

CONCEPTUAL STUDY OF CEREBRAL PALSY WITH AYURVEDIC POINT OF VIEW

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ABSTRACT

Cerebral Palsy is a static encephalopathy which is the leading cause of childhood disability. Its prevalence is approximately 1.5-2 cases per 1000 live births. 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. Based on its Lakshanas the chief Dosha involved in Cerebral Palsy is identified as Vata. Hence Nidanapanchaka are evolved accordingly. It will definitely help to understand this disease entity with ayurvedic point of view and ultimately to develop an ayurvedic protocol for the same.

KEYWORDS: Cerebral Palsy, Lakshanas, Dosha, Nidanapanchaka.**INTRODUCTION**

Childhood period is considered as the foundation of future life. Each and every incidence in childhood has its influence on further life. When disability is considered particularly in children, near about quarter of chronic childhood disorders are neurological in origin. CP is defined as a non- progressive neuro-motor disorder of cerebral origin.^[1] Non – Progressive Neuromotor disorder i.e. Cerebral Palsy (CP) is the leading cause of childhood disability affecting function and development of child.^[2] It is an umbrella term which is always accompanied by disturbances of sensation, perception, cognition, communication and behaviour.

A symptom complex hampering the normal physiology by impairment of Doshika status in human body is called Vyadhi.^[3] Vitiation of three main basic tridosha is the main cause of production of any disease.^[4] Different factors such as type of Dushti (vitiation), Hetu (causative factor), time of manifestation, type of Dushya involved in the manifestation of disease etc. are considered while describing different disease classification by ancient Acharya.

Cerebral Palsy cannot be correlated with any single disease or condition, as it is a multi-factorial disease with clinical features of wide variation. However considering the classification of Cerebral Palsy and their respective features, it can be compared with few of the conditions mentioned in the classics.

CONCEPT OF NIDANAPANCHAKA OF CEREBRAL PALSY

According to classification practiced by Acharya Sushruta Disease / Vyadhi is broadly classified in 3 main groups - Adhyatmika, Adhibhautika and Adhidaivika.^[5] 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.

i. Adibala: Matrija and Pitrija^[6]

According to the involvement of the essential reproductive cells Shukra and Shonita, it can be of two types i.e. Matrija and Pitrija. It is suggestive of hereditary type of diseases that arises from Beeja and Beejabhagavayava Dushti arising from Dushti of Shukra (sperm) and Shonita (ovum).^[7]

ii. Janmabala: Rasa Krita and Daurhadapacharakrita^[8]

It is caused by Apathya Ahara, Vihara and Apachara done by pregnant women during gestational period. It includes Pangu, Andhatva, Badharya, Muka, Minmin and Vamana like clinical conditions as per pathogenesis occurred.

iii. Doshabala: Sharira and Manasa^[9]

Involvements of the contents i.e. psyche and / or body in the pathology of disease, decide its clinical presentation. In CP physical as well as mental impairment contributes to the disability. Patients with CP may have either physical or both physical and mental disablement.

A Comparison of Classification of Cerebral Palsy and Vata Vikara can be made as below described ways.

II. Associated conditions in Cerebral Palsy^[11]

Vakasanga	-	}	Speech or language disorder
Mukatva	-		
Badhirya	-	}	Hearing impairment
Ucchaishruti	-		
Akshivyudasa	-	}	Visual Impairment/ abnormality
Bhruvyudasa	-		
Bahushosha	-		Muscle wasting of upper extremity, disused atrophy
Sankocha	-		Contracture
Khanjata	-		Gait abnormality, limping while walking
Anavasthita Chittatva	-		Impaired mental function / instable mind
Aakshepaka	-		Seizure / Convulsion / Muscle spasm
Dandaka	-		Opisthotonus posture in severe degree quadriplegic

Signs and symptoms of disease, manifestation (Samprapti) and etiology (Nidana) may differ to some extent from one to another presentation. As here mentioned the probable similarity or proximity of this disorder with Vata predominant condition, possible pathogenesis and etiological factors as per ayurvedic conceptual aspects can be explored as below.

Etiological factors

The factors responsible for Cerebral Palsy are broadly divided in three groups.

- a. **Antenatal** – Starting from conception and during pregnancy (Garbha Kaleen)
- b. **Natal** - During delivery (Prasav Kaleen)
- c. **Postnatal** - After child birth (Neonatal, Infancy and Childhood period / Prasavottara Kaleen)

a. Antenatal

1. Beeja Dushti^[12] – (Genetic or Chromosomal defect) Vitiating or deformed part of Beeja (Sperm or Ovum) is responsible for the formation of defective or abnormal organ respectively. According to OMIM^[13] (Online Mendelian Inheritance in Man) 2% of cases of CP are inherited.

