambita avi	Vilambita prana pratyagama
Bija – Dushti[12]	Asatmya/ahitakara ahara Sevana	Akala pravahana	Graha dosha Nija/agantuja vikara
Kala – Dushti	Ahitakara Vihara	Moordha Abhighata	---
Ashaya – Dushti	Dauhridya apachara[13]	---	---
---	Jata harini	---	---
---	Abhighata	---	---
---	Dhumapana	---	---
---	Vata prakopakara kriya	---	---

LAKSHANA

Mandagni (lack of digestive capacity), *pangu* (paragplegia), *muka* (dumbness), *jadata* (psychomotor retardation), *ksheena mamsa* and *bala* (muscle wasting and weakness), *samsushka spicha*, *bahu* and *uru* (muscle wasting at gluteal, extremities and thigh region) *pramlaana adhara kaya* / *nischeshta adhara kaya* (paraplegia or weakness of both lower limbs), *pradushta grahani* (diarrhoea / loose motions)

EVALUATION

S.NO	LEVEL	FUNCTION
1.	**I**	Ambulatory in all settings
2.	**II**	Walks without aides but has limitation in community setting
3.	**III**	Walks with aides
4.	**IV**	Mobility requires wheelchair or adult assistance
5.	**V**	Depended for mobility

Gross **M**otor **F**unction **M**easure (GMFM) is used to evaluate

Gross Motor Function in CP. The original GMFM, an 88 item measure also known as GMFM-88, is divided into 5 domains, which are.

- **A** (lying and rolling)
- **B** (sitting)
- **C** (quadruped and kneeling)
- **D** (standing)
- **E** (walking, running, jumping)

The items are scored from **0 to 3**. All items are summarized and expressed as a value of total points for each dimension of GMFM-88. The GMFM-88 total score is calculated as the mean score of all five dimensions.[14]

PREVENTION

BEFORE CONCEPTION[15]	DURING PREGNANCY[16]	DURING LABOUR[17]	DURING NEONATAL PERIOD
Avoiding Consanguineal Marriages	Following Garbhini paricharya	Proper bearing-down efforts	Prana pratyagamana[18]
Observing the rules of Ritukala	Avoiding Garbhopaghatakara Bhava	Avoiding abhighata to head	Jata karma[19]
Avoiding pregnancy in very young and advanced ages	Honouring Dauhrida	Avoiding infections	Raksha karma[20]
---	Avoiding Dhuma pana, Madyapana and other intoxicants	---	Dhupa karma
---	---	---	Dharana[21]

TREATMENT

There is no cure for cerebral palsy, but treatment can help manage symptoms and increase independence. The team may include a doctor, a paediatrician, a speech therapist, and an educational psychologist, among others. Treatment depends entirely on individual needs. The aim is to help the child achieve as much independence as possible.

As per Ayurveda, each patient of CP needs an individualized approach as the aetiology and pathology are variable from patient to patient. *Agnimandya*, *Amaavastha*, *Kaphavastha* should be assessed and considered while planning the treatment protocol.

S.No.	PRINCIPLES OF TREATMENT	AREAS OF INTERVENTION	MODALITIES OF TREATMENT
1.	Prevent/ decrease/control complications	Relieve Muscle spasticity	Deepana
2.	Improve quality of Life	Control Seizures	Pachana
3.	Facilitate early rehabilitation	Prevent orthopedic complications like Hip-subluxation, Scoliosis, Equine's deformity etc.	Sroto-shodhana
4.	Improve/enhance functional capacity	Improve cognition/learning	Snehana
5.	Make the child self-dependent	Acquisition of better skilled movements	Swedana
6.	---	---	Virechana
7.	---	---	Udwartana
8.	---	---	Vasti[22]
9.	---	---	Medhya Rasayana[23]
10.	---	---	Physiotherapy
11.	---	---	Vata Shamana
12.	---	---	Brimhana
13.	---	---	Swarnaprashana[24]
14.	---	---	Aushadha sevana

