

## MANAGEMENT OF CEREBRAL PALSY WITH SAMVARDHANA GHRITA AND CERTAIN AYURVEDIC PROCEDURES - A CLINICAL STUDY

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### ABSTRACT :

**Background:** WHO estimates that about 10% of the world population and 3.8% of the Indian population have some form of disability. Among them the prevalence of Cerebral Palsy is 3 per 1000 live births. **Aim:** To assess the efficacy of *Samvardhana Ghrita* with *Udvardana* and *Abhyanga* in Cerebral Palsy. **Materials and Methods:** In this study, 8 patients completed the treatment. *Samvardhana Ghrita* was given orally for 62 days with *Udvardana* (5days), *Abhyanga* (5days), followed by *Nadi Swedana*. Method of the study is simple random sampling. **Result:** Improvement in growth (Weight, Height and Chest Circumference), developmental milestone (Neck Holding) and motor component (muscle bulk and Power) were observed. This study shows that improvement was observed in 25% patients. **Conclusion:** Though disease is not curable, but through Ayurvedic management protocol can show a better direction by improving the quality of life of those children.

**Key words:** Abhyanga, Cerebral Palsy, Samvardhana Ghrita, Udvardana.

**INTRODUCTION:** Cerebral Palsy (CP) is the leading cause of disability in children, making them physically and mentally handicapped and socially apart.<sup>[1]</sup> Cerebral Palsy is not a single disease but it is a symptom of complex. Cerebral Palsy is caused by damage to the motor control centers of the developing brain and can occur during antenatal period (about 75 percent), during childbirth (about 5 percent) or after birth (about 15 percent) up to age of three year. In Ayurveda no obvious cause found in Cerebral Palsy but some conditions found discrete in classical texts at different places like *Pangulya* (Diplegia), *Mukatva* (Speech or language disorder), *Jadatva* (inability to do motor activities), *Ekanga Roga* (Monoplegia), *Sarvanga Roga* (Quadriplegia), *Pakshaghata* (Paralysis), *Pakshavadha* (Hemiplegia) etc, under the group of

*Vatavyadhi*<sup>[2]</sup> Contributory factors are like inappropriate *Ritu*, *Kshetra*, *Ambu* and *Bija*,<sup>[3]</sup> *Dauhrida Avamanana*,<sup>[4]</sup> presence of *Garbhopaghatkarbhava*,<sup>[5]</sup> incompatible *Garbha Vriddhikarabhava*<sup>[6]</sup> and improper following of *Garbhini Paricharya*.<sup>[7]</sup>

The global incidence of Cerebral Palsy is 3:1000. It is estimated that people with visual, communication and loco-motor disabilities number at least 14.56 million or 1.9% of the total population of India. This figure covers only people who are profoundly disabled and does not include moderate to mild disabilities. There are 25 lakh of Cerebral Palsy children in India.<sup>[8]</sup> It has been reported that children with Cerebral Palsy and their care taker have impaired health related Quality of Life (QOL).<sup>[9]</sup> The degree of impairment of QOL correlated with the severity of the

condition.<sup>[10]</sup> It is believed that Cerebral Palsy is also one of the most common chronic disabling childhood conditions affecting the QOL.<sup>[11]</sup> Ayurvedic protocol of management can enhance the quality of life of the suffering child. So here *Samvardhana Ghrita* with *Udvardana* and *Abhyanga* were followed in the management of Cerebral Palsy.

#### MATERIALS AND METHOD:

Total 8 diagnosed patients of Cerebral Palsy (CP) attending from Kaumarbhritya Department completed the research work. Study was started after obtaining Ethical Clearance from the Institutional Ethics Committee, Ref. PGT/7-A/Ethics/2012-13/1964 and after taking written consent of parents of CP patients. Study Design is randomized simple sampling method and Study Approach is clinical study of modern disease with Ayurvedic treatment modality was adopted.

#### Inclusion criteria:

1. Age group - 1 year to 10 years of both sexes.
2. Children with severe type of the disability (Gross Motor Function Classical System Score up to level 5) were included in study.

#### Exclusion criteria:

1. Children with major congenital disorders like cardiac anomalies, cleft lip or palate, congenital dislocation of the hip and talipes.
2. Children with other diseases like diabetes, tuberculosis, acute infection etc.

