



Review Article

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A REVIEW ON CEREBRAL PALSY IN CHILDREN: BRIDGING AYURVEDIC CONCEPTS WITH SCIENTIFIC APPROACHES IN MEDICINE

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ABSTRACT

Cerebral Palsy is a neurological disorder caused by a non-progressive brain injury or malformation that occurs while a child's brain is under development. It is the most common cause for motor disability in children. Population-based studies from around the world report prevalence estimates of Cerebral Palsy ranging from 1.5 to more than 4 per 1,000 live births or children of a defined age range. 2.3 to 3.6 out of every 1,000 children is the rate of occurrence of Cerebral Palsy. Spastic Cerebral Palsy constitutes about 61 percent to 76.9 percent of all Cerebral Palsy cases. There is no single disease or condition explained in classical texts of Ayurveda regarding Cerebral Palsy. But various conditions have been discussed which can be critiqued and understood as different presentations of cerebral palsy. The present paper details the available Ayurveda descriptions of Cerebral Palsy in line with the modern scientific considerations on the same.

Keywords: Cerebral Palsy, Neurological disorder, Brain injury, Motor disability, Spastic Cerebral Palsy, Ayurveda

INTRODUCTION

Cerebral palsy is a neurological disorder caused by a non progressive brain injury or malformation that occurs while a child's brain is under development.¹ Cerebral palsy primarily affects body movement and muscle coordination.² It is due to an insult caused to the brain during its development before birth, during the process of delivery due to birth injuries or after birth due to perinatal morbidities that affect the developing brain.³ Any damage or insult caused to the brain during any stage of development cannot be cured completely by any science of life available currently.⁴ Treatment aims at maximizing the independence of the child through improving his capability in performing his day-to-day activities.⁵ Physical therapies, occupational therapies, speech and language therapies improve specific impairments and help tackle core disabilities of the child thereby improving his motor skills and enabling him to communicate and relate to the world.⁶

Complementary or alternative medicine combined with the contemporary multidimensional approach has helped trigger the progress of attaining various skills and function abilities in patients of cerebral palsy. Controlled clinical trials in Ayurveda have proved to be highly supportive in improving the motor activities and social behavior of children with cerebral palsy.⁷ Various parameters such as activities of daily living, gross and fine motor functions and mental faculties show better improvement with the support of Ayurvedic treatment modalities.⁸ In order to understand the effect of traditional medicine in cerebral palsy, the disease and its different forms as

explained in the classical texts is essential to be explored and understood.

DISCUSSION

There is no single disease or condition explained in classical texts of Ayurveda with reference to cerebral palsy.⁹ But various conditions have been discussed which can be critiqued and understood as different presentations of cerebral palsy. For instance, shiromarma abhigataja due to akalapravahana vyadhi ie disease causing injury to brain has been seen to present with symptoms like loss of motor activities, difficulties in speech, hearing and vision, drooling of saliva, and improper coordination along with other functional difficulties.¹⁰ Cerebral palsy as we understand today grossly presents with all or some of the above symptoms affecting those functions of the body corresponding to the site of the brain that is affected.

Clinical trials have shown that Cerebral palsy is most effectively treated in the line of management of treatment of diseases caused due to vata (vatavyadhi chikitsa).¹¹ Vata has been explained to be vitiated by trauma (abhigata) and also injury to vital organs (marmabhigata).¹² Cerebral palsy is also caused by damage pertained to the brain and its cells.¹³ Hence a disease caused due to injury to vital organs; here brain, can cause a disease of vata which helps us understand cerebral palsy in the light of vata vyadhi; diseases caused due to vitiated vata. There are eighty diseases of vata and the clinical presentations of cerebral palsy can be appreciated among them. For example, spastic hemiplegia which presents with abnormal posture or gait disturbance of one side can be paralleled with aridita, in which

vata afflicts half of the body.¹⁴ Classical symptoms of arditā constitute contractures of the arm, foot and knee of one side which is essentially seen in spastic hemiplegia. However, Arditā also affects half of the face which may or may not be seen in spastic hemiplegic cerebral palsy. Pakshavadhā, another disease of vata is also said to affect one side of the body; however, it can also be considered as spastic hemiplegia

Ekangaroga is a condition described to cause contracture along with aching pain in any one of the limbs of the body. This disease can be best understood as spastic monoplegia where a single limb or even only a single group of muscles are affected due to trauma to the brain.¹⁵ Arditā and Ekangaroga are treated with nourishing Vatahara modalities like oleation and sudation. Hot poultices (called as upanaha) can be used for local sudation at contractures to release spasm and for immobilization of the limb for correction of posture.

Spastic diplegia, the most common type accounting to 22% of all types of cerebral palsy affects the lower limbs of the body with spasticity causing difficulty in walking and scissoring due to spastic hip muscles.¹⁶ A condition caused by vitiated vata, called Pangu can be paralleled with the understanding of spastic diplegic cerebral palsy as here the vitiated vata causes difficulty in walking by lodging in both the sakti (hip) regions.¹⁷ When this vitiated vata evades all over the body, it is called sarvanga vata where contractures and morbidity of all the limbs are seen. It can be directly presumed as spastic quadriplegia, the most severe form of cerebral palsy affecting the four limbs, trunk and face associated with other developmental disabilities of intellect, vision, hearing and speech as well.

