THERAPEUTIC EVALUATION OF AYURVEDIC THERAPY ON POWER AND SPASTICITY IN CHILDREN AFFECTED WITH CEREBRAL PALSY

Gavali Kishor [1],   Preeti[2],   Jondhale Prakash [3],   Mali Anita [4],   Kumar Abhimanyu [5]

1. Assistant Professor, Dept. of Balaroga,R.A.Podar Medical Collage,worli Mumbai.

2. Assistant Professor , Dept. of Rog Nidana & Vikriti Vigyana VPAMC, Sangli

3. Asst. Prof., Deptt. of Rasashastra & Bhaishajya Kalpana, AACH, Sirsa, Haryana,

4. Asst.Prof., Deptt. of Agada Tantra & Vyavahara Ayurveda AACH, Sirsa, Haryana,

5. Prof. Abhimanyu Kumar, Director, All India Institute Of Ayurveda, Delhi.

ABSTRACT :

Cerebral Palsy is the most common cause of disability in children with incidence of 2 to 2.5 per 1000 live birth. Although the lesion occurs in immature brain which is not progressive but the clinical manifestations change over time. Newer medications and therapies are being explored for managing the condition yet the disease has not been alleviated. So, the present study is the humble attempt for the effective and safe management of the disease which can be beneficial for patients. For this purpose, 14 clinically diagnosed patients of CP were treated with oral herbal compound named *Samwardhan Ghrit* explained by *Acharyas Kashyapa, Hapushadi yapan basti* explained by *Acharyas Charaka,* along with *abhyanga, shashtika shali pinda sweda* and physiotherapy. The other group of 14 patients was managed with physiotherapy alone as control group. The study showed more significant results in patient treated with *Ayurvedic* approach along with physiotherapy than physiotherapy alone.

Key words: Cerebral palsy, *Samwardhan Ghrit, Shalishastik pinda sweda*, *Yapan Basti,*

INTRODUCTION: Cerebral Palsy is an umbrella term commonly referred to as 'C.P.' and is one amongst common paediatric neurologic disorder described by loss or impairment of motor functions, caused by non progressive insult to brain. The brain damage is caused by brain injury or abnormal development of the brain that occurs while a child's brain is still developing before birth, during birth, or immediately after birth.It is a chronic motor disorder which affects body movement, muscle control, muscle coordination, muscle tone, reflex, posture and balance. It can also impact fine motor skills, gross motor skills and oromotor functioning.It is non-progressive, means the brain damage or malformation will not progress in severity in future. However, conditions resulting from the brain damage may develop and change over time. Over the course of the person's life, he or she may encounter any number of associative or co-mitigating factors.The characteristic signs are spasticity, movement disorders, muscle weakness, ataxia, and rigidity. Cerebral palsy is the most common cause of severe physical disability in childhood.Centre for disease control and prevention indicates that the incidence is 3.6/1000 with male/female ratio 1.4/1. Most children with CP had been born at term with uncomplicated labour and deliveries. In 80% of cases, features were identified pointing to antenatal factors causing abnormal brain development. (Nelson textbook of paediatrics, 19th edition, /Vol-2, Page no-2061)

The prevalence of CP has increased somewhat due to enhanced survival of

very premature infants weighing <1000gm, who go on to develop CP at a rate approximately 15/1000. The major lesion that contributes to CP in this group are intracranial haemorrhage and periventricular leukomalacia.[1].CP is also commonly associated with a spectrum of developmental disabilities, including mental retardation, epilepsy, and visual , hearing, speech, cognitive, and behavioural abnormalitities[2] Various procedures of *Panchakarma* like A*abhyanga, Shalishastik pinda sweda, Yapan Basti with some Ayurvedic preparations* are well known for reducing spasticity of muscles.Present study has been planned by considering above facts and, is an attempt to provide and explore Ayurvedic treatment modules for such burning problems in the society, which may helps the disabled child to carry out his/her own day-to-day activities.

Materials and method-

Aims and Objectives

The present research trail has been undertaken with the following objectives.

1. To conceptualise and evaluate the approach of Ayurvedic management in cerebral palsy.
2. To improve quality of life of the patients of cerebral palsy.
3. To enhance the functional capacities of the children in order to make him/her self dependent.
4. Early rehabilitation and to prevent further complications

Selection of Cases: For the study, affected children of the age group of 1 to 12 years were selected after evaluating them clinically, from O.P.D. and I.P.D. of Balroga department of N.I.A. Jaipur. 36 cases were registered for the study and were randomly divided in two Group A and Group B.