#### Laboratory Investigations:

- **Blood** : Hemoglobin (Hb), Total Leucocytes (TC), Differential Leucocytes (DC), Erythrocytes Sedimentation Rate (ESR), C-Reactive Protein (CRP)
- **Urine** : Routine and microscopic
- **Stool** : Routine and microscopic

#### Trial objects:

**Drugs:** *Samvardhana Ghrita* (Table no. 1)

**Procedures:** Patients received *Udvardana* with *Yava* and *Kulattha* for 5 days *Abhyanga* with *Bala Taila* + *Nadi Sweda* (20min.) for 5 days with 16 days of interval. Such 3 courses were repeated.

(For internal medication *Samvardhana Ghrita* was given for 62 days)

Dose of *Samvardhana Ghrita* was determined by using reference of *Sharngdhara Samhita*.<sup>[12]</sup> (Table no. 2)

**Sahapana** : *Madhu*

**Follow up period** : 2 months

Table 1. Ingredient of *Samvardhana Ghrita*

No	Ingredients	Latin name	Part used	Qty
1.	<i>Khadira</i>	<i>Acacia catechu</i> Willd	Heart wood	1/7
2.	<i>Prishniparni</i>	<i>Pseudarthria viscida</i> Desv	Whole plant	1/7
3.	<i>Syandana</i>	<i>Ougenia dalbergiodes</i> Benth	Stem Bark	1/7
4.	<i>Bala</i>	<i>Sida cordifolia</i> Linn	Whole plant	1/7
5.	<i>Atibala</i>	<i>Abutilon indicum</i> Linn	Whole plant	1/7
6.	<i>Kebuka</i>	<i>Costus speciosus</i> Smith	Rhizome	1/7
7.	<i>Saindhav</i>	Sodium Chloride	-	1/7
8.	<i>Kshira</i>	Milk	-	1
9.	<i>Ghrita</i>	Ghee	-	½
10.	<i>Jala</i>	Water	-	4

**Table 2. Age wise dose of Samvardhana Ghrita**

Age group	Dose (Once / Day)
1-3 yrs.	2.5 gm
4 - 7 yrs.	6 gm
8 - 10 yrs.	9.5 gm

**Assessment Criteria:**

- Centers for Disease control and prevention (CDC) grading [14] for motor milestones, suitable scoring pattern was prepared for Fine Motor, Language and Personal and Social milestones,
- Ashworth Scale [15] to assess spasticity,
- Muscle Power grading, Manual Ability Classification System (MACS) [16] to assess the function of upper limb,
- Gross Motor Functions Classification System (GMFCS) [17]
- Activities of Daily Living score (ADL) [18] was taken as assessment criteria to observe the effect of therapy.

**Table 3. Assessment of total effect of therapy**

<b>Complete Remission</b>	100% improvement of clinical signs and symptoms.
<b>Marked Improvement</b>	More than 75% to 99% improvements of clinical signs and symptoms.
<b>Moderate Improvement</b>	More than 50% to 75% improvement of clinical signs and symptoms.
<b>Mild Improvement</b>	More than 25% to 50% improvement of clinical signs and symptoms.
<b>Improvement</b>	More than 10% to 25% improvement of clinical signs and symptoms.
<b>Unchanged</b>	0 to 10% improvements of clinical signs and symptoms.
<b>Worsened</b>	Less than 0% worsened of clinical signs and symptoms.

**STATISTICAL ANALYSIS:**

Assessment of objective parameters paired ‘t’ and student unpaired ‘t’ test were adopted and software was Sigmastate 3.5.

**OBSERVATIONS:** Total 8 Patients completed the present study. In the clinical study maximum number of (45%) of the Patients belonged to age group of 1-3years and 4-7years. 89% were males. Majority of them belonged to Hindu religion (78%), no one (100%) have started education. In antenatal history Hyperemesis gravidarum (33%), infection (33%) and hypertension (22%), mental stress (11%), Oligohydramnios(11%) and convulsion(11%) were observed.

