



## **An Ayurvedic Approach for The Management Of Non-Progressive Neuromotor Disorder (Cerebral Palsy).**

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### **Abstract:**

In this advanced era, every moment man is achieving more and more success in finding a solution for the problems related to mankind. Despite very fast development in the field of medical technology, the rate of birth of physically and mentally disabled children is increasing day by day; which is posing a great challenge to the aim of a healthy society. The present study deals with those special children with positive hypothesis for efficacy of Ayurvedic treatment. This work

has been initiated with the intention of providing some benefits by giving possible improvement in present condition and minimizing the disability of those innocents and thereby improving their quality of life and providing with an active and self supporting happy life.

**Keywords:** Ayurvedic treatment, Neuromotor Disorder, Cerebral Palsy, Medical Technology

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### **Introduction:**

According to WHO (World Health Organization) estimation, 10% of population worldwide has some form of disability, due to different causes. In India 3.8% of total population comes under disability. Approximately 15-20% of total physically handicapped children are suffering from cerebral palsy. World wise incidence of Cerebral Palsy is 2.5/1000 live births and for India it is 3/1000 live births [1] With reference to the prevalence of CP more than 15 million people worldwide and more than 25 lakh people in India are suffering. CP is classified into five types viz; spastic, hypotonic, ataxic, dyskinetic and mixed. Spastic CP accounts for a major portion of CP with incidence between 70-80%. [2]

*Ayurveda*, which is the science of life, also deals with physical, psychological and spiritual well being of the individual. It is based on two fundamental objectives. One is to create harmony within the human body for maintenance of health and the other is making the patient disease free. Here everything is designed beautifully for both healthy and diseased individual.

There are eight different specialities in *Ayurveda* and *Kaumarbhritya* is one among them. This speciality deals with physical, mental and psychosomatic disorders of children including intrauterine stage also. The scope of this branch is not only limited to the treatment of childhood disorders but also deals with the *Garbhopakrama Vigyanam* implies the whole knowledge regarding the healthy progeny.

The role of prevention starts before the embryonic stage as defined by *Acharya Harita*. This subject area is concerned with wellbeing of both the parents (Mother and father) before conception, care of *Garbhini* (thus care of the unborn baby growing in mother's womb) and care of mother and baby during postnatal period; and prevention and treatment of pediatric diseases. This reveals the extensive

scope of this branch rather to consider it similar as pediatrics (The branch of medicine concerned with the treatment of infants and children only). [3]

For a similar description of the CP, there is no any direct reference available in *Ayurvedic* classics. But nearer symptoms and some causative factors linked to etiopathogenesis for such type of disease, are described very clearly in many chapters of different texts. The pathophysiology of CP states that it is caused by damage to the developing brain that disrupts the brains ability to control movement and maintain posture and balance. The damage can be prenatal, perinatal or postnatal causes the injury to the developing brain. Acharya charaka mentioned four *Sharira vrudhhikar bhavas* which are responsible for proper growth and development of a child and those factors are, [4]

1. *Kalayoga* (Observance of time)
2. *Swabhavasamsiddhi* (Innate potential)
3. *Ahaarsaushthhavam* (Excellence of diet and proper nutrition)
4. *Avighat* (free from hindrance);

The 4<sup>th</sup> factor *Avighat* includes the absence of all such factors that damages the normal growth and development of body. It is a very broad term which includes the list of all unfavourable conditions which directly or indirectly hampers the normal ability of child to grow and develop upto his maximum capacity. These factors are inappropriate *Rutu, Kshetra, Ambu, Beeja ; Dauhruda avamaan*, presence of *Garbha vighatkar bhava*<sup>1</sup>, Inappropriate *Garbhotpadak bhava (Matruj, Pitruj, Rasaj, Satwaj, Satmyaj and Atmaj)*, improper following of *Garbhini paricharya* e.t.c. The presence of one or all of these factors may have an undesirable effect on child and cause several deformities like *Kubja, Andha, Pangu, Jada and Mooka* which are similar to the symptoms of CP. [5-6]

*Shira* or *Mastishka* (Brain) is described as the main seat of all *Indriya* which including *Dnyanendriya* (Sense organs), *Karmendriya* (organs related to motor function) and *Mana* (Psyche) [7]. *Dnyanendriya* i.e. *Shravana* (Ear / Hearing sense), *Chakshu* (Eye / Visual sense), and the rest all; and *Karmendriya* i.e. *Hasta* (Upper extremities), *Paada* (Lower extremities) etc and *Mana* (Psyche) are involved and targeted for the impaired functioning in CP. This impairment varies

as per extent of the insult. These impairments leads to Blindness, Deafness, Dumbness and so on with the involvement of *Dnyanendriya*; disabilities for motor functions like inability to stand, walk etc with *Karmendriya* and mental retardation or abnormal mental status with the involvement of *Mana*.