Other types of cerebral palsy are dyskinetic cerebral palsy including- athetoid, choreoathetoid and dystonic types presenting with difficulty in controlling movement of the legs and hands. A similar condition identified by the age-old scientists in Ayurveda namely Kampavata presents with involuntary movements of hands and legs with tremors. Symptoms of uncoordinated movements of the body and weakness seen in kampavata are also classically features of different types of dyskinetic cerebral palsies.

CONCLUSION

As of today, Cerebral palsy is one of the chronic motor disabilities in children. The modern literature on Cerebral palsy is more than adequate for understanding this disease. Then also as shown by various clinical trials on the same field, Ayurveda concepts can be well incorporated into the modern era understanding of the disease. Such a kind of approach will certainly help in better understanding of Cerebral palsy in children.

REFERENCES

- Roslyn N Boyd, Rachel Jordan, Laura Pareezer, Anne Moodie, Christine Fimm, Belinda Luther, Eryn Arnfield, Aaron Pym, Alex Craven, Paula Beall, Kelly Weir, Megan Kentish, Meredith Wynter, Robert Ware, Michael Fahy, Barry Rawicki, Lynne McKinlay, Andrea Guzzetta. Australian Cerebral Palsy Child Study: protocol of a prospective population based study of motor and brain development of preschool aged children with cerebral palsy. *BMC Neurology* 2013; 13:57.
- Mittal R, Narkeesh A. Review Study on Effect of Stimulation of Vestibular Apparatus on Postural Muscle Tone in Cerebral Palsy. *Journal of Exercise Science and Physiotherapy*. 2012; 8(1):11-19.
- McAdams RM, Juul SE. The Role of Cytokines and Inflammatory Cells in Perinatal Brain Injury. *Neurology Research International* 2012;1-15.
- Katherine Bourzac. *Neuroscience: Rewiring the brain*. Nature 2015; 522(7557): S50-S52.
- Rowland TJ, Cooke DM, Gustafsson LA. Role of occupational therapy after stroke. *Ann Indian Acad Neurol* 2008;11, Suppl S1:99-107.
- Ingrid Söderback (editor.). *International Handbook of Occupational Therapy Interventions*. Sweden: Springer; 2009.
- U Shailaja, Prasanna N. Rao, Parikshit Debnath, Anjan Adhikari. Exploratory Study on the Ayurvedic Therapeutic Management of Cerebral Palsy in Children at a Tertiary Care Hospital of Karnataka, India. *J Tradit Complement Med*. 2014 Jan-Mar; 4(1): 49-55.
- Shailaja U, Rao Prasanna N, Arun Raj GR. Clinical study on the efficacy of Samvardhana Ghrita orally and by Matrabasti in motor disabilities of Cerebral Palsy in children. *Int. J. Res. Ayurveda Pharm*. 2013;4(3):373-377.
- Vyas AG, Kori VK, Rajagopala S, Kalpana SP. Etiopathological study on cerebral palsy and its management by *Shashitika Shali Pinda Sweda* and *Samvardhana Ghrita*. *Ayu*. 2013 Jan-Mar; 34(1): 56-62.
- Shailaja U, Rao PN, Girish KJ, Arun Raj GR. Clinical study on the efficacy of *Rajayapana Basti* and *Baladi Yoga* in motor disabilities of cerebral palsy in children. *Ayu* 2014;35:294-9.
- Bhinde SM, Kalpana SP, Kori VK, Rajagopala S. Management of spastic cerebral palsy through multiple Ayurveda treatment modalities. *Ayu*. 2014 Oct-Dec; 35(4): 462-466.
- Das B, Ganesh RM, Mishra PK, Bhuyan G. A study on *Apabahuka* (frozen shoulder) and its management by *Laghumasha taila nasya*. *Ayu*. 2010 Oct-Dec; 31(4): 488-494.
- Olaf Dammann, Michael O'Shea. Cytokines and Perinatal Brain Damage *Clin Perinatol*. 2008 Dec; 35(4): 643-v.
- Prasad Mamidi, Kshama Gupta. Ayurvedic management of stroke with special reference to left temporoparietal lobe gliosis: A case report. *J Pharm Sci Innov*. 2014;3(6):536-538.
- Prasad Mamidi, Kshama Gupta. Ayurvedic management of cerebral palsy: Report of two cases with review of literature. *Int. Res. J. Pharm*. 2015; 6(1):73-76.
- Park TS, Owen JH. Surgical Management of Spastic Diplegia in Cerebral Palsy. *N Engl J Med* 1992; 326:745-749.
- Choudhary Kuldeep R. Recent advances in Ayurvedic management of cerebral palsy affected children. *Int. J. Res. Ayurveda Pharm*. 2014;5(6):642-647.

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