2. Atmakarma Dushti^[14]

The union of Shukra and Shonita along with Atma lead to the formation of Garbha.^[15] Depending upon its virtuous or sinful act of past time, its physique and mind develop.

1. Different types of Cerebral Palsy^[10]

1. Spastic type
 - Monoplegia - Ekangavadha
 - Hemiplegia - Pakshavadha
 - Quadriplegia - Sarvanga Roga
 - Diplegia - Pangu
2. Ataxic, Athetosis or Dyskinetic type - Cheshtavridhi, Chalatva
3. Hypotonic CP – Saada

Unknown aetiology of Cerebral Palsy can be explained by Atmakarma Dushti.

3. Aashaya Dushti^[16]

Vitiating of Kshetra - Garbhashaya Sthan may lead to deformity in child.^[17] Infections of the placenta, amniotic fluid, urinary tract, chorioamnionitis or infections of membrane surrounding the foetus and the amniotic sac in pregnant mother are the risk factors associated with cerebral palsy.^[18]

4. Kala Dushti^[19]

Time of conception, time of Prasava and time of bearing down effort (Pravahana) are described in classics with their effect on the future child. Physiological and psychological disposition of the couple at that time will reflect in the child's well being. Copulation in particular days may have good or bad impact on foetus.

5. Maturahara Vihara Dushti^[20]

Consumption of Vatala Ahara and practice of Vata Vardhaka Vihara by pregnant lady may lead to the condition like Pangulya, Kubjatva, Andhatva, Jadatva and Vamana in the future born baby.^[21] These Pangulya, Jadatva etc are similar features with presentation of CP.

6. Dauhrida Vimanana^[22]

Dauhrida^[23] is a stage of pregnancy at what time desires of foetus are expressed by mother. Rejection of this intense desire (pregnancy carving) may result in Kubja (Hump backed), Kuni (Crooked armed), Pangu (Lame), Muka (Dumb), Minmina (Nasal voiced) child.^[24]

7. Vataprakopa^[45]

Causes described as provocative of Vata can lead to vitiation of Vata situated in Mashtishka (brain) of foetus and may possibly cause Abhighata.^[25] Abhighata can be taken as any adverse effect that may hamper the normal functioning of organ. Conditions like Pangu, Muka etc. are said to be produced by Vata Prakopa during pregnancy^[26] which are the similar to the features of Cerebral Palsy.

8. Dhumapana

It is strictly advised not to recommend this measure in pregnant lady.^[27] Due to smoking by pregnant lady, foetus is supposed to be affected severely by the sharpness of smoke and the child may become Kuni (cripple armed), Andha (blind) and Durbalendriya (having pathetic sensory organs).^[28]

10. Abhighata

Abhighata can be considered of two types- Bahyabhighata (Trauma) and Doshabhighata.^[29] Aghata word denotes injury or trauma. There are many conditions described in reference of Garbhopaghatakara Bhava with detail.^[30] 10 to 15% of Cerebral Palsy cases are the consequence of brain injury caused by lack of oxygen.

11. Effect of Drugs

As per stated by Acharya Kashyapa none medicine should be administered to a pregnant lady till 4th month of pregnancy.^[29] It is the time when active cell division and formation of germinal layers occurs in embryo. It is seen that many drugs used during this period brings various abnormalities in child and also condition like CP.

12. Atulya Gotriya Vivaha^[31]

Ayurveda has given due emphasis to the choice of partner from different Gotra.^[32] By stressing this point, Acharya have tried to proscribe all the type of Sahaja and Adibalapravritta Vyadhi (disease of genetic or hereditary origin). Genetic factor as possible causes of CP cannot be discarded from the list of etiological factors particularly in familial type of Cerebral Palsy.^[33]

b. Natal causes

1. Anagata Avi Pravahana^[34]

The women near the time of labour should be solaced by experienced lady and advised for the labour pain about when and how. During labour if woman does the bearing down effort without actual labour pain, it may result in Baadhira (Deafness), Mukata (Dumbness), Moordhabhighata in the baby going to be delivered.^[35]

2. Delayed or improper Prana Pratyagamana Vidhi^[36]

Acharya have advocated such procedures for prompt and instantaneous resuscitation for the stimulation of newborn after exhausting procedure of birth. Delay in Prana Pratyagamana Vidhi may cause serious injury to

the newborn brain by interruption of oxygen (Prana Vayu) supply.^[37]

C. Post Natal

1. Stanya Dushti (Vitiation of breast milk)

As stated by Kashyapa in Phakka Chikitsaadhyaaya, Child who is taking breast milk of women with Pitta and Vata Prakriti, having salty taste of Stanya (breast milk), Tridosha Dusta Stanya and Stanya of mother having multiple children becomes Pangu, Jada and Muka.^[38]

2. Diseases

Diseases like Jwara, Atisara etc may cause some times Vyadhija Phakka^[39] with delay in loco-motor activity and such crippled children have chances to develop Cerebral Palsy. CNS infections such as pyogenic meningitis etc. causing Hyperpyrexia damage or hypoxic damage (convulsion) give rise to develop CP secondary to these primary neuronal insults.