Maximum patients were delivered in hospital(89%), LSCS (33%), Full term (78%), Preterm(22%), normal Birth Weight (67%), Low birth weight (33%), delayed cry after birth (78%), convulsion and fever (both 67%), meconium aspiration (22%), birth asphyxia(44%) and cyanosis and pathological jaundice (11%). Hospitalization was required (78%), Resuscitation (78%), according to feeding pattern during neonatal period Breast fed (22%) and Breast + bottle feeding (78%).Spastic CP (67%), Hypotonic (33%), Quadriplegic (89%), Diplegic (11%), severe type of CP (78%) and moderate type (22%). The signs and

symptoms reported included, developmental delay, feeding problem, language impairment(100-100%), hearing problem(11%) and mental retardation(67%), Spasticity(67%), contractures (22%), convulsion(44%), and abnormal movements(22%) were observed. Impaired co-ordination, impaired orientation (100%- 100%), and poor head growth (Microcephaly) were found in (56%) patients, recurrent respiratory tract infection(56%), Bowel control Not Achieved (65%), Bladder control not achieved (75%), Feeding

Difficulties(67%), Excessive salivation (44%), Constipation (56%), Liquid(11%), semisolid(89%). Proper immunization (89%), not immunized (11%) joint family (56%) and nuclear family(44%). Age of conception of mothers of the patients belong to age between 19-25 years(100%) and fathers of patients belong to age between 21-28years(100%). In Parental history, Primiparity (67%), H/o Consanguinity (22%). use of anti epileptic drug (AED)(67%) and Muscle relaxant (44%), physiotherapy was taken by 22% of patients.