### **NEED OF AYURVEDIC APPROACH**

CP possesses considerable therapeutic and diagnostic challenge to the physician. The injury to the central nervous system produces features such as spasticity, hyper – reflexia and co-contraction of muscles in some patients while features like weakness, loss of selective motor control. The present study deals with those special children with positive hypothesis for efficacy of *Ayurvedic* treatment. This work has been initiated with the intention of providing some benefits by giving possible improvement in present condition and minimizing the disability of those innocents and thereby improving their quality of life and giving them an active and self supporting happy life.

### **AIM**

To study the effect of *an Ayurvedic* regime in the management of Non Progressive Neuro - motor disorder (Cerebral Palsy).

### **OBJECTIVES**

- To find an *ayurvedic* approach for the management of Non-Progressive Neuromotor disorder (Cerebral Palsy).
- To improve quality of life in affected individuals.
- Early rehabilitation to improve functional capacity of child.
- To study the *ayurvedic* and modern aspect of Non- Progressive Neuromotor Disorder (Cerebral palsy) in detail.

### **Review of Literature:**

According to classification practiced by *Acharya Sushruta* Disease / *Vyadhi* is broadly classified in 3 main groups - *Adhyatmika*, *Adhibhautika* and *Adhidaivika*. This is based on etiological factors responsible for the disease. The disease condition of Cerebral Palsy deals with multi factorial etiology. As per contribution of the causative factor the disease phenomenon comes under the broad heading of *Adibala*, *Janmabala* and *Doshabala*. These are described below with their particulars. [8]

For the progeny having all excellent features, copulation is advised on fourth day of menstruation. If conception takes place on the first day of menstruation, will lead to death of the newborn. In view of *Acharya Sushruta*, conception on the second and third day of menstruation will result in death of the child in puerperal ward (*Sutika Gruha*) and child with incomplete organogenesis (*Asampurnanga*) and less longevity. Copulation on fourth day of menstruation may result in child having complete organ - system development (*Sampurnanga*) and prolonged longevity [9].

*Dauhrida* [10] is a stage of pregnancy at what time desires of foetus are expressed by mother. In account of different *Acharyas*, it should be fulfilled by giving the same thing what she desires and sometimes even bad things after changing in good and harmless form. Rejection of this intense desire (pregnancy carving) may result in *Kubja* (Hump backed), *Kuni* (Crooked armed), *Pangu* (Lame), *Muka* (Dumb), *Minmina* (Nasal voiced) child.

While describing treatment for any disease or its different modalities in Ayurvedic classics, special caution is discussed with regards to pregnant women, children, older person and women during menstrual period (*Rutumati*) with reference to each *Panchakarma* procedures as well as using potent drugs. As per stated by *Acharya Kashyapa* none medicine should be administered to a pregnant lady till 4<sup>th</sup> month of pregnancy [11]. It is the time when active cell division and formation of germinal layers occurs in embryo.