4. Shareera Vriddhikara Bhava^[41]

This includes Kalayoga, Swabhava Samsiddhi, Ahara Saushtava and Avighata. Here Avighata is the absence of all the factors or event which is injurious and causing disease or harm to the infant or child. Presence of those harmful or hampering factors may affect the successive and sequential growth of newborn. This will lead to developmental delay.

PROBABLE SAMPRAPTI OF CEREBRAL PALSY

Probable Samprapti of Cerebral Palsy as per etiology can be conceptualise as follow:

A Prenatal origin (Adibala Pravritta)

The Ahara and Vihara of the parents causing Vikriti of the Dosha chiefly Vata is likely to affect Artava or Shukra which may lead to the vitiation in the form of Bija Dushti. It will lead to Khavaigunya in the form of Sroto Dushti of Mashtishka Nirmapaka Bija-Bhagavayava and thus results in Khavaigunya or Dushti of Mashtishka of the Garbha. Atma Karma Dushti may also lead to this kind of pathology in developing foetus.

B Antenatal and Perinatal origin (Janmabala Pravritta / Sanghata Bala Pravritta)

There can be a possibility of dushti of Mashtishka of Garbha as a result of causes like Dauhrida vimanana, Madyapana Garbhopaghatakara Bhava, Dhumapana etc of the mother during pregnancy. These all can affect the nourishment of foetus by altering the excellence of Poshaka Rasa or interrupting its proper supply which in turn affect the developing Mashtishka of the Garbha. Another risk of Dushti of Mashtishka of foetus for getting afflicted are Vilambita Avi, Akala Pravahana, Moordhabhighata during Prasavakala.

C Post natal origin (Dosha Bala / Daivabala Pravritta)

As a result of any other diseases, Dusta Stanyapana, Graha Like Skanda, Skandapasmara etc may proceed as

precipitating causes which trigger the site of Khavaigunya for developing the condition. Disturbance in the homeostasis brain system in form of Shiromarmabhogata may lead to manifestation of Vata Vyadhi or Vata predominant condition i.e. condition like Cerebral Palsy.

'Shira' or 'Mashtishka' is said Moola for Prana and Indriya^[42] and its Dushti may lead to Prana Vata and Indriya Moola Dushti. The clinical manifestation of this Prana Vata / Indriya Moola Dushti may vary from one to another disease presentation according to the site affected in Mashtishka. Prana Vata Vikriti can ultimately cause disturbance of other subtypes of Vata and also mental functions because of control of Vata over Mana (Mind) and other types of Vata.^[43] Clinical manifestation of this kind of pathology is found as Pakshaghata, Sarvanga Roga, Pangu and Jadatva where mental components are involved.

Treatment principles

Analyzing the conceptual evaluation of this disease phenomenon, major role of Vata and disease presentation is nearer to Vata Vyadhi or Vata predominant condition lead the principles of treatment mainly of Vata Vyadhi. Treatment modalities may include below mentioned components.

1. Preventive

Avoidance of all the etiological factors (Nidana) mentioned for causation of such disease and probably CP. Taking care of unborn child throughout gestational period as major role of prenatal factors has been found. All subject discussed earlier can be taken as preventive measure.

2. Curative

This aspect deals with many treatment procedures and vivid medication. Panchakarma procedures advocated mainly for pacifying Vata Dosha and reducing the symptoms of Vata Vyadhi. These include Snehana, Swedana, Nasya, Basti etc like Panchakarma procedures which are beneficial in this condition where symptoms of Vata Dosha are prominent. These should be performed as per clinical condition as well as condition of the patients. Efficient role of physiotherapy is also accepted by ancient Acharya. Description of Phakka Ratha^[44] in case of childhood disability by Acharya Kashyapa is the example for such implementation in ancient time. Internal use of Medhya Dravya such as Bramhi, Jyothishmati, Vacha, Sankhapushpi and other more specific Yoga (formulations) particularly mentioned for similar condition may have beneficial role. Specific line of treatment as given in classics with reference to Vata Vyadhi and use of specific Yoga will be certainly beneficial.

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