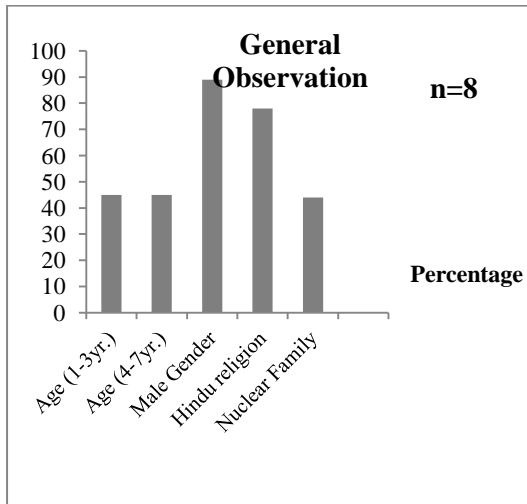


Figure 1: General Observation

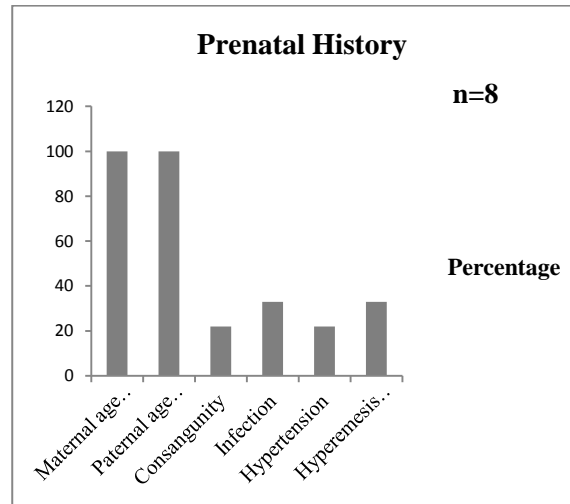


Figure 2: Prenatal History

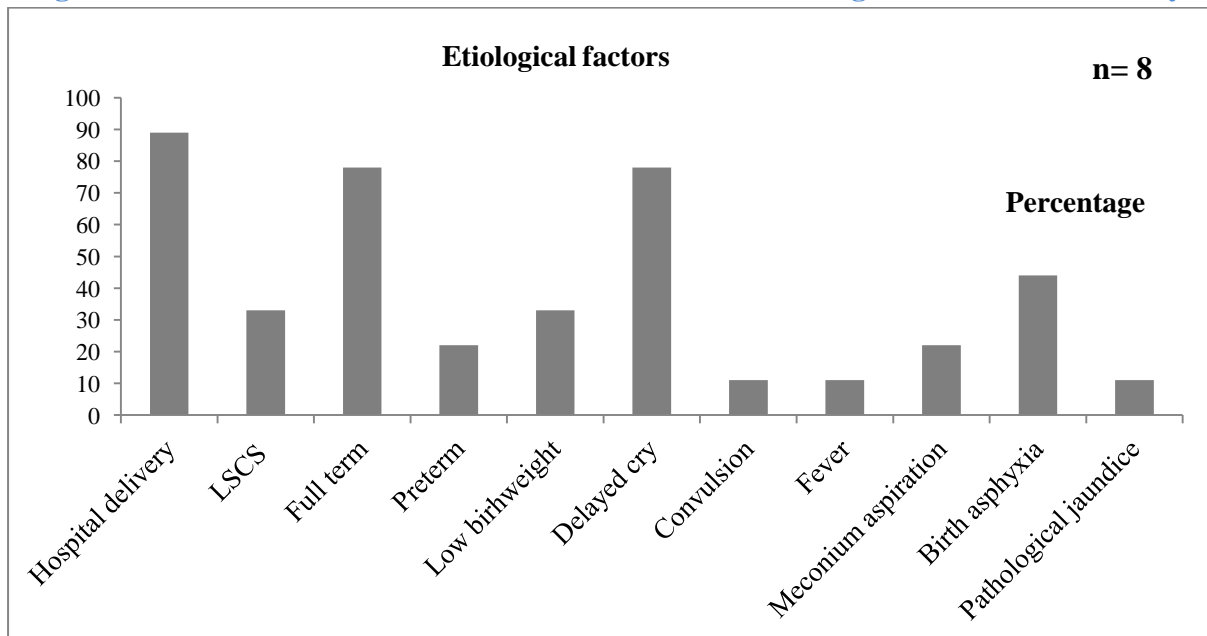
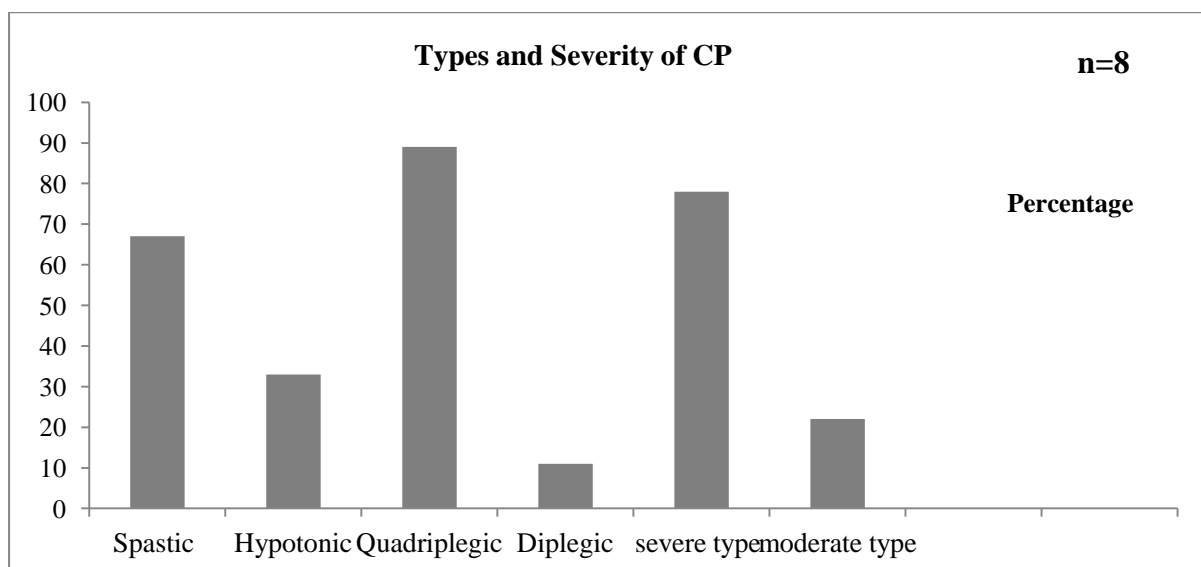


Figure 3: Etiological factors



**Figure 4: Types and Severity of CP**

**RESULTS:** In Overall effect of therapy improvement was observed in 75% patient [improved (>10-25%)] and unchanged (0-10%) was observed in 25% patients.