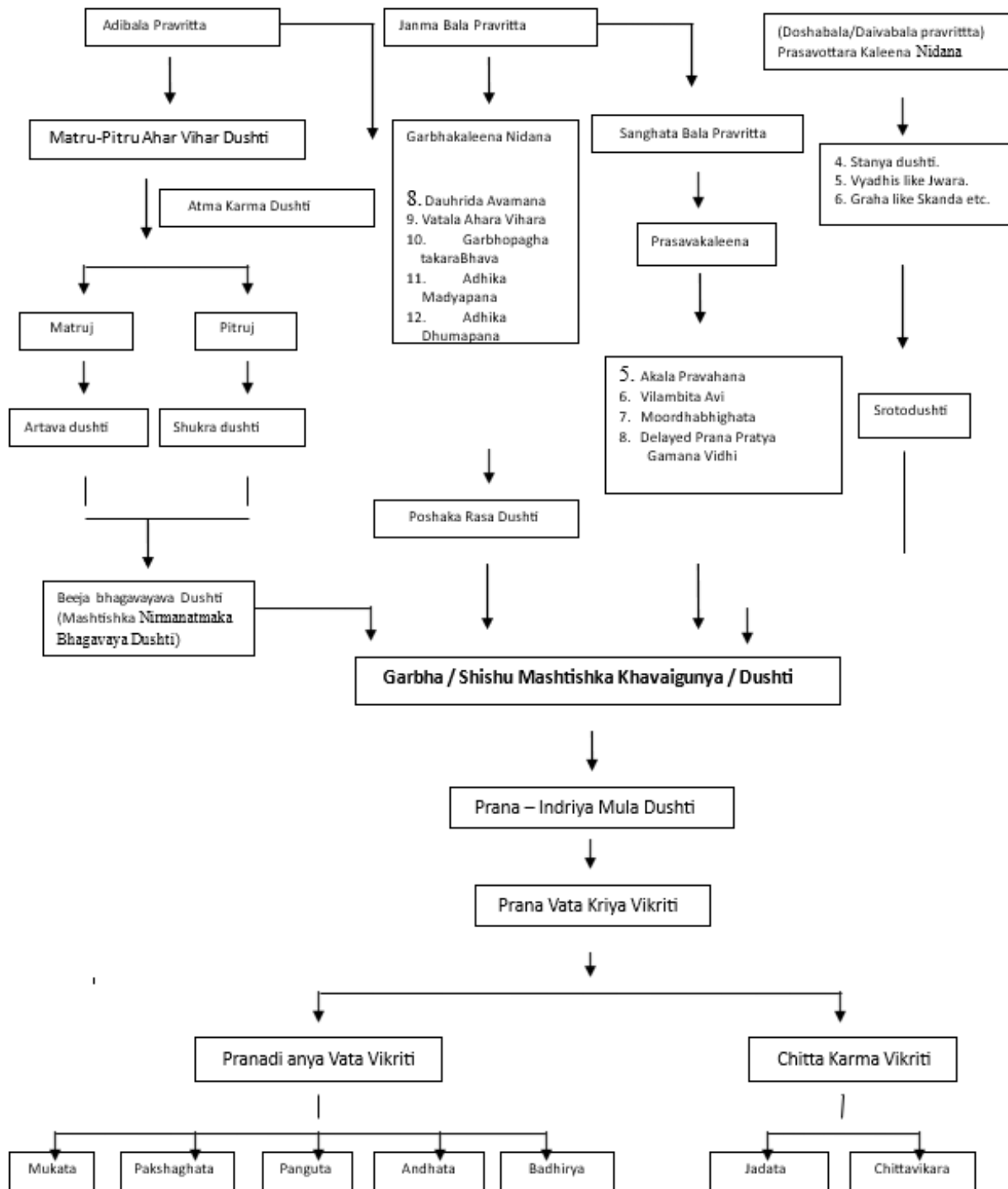
A Drug can affect pregnancy in three ways

1. Interference with fertilization and implantation
2. During organogenesis (1st trimester)
3. At the time of development of functions of the organs (later in pregnancy)

Still it is very difficult to say about drug that it will not cause any harm to foetus, it is wise to avoid all types of drug during pregnancy unless there are compelling reasons [12]. This view approaches to the earlier defined concepts of *ayurvedic acharya* for having the same conception in mind.

Development of healthy progeny needs healthy sperm and ovum. Healthy sperm and ovum are received only from disease free and healthy constitutions. In Consideration of this prospective, due emphasis is given to the choice of partner from different *Gotra* and from a family having no history of any sort of hereditary disease [13]

**Flow Chart of probable Samprapti of Cerebral Palsy**



## Importance of Basti treatment in Cerebral Palsy

Considering the clinical signs and symptoms of CP, this disease seems very closer to the presentation *Vata Vyadhi*. If *Vata* is considered as major contributing factor for CP, *Vata* pacifying measures become essential component in the treatment. *Charaka* aptly highlighted the glorified designation of *Basti- Basti Vataharanam Shreshtha* (Ch.Su.25). Conclusively *Basti*, indeed, is the half of the entire management of diseases.