Group A- patients received Physiotherapy treatment

Group B- patients received Physiotherapy + *Ayurvedic* Procedures + *Samwardhan Ghrit* [3].

Physiotherapy being standard rehabilitation procedure for cerebral palsy, it was allowed in both groups. The trial was conducted for three months.

Samwardhana Ghrita - (1 ml/ kg / day) in 2 divided doses for 3 months.

Abhyanga – done with Kshirabala taila for 15-20 min / day for 3 months.

Shali Shashtika Pinda Sweda- 25- 30 min /day continuously for 21 days with repeated gap of 7 days for 3 months.

Hapushadi Yapana Basti [4] for 21 days in 2nd month

Criteria Adopted

Inclusion criteria:

1. Age group 1 to 12 years of either sex.
2. Diagnosed case of Cerebral palsy (spastic) without active seizures.

Exclusion Criteria:

1. Individuals below 1 yr and above 12 yrs. Of age
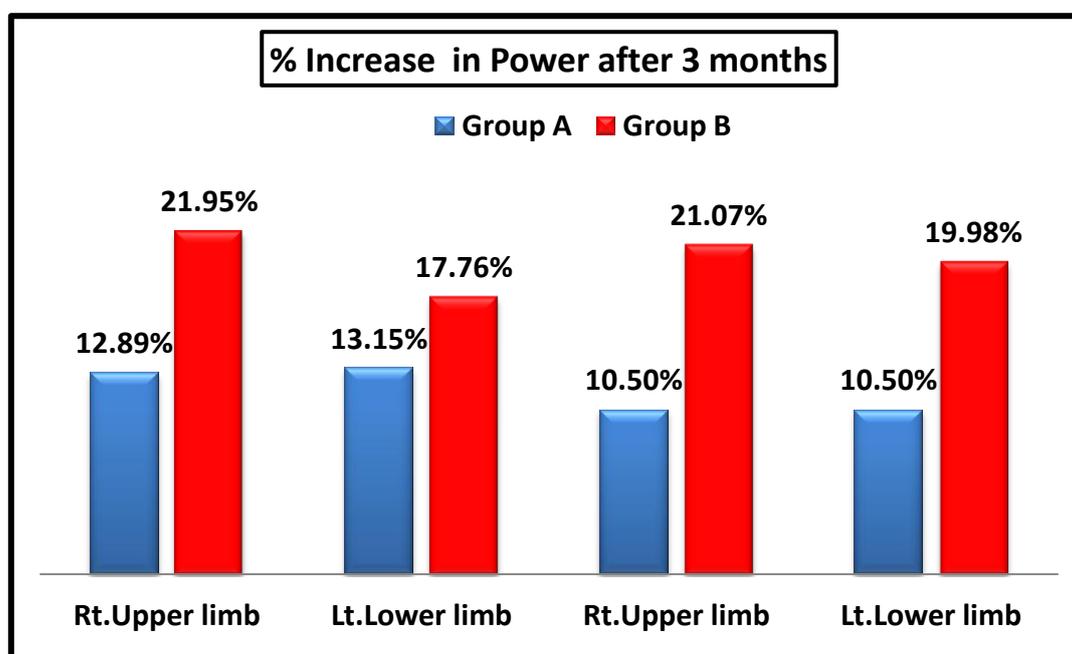2. Progressive neurologic disorders.

Assessment Criteria:

1. Spasticity – Modified Ashworth Scale
2. MRC Power scaling

RESULTS:

Table no-1 Results obtained regarding spasticity improvement in 28 registered case of cerebral palsy.

Scale.	Gr	Mean (N=14)			% Change	S.D. (±)	S.E (±)	'T' Value	'P' Value	Result
		B.T.	A.T.	Diff.						
Spasticity Rt Upper Limb	A	2.107	1.786	0.321	15.23	0.420	0.112	2.857	<0.02	S.
	B	1.821	1.464	0.357	19.60	0.412	0.110	3.238	<0.001	V.S.
Spasticity Lt Upper Limb	A	2.107	1.786	0.321	15.23	0.420	0.112	2.857	<0.02	S.
	B	1.536	1.143	0.392	25.52	0.446	0.119	3.294	<0.001	V.S.
Spasticity Rt Lower Limb	A	2.464	2.357	0.107	4.342	0.289	0.077	1.385	> 0.10	N.S.
	B	2.179	1.893	0.285	13.07	0.378	0.101	2.828	<0.02	S.
Spasticity Lt Lower Limb	A	2.786	3.143	-0.357	12.89	0.497	0.132	2.687	<0.02	S.
	B	2.929	3.571	-0.643	21.95	0.497	0.132	4.837	<0.001	E.S.