**Effect of Therapy:**

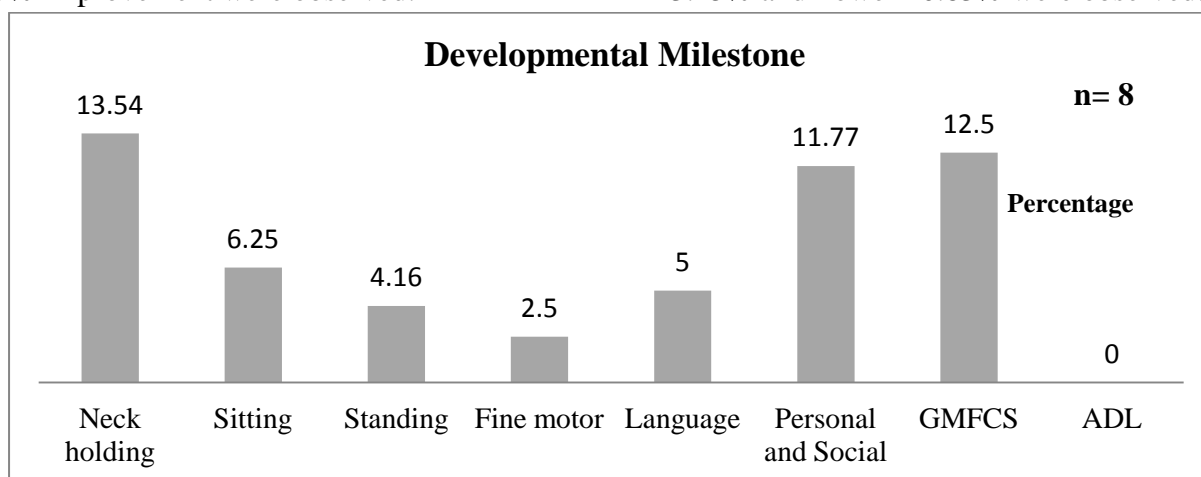
**Developmental milestone:** In the study neck holding, sitting, standing, fine motor, language, personal & social, and GMFCS 13.54%, 6.25%, 4.16%, 2.5%, 5%, 12.5%, 5% improvement were observed.

**Anthropometrical measurement:**

Improvement in Length 4.81%, Weight 0.23% and Mid arm circumference 0.40% improvement were observed and there was no improvement in Head circumference, Chest Circumference and Mid thigh circumference.

**Motor system components:**

Improvement in Muscle bulk 12.5%, Tone 23.15% and Power 20.83% were observed.