## RESEARCH METHODOLOGY

The whole study has been divided into two categories as-

- a. Conceptual study
- b. Clinical study

### a. Conceptual study

This section includes,

1. The detailed study of the disease from Ayurvedic as well as from modern point of view and detailed review of the drug used for oral and *basti chikitsa* in *ayurveda* and modern texts with procedure of *Basti*.
2. Case record forms (CRF's) for each patient was made.
3. The purpose of the study, nature of the study drugs, the procedure to be carried out and the potential risk and benefits were explained to the patient's parent / guardian in details in non-technical term and trilingual. There after their written consent was taken before starting procedure.

### b. Clinical study

To confirm the effect of combination therapy i.e. *Samvardhanghrita with Rajyapan basti*, clinical trial plays an important role. Therefore, a clinical study was carried out with *Samvardhan ghrita and Rajyapan Basti* in the management of Cerebral Palsy.

Then within subject comparison done i.e. subjects are assessed before and after the treatment, an intervention and results analyzed in terms of within

subject changes.

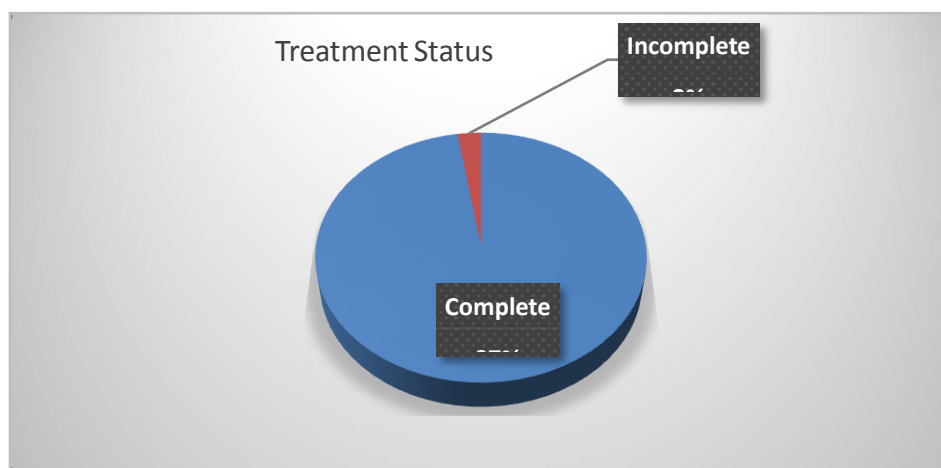
Total 40 patients were registered for clinical trial and were treated with Samvardhan ghrita orally on empty stomach with *Madhu* as *anupana* early in the morning and *Rajyapan Basti* (2 cycles of 30 days with 30 days gap in between) for 90 days. Any unwanted effect of the drug (*Samvardhana ghrita*) and the procedure (*Rajyapan Basti*) during total period of treatment scheduled was noted. Then the data analyzed statistically with z test for quantitative data and wilcoxon signed rank test for qualitative data.

### OBSERVATIONS AND RESULTS

In present clinical study 40 patients of Cerebral Palsy were selected. Observations were made on the basis of clinical assessment. The analysis of the observations is as follows:

**Table Number 1 - Treatment Status wise distribution of patients**

T/S	Frequency	Percentage
Complete	39	97.5
Incomplete	1	2.5
TOTAL	40	100.0



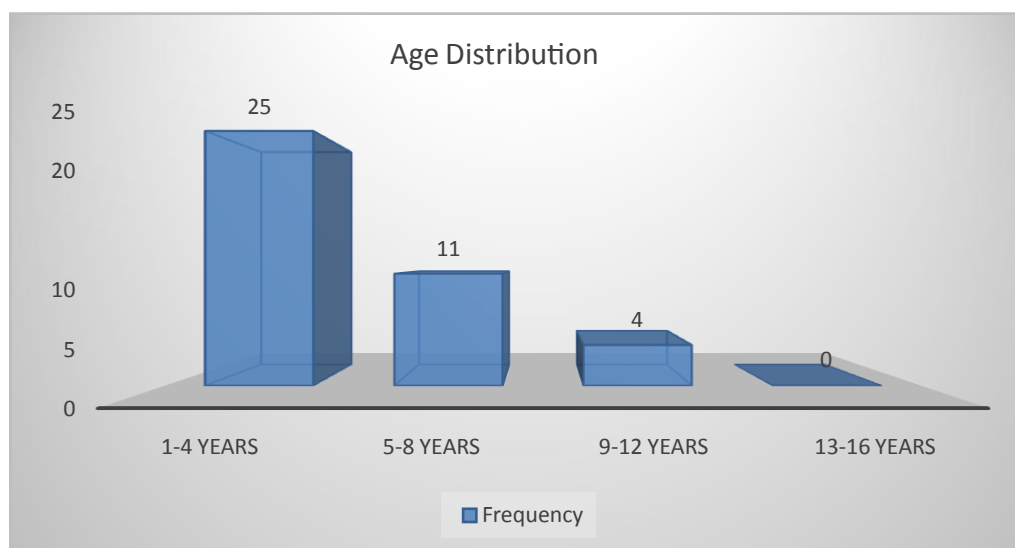
Graph No. 1 – Treatment status

All patients have completed the course of treatment except one i.e. 97%.



**Table Number 2 – Distribution of patients of CP according to Age group**

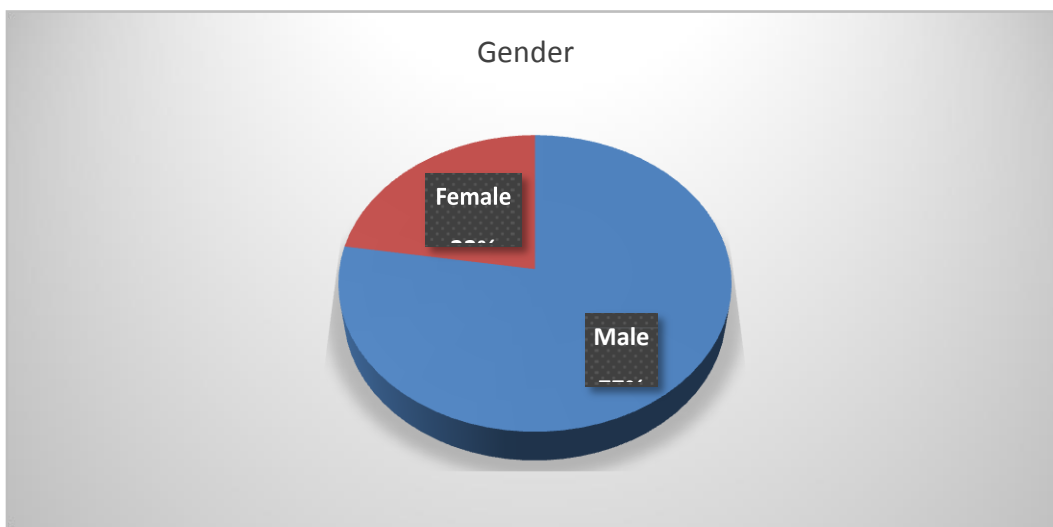
Age Group	Frequency	Percentage
1-4 Years	25	62.5
5-8 Years	11	27.5
9-12 Years	4	10.0
13-16 Years	0	0.0
TOTAL	40	100.0



Graph no. 2 – Age distribution 62.5% patients were from age group of 1-4 years, 27.5% of patients from age group 4-8 years and 12.5% patients were from age group 8-12 was observed.