AUSHADHA

S.No.	DOSAGE FORM	DRUGS
1.	Single	Ashwagandha, Shatavari, Mandukaparni, Brahmi, Shankhapushpi, Jyotishmati, Vacha, Twak, Yashtimadhu, Vidarikanda, Kushmanda, Haritaki, Guduchi, Vansha, Karavira, Tagara, Jatamamsi, Bala, Shanapushpi, Bhringaraja, Balamula, Ashwattha, Triphala, Chitraka, Trivrit, Danti, Nagabala, Pippali
2.	Taila	Rajata Taila, Maha Masha Taila, Bala Taila, Balashwagandha Taila, Dhanwantara Taila, Ksheerabala Taila, Prasarini Taila, Maharaja Prasarini Taila, Jyotishmati Taila, Maha Narayana Taila, Karpasastyadi Taila,
3.	Ghrita	Brahmi Ghrita, Kalyanaka Ghrita, Maha Kalyanaka Ghrita, Ashwagandha Ghrita, Shatavari Ghrita, Vidaryadi Ghrita, Panchagavya Ghrita, Samvardhana Ghrita, Panchatikta-Guggulu-Ghrita, Ashtanga Ghrita
4.	Guggulu	Yogaraja Guggulu, Kanchanara Guggulu, Kaishora Guggulu, Panchatikta Ghrita Guggulu, Lakshadi Guggulu
5.	Rasaushadha	Swarna Bhasma, Rajata Bhasma, Abhraka Bhasma, Ekanga veera Rasa, Vatakulantaka Rasa, Kumara Kalyana Rasa, Vata Vidhwamsini Rasa, Vata Gajankusha Rasa, Smritisagara Rasa, Brihat Vatachintamani Rasa, Tapyadi Loha
6.	Panchakarma Procedures	Abhyanga, Patrapottala Sweda, Shashtika- Shali -Pinda Sweda, Anna lepa, Murdha Taila, Virechana, Vasti, Nasya, Ksheera Vasti.
7.	Others	• Swarna + Vacha + Kushta with Ghrita • Swarna + Vacha + Matsyakshi with Ghrita+Madhu • Swarna + Vacha + Shankhapushpi with Ghrita+Madhu • Swarna + Kaidarya + Shweta Durva with Ghrita+Madhu

According to acharya Kashyapa, external oil massage with Raja taila and internally Amruta ghrita/ Kalyanaka ghrita / Shatpala ghrita or Bramhi ghrita is indicated after *virechana* (therapeutic purgation) in phakka roga. *Vasti* (medicated enema), *swedana*, *udwartana*, *senhapana* (internal oleation) are indicated in *Vata samsrushta* (vata dosha associated with other dosha's) phakka roga.

Acharya Kashyapa is the first among the ancient scholars, who had made the provision for physiotherapy and considered its importance in rehabilitation of crippled child. Practice of walking should be encouraged with the help of specially prepared tricycle (*Phakkaratha*) – Stand with three wheels. Similarly in Cerebral Palsy we can advocate use of a four wheeler made in a round shape (a walker) to assist and inculcate the faculty of walking.[25]

CONCLUSION

Cerebral Palsy is a syndrome like presentation rather than an individual disease entity believed to arise from an injury or insult to the developing foetal brain. This group of disorders affects muscle tone, movement, and motor skills (the ability to move in a coordinated and purposeful way).

Management of cerebral palsy always remained a quest for the physicians all over the world. Even with introduction of newer and better possible ways to improve the functions of the child, it still remains a challenge. Overall goal of treatment is to help the individual with cerebral palsy reach his or her greatest potential physically, mentally, and socially. It is to improve the quality of life by establishing optimal independence.

There is no similar disease or symptom complex in Ayurvedic science that can be taken as synonym of Cerebral Palsy. Its diagnosis, approach to treatment are based on the considerations of aetiology, pathology and clinical manifestations.

Though it is having no definite proven therapeutics, recent studies show that Ayurveda with its treasure of herbal drugs, Panchakarma procedures can provide an alternate, effective treatment option in the management of cerebral palsy and its associated problems through their neurogenic and neuro vitalising capacity.

There is no effective treatment for the underlying brain damage formulated till date. Though cerebral palsy may not be fully cured, Ayurvedic treatment can definitely help to reduce disability and improve the functioning of the affected individual to a great extent as they can structural re-organization of damaged neurons and stimulation for better functional recovery.

Treatment depends entirely on individual needs. Repetition of therapies in small courses either individual or in combination intermittently will yield great benefit and stands as long term support for Cerebral Palsy child. The maximum benefit can be achieved if Ayurvedic procedure modalities are incorporated with physiotherapy in early intervening period.

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