**Figure 5: Developmental Milestone**

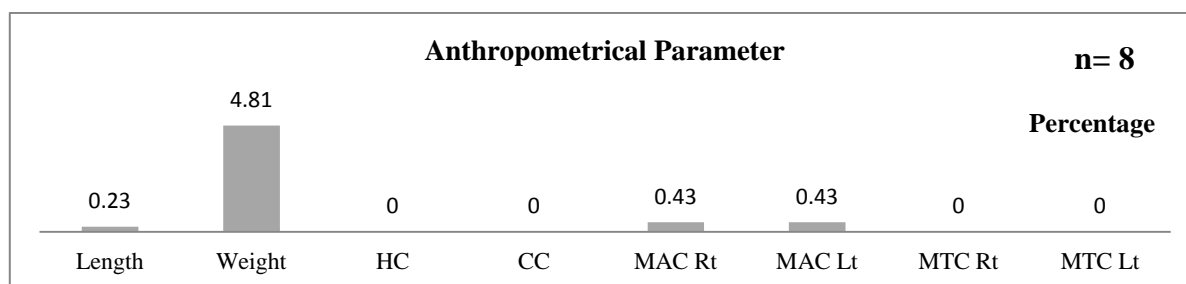


Figure 6: Anthropometrical Parameter

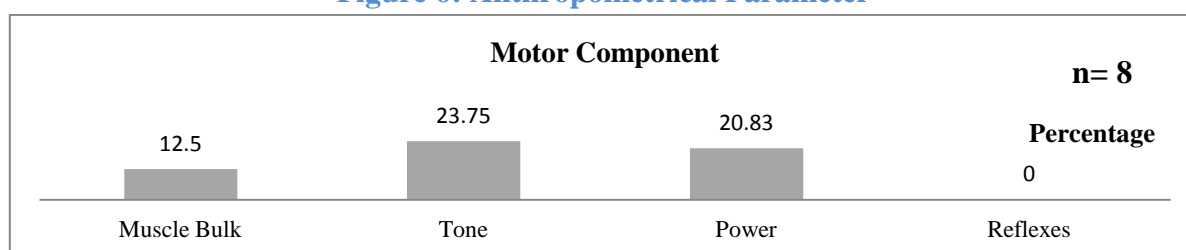


Figure 7: Motor Component

**DISCUSSION:** Cerebral Palsy (CP) is the leading cause of disability in children, making them physically and mentally handicapped and socially apart.<sup>[19]</sup> Disabled children are of great concern to the family as well as the society. In this study mainly spastic CP were observed. Spastic CP the most common type, occurring in 70% to 80% of all cases.<sup>[20]</sup> Infection, Trauma, Vaginal bleeding, Hypertension, Convulsion, Hyper emesis and Oligohydramnios, Mental stress, Hypertension, were observed during antenatal period. In natal history Meconium aspiration, birth asphyxia, septicemia, convulsion, fever, jaundice, cyanosis, delayed cry etc. were observed. These all maternal antenatal and natal factors are responsible for developing Cerebral Palsy. Respiratory, Digestive, Mental, Dietary problems were found in CP children which effects on the growth, development, and health of children. In this present study developmental delay, feeding problem, language impairment, vision problem, hearing problem and mental retardation, Spasticity, hypotonic, contractures, convulsion, and abnormal movements were observed in

patients respectively. Role of *Vata* in etiology and disease presentation; improvement with its treatment protocol puts the disease entity nearer to *Vata Vyadhi* or *Vata* predominant condition. Multisystem involvement in this disorder needs multidisciplinary approach using drugs having multi factorial effect. The selected Ayurvedic treatment modality is effective in relieving the signs and symptoms and thus reducing the disability in children with CP.

**Probable mode of Action of Samvardhana Ghrita:** *Samvardhana Ghrita* is the drug probably having such properties mentioned by *Acharya Kashyapa* for the rapid growth of healthy child and treatment of *Pangu* (Lame), *Muka* (Dumb), *Ashruti* (Deaf) and *Jada* (Mentally deficient / Imbecile) child.<sup>[21]</sup> Ingredients of *Samvardhana Ghrita* having *Kashaya*, *Madhura* and *Lavana Rasa*, *Guru Guna*, *Sheeta Virya* and *Madhura Vipaka* which are opposite to the properties of *Vata*. *Guru- Snighdha Guna* and *Tridosha Shamaka* property further add to *Vata Shamana*.<sup>[22]</sup> Main causation of *Vata* is observed and with the use of this *Ghrita* probable correction takes places at vitiated

Vata level and thereby improving in these parameters and clinical signs and symptoms of Cerebral Palsy. *Medhya* property of *Samvardhana Ghrita* has also improved Personal & Social milestone in this study.

**Probable mode of Action of Udvartana, Abhyanga and Swedana:** Ayurvedic procedures have a great role in management of CP. Purvakarma of Panchkarma therapy, use of medicine by external route gives good result. It increases the muscular strength and nourishes the full body. *Udvartana*, *Abhyanga* and *Swedana* should be given as a *purva karma*. *Udvartana* with *rukshana* effect removes vitiated *kapha* and *ama dosha*, clears the orifices of hair follicles and improves lymphatic and blood circulation which is helpful to absorption of the drugs to the target site. *Mrudu*, *Ushna* and *Sukshma Guna* of *Taila* have aided to relieve the spasticity. The drug (*Bala Taila*) is also considered to have *Balya* and *Brumhana* property, which provides nourishment to the tissue and promotes strength, improves digestion and plumpness of the body. This study shown increased muscle bulk, power and diminished muscle tone through *Abhyanga* procedure. *Swedana* pacifies the *vayu*, which causes rigidity and contracture due to its *Ruksha* and *shita guna* and *swedana* removes it by its *ushna guna*, *swedana* can also increase the *Dhatvagni* level, thus digesting *Aama dosha*. Due to *swedana* vasodilatation occurs, there is an increased blood flow through the area so that the necessary oxygen and nutritive materials are supplied and waste products are removed. Contracture, stiffness, spasticity etc get immediately alleviated and the body is softened by the administration of fomentation therapy.

**CONCLUSION:** Cerebral Palsy is entity nearer to *Vata Vyadhi* or *Vata* predominant condition. Multisystem involvement in this disorder needs multidisciplinary approach and using drugs having multi factorial effect. This study has shown good result in improving in motor and sensory development. The selected Ayurvedic treatment modality is effective to reduce the signs and symptoms and disability of CP children. But a long term treatment protocol can give more result in this condition.

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