**Table Number 3 - Gender Wise Distribution of Patients**

Gender	Frequency	Percentage
Male	31	77.5
Female	9	22.5
TOTAL	40	100.0

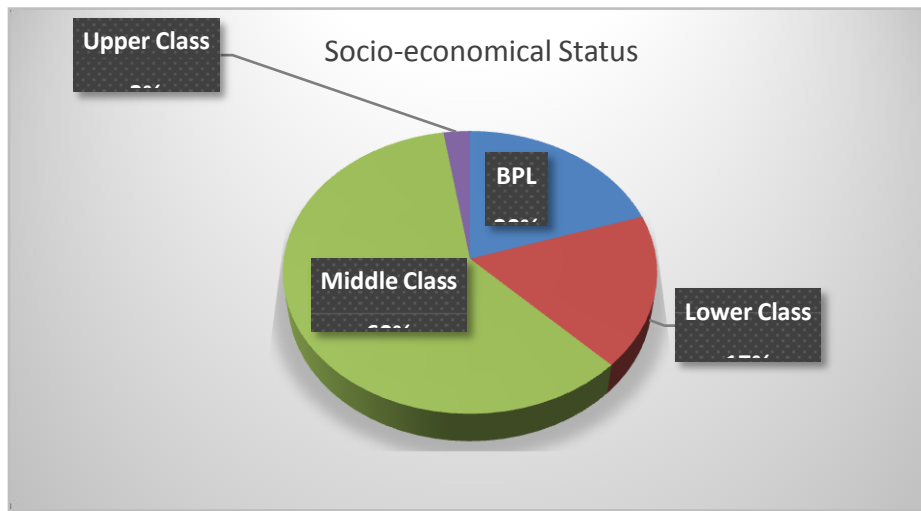


Graph no. 3 – Gender

In this series, the majority of the patients were male i.e. 77.5 % while other 22.5 % were female.

**Table Number 4- Showing Socio - economical Status wise distribution of patients**

S/E Status	Frequency	Percentage
BPL	8	20.0
Lower Class	7	17.5
Middle Class	24	60.0
Upper Class	1	2.5
Total	40	100.0



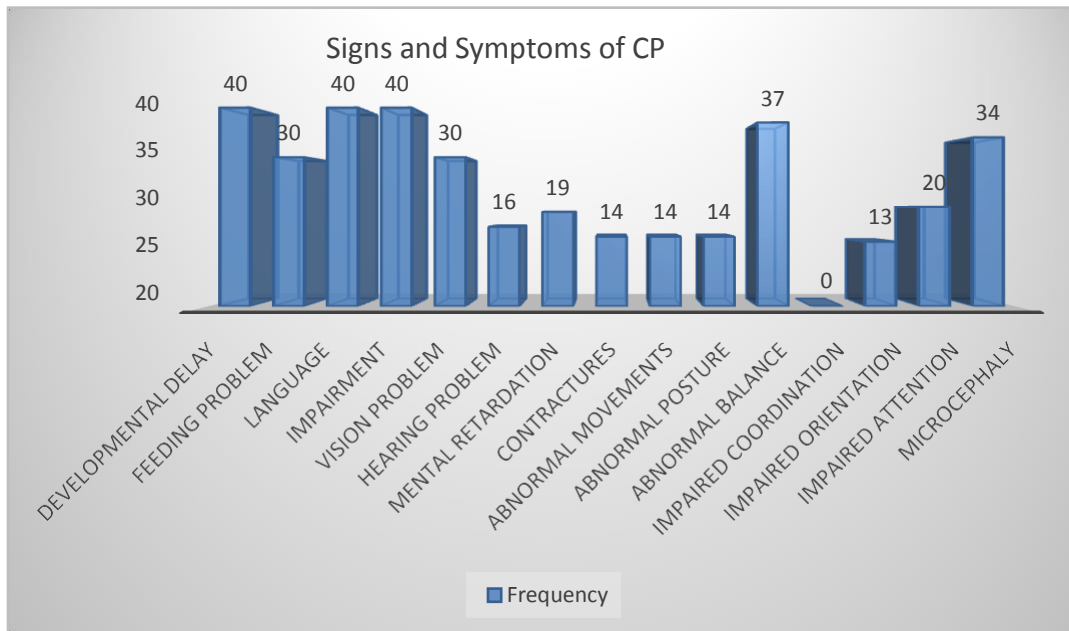
Graph no. 4 – Socioeconomical status

60% patients belonged to middle class, 20 % from BPL and 17.5 % were belonged to low income class.

**Table Number 5 - Signs and Symptoms wise distribution of patients**

Signs and Symptoms of CP	Frequency	Percentage
Developmental Delay	40	100.0
Feeding Problem	30	75.0
Language Impairment	40	100.0
Vision Problem	30	75.0
Hearing Problem	16	40.0
Mental Retardation	19	47.5
Contractures	14	35.0
Abnormal Movements	14	35.0
Abnormal Posture	14	35.0
Abnormal Balance	37	92.5
Impaired Coordination	0	0.0
Impaired Orientation	13	32.5

Impaired Attention	20	50.0
Microcephaly	34	85.0

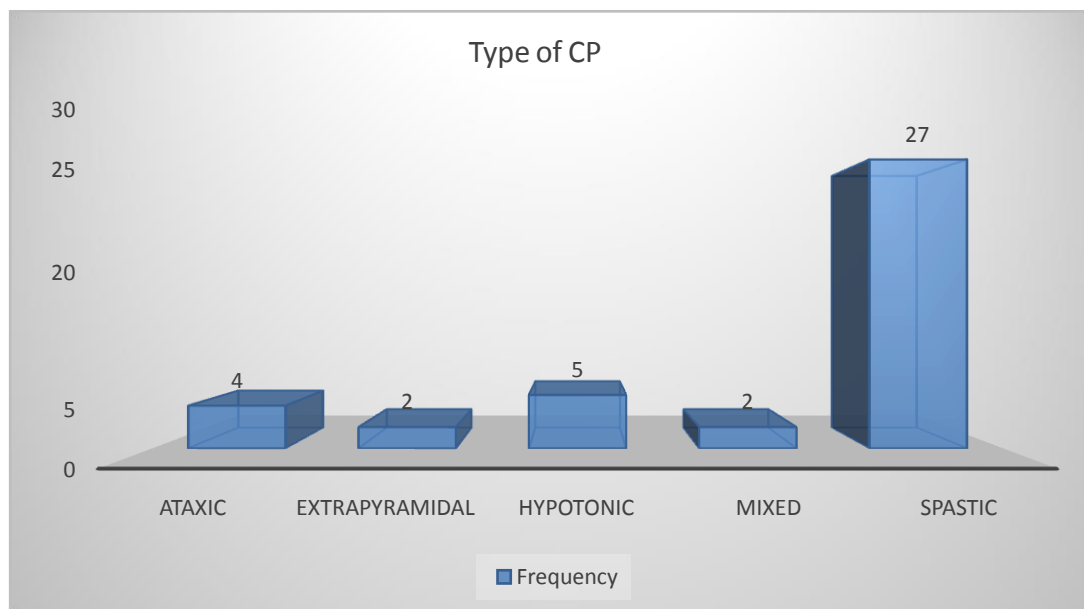


Graph No. 5 Signs and symptoms of CP

Chief complaints and other signs and symptoms of CP were found as described in above table. Developmental delay and Language impairment were observed in 40 (100%) patients. Abnormal balance, Feeding problem, vision problem, Hearing problem were observed in 37 (92.5%), 30 (75%), 30 (75%), 16 (40%) patients respectively.

**Table Number 6-Distribution of patients according to type of Cerebral Palsy**

T/O CP	Frequency	Percentage
Ataxic	4	10.0
Extrapyramidal	2	5.0
Hypotonic	5	12.5
Mixed	2	5.0
Spastic	27	67.5
TOTAL	40	100.0



Graph No. 6 – Type of CP

Maximum number of patients i.e. 67.5% was having Spastic type of CP while Hypotonic and Ataxic type was 12.5%, 10% respectively. Patients of Extrapyramidal and mixed type of CP were same i. e. 5%.

### Discussion:

Cerebral Palsy (CP) is the leading cause of disability in children, making them physically and mentally handicapped and socially apart. It has become quite familiar to both lay and medical communities due to high and stagnant prevalence since last forty years.

The incidence of Cerebral Palsy has increased in many countries in recent years because of the contribution of the survivors of high risk babies particularly preterm and LBW. Advances in care of pregnant mothers and their babies have not resulted in a noticeable decrease in CP. This is a great hinderance in the way of dealing with the disease.

### Conclusion:

The Ayurvedic treatment modality i. e. Samvardhan ghrita with Rajyapan Basti is highly effective in relieving the signs and symptoms and reducing the disability

in Cerebral palsy. Long term therapy is more effective. Cerebral palsy is a Neuromotor disorder primarily affecting motor growth and development. This study shows better outcome in improving motor component and justifies the selection of combined treatment protocol (Internal medication as well as Panchakarma procedures).

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