% Increase in Power after 3 months

■ Group A ■ Group B

	Rt.Upper limb	Lt.Lower limb	Rt.Upper limb	Lt.Lower limb
Group A	12.89%	13.15%	10.50%	10.50%
Group B	21.95%	17.76%	21.07%	19.98%

Table no-2 Results obtained regarding power improvement in 28 registered case of cerebral palsy.

| Scale.	Gr.	Mean (N=14)			% Change	S.D. (±)	S.E (±)	'T' Value	'P' Value	Result
		B.T.	A.T.	Diff.						
Power Rt upper Limb	A	2.786	3.143	-0.357	12.89	0.497	0.132	2.687	<0.02	S.
	B	2.929	3.571	-0.643	21.95	0.497	0.132	4.837	<0.001	E.S.
Power Lt Upper Limb	A	2.714	3.071	-0.357	13.15	0.497	0.132	2.687	<0.02	S.
	B	3.214	3.786	-0.571	17.76	0.513	0.137	4.163	<0.001	E.S.
Power Rt lower Limb	A	2.714	3.000	-0.285	10.50	0.468	0.125	2.280	<0.05	S.
	B	2.714	3.286	-0.572	21.07	0.513	0.137	4.163	<0.01	V.S.
Power Lt lower Limb	A	2.714	3.000	-0.285	10.50	0.468	0.125	2.280	<0.05	S.
	B	2.857	3.429	-0.571	19.98	0.513	0.137	4.163	<0.01	V.S.
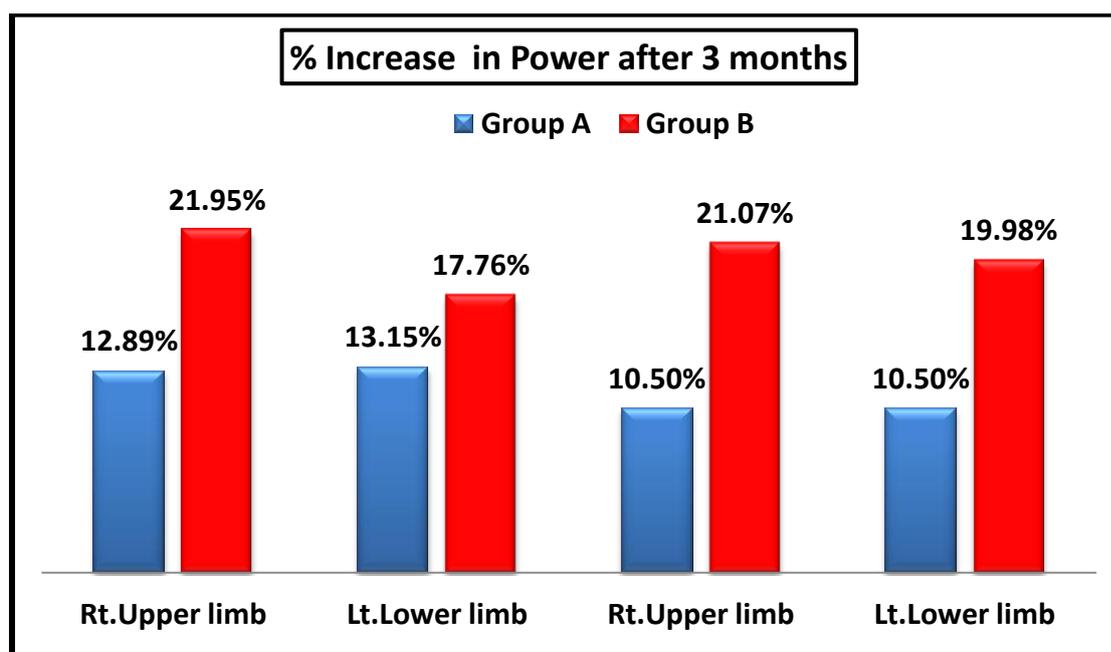
Table no-3 Inter group comparison of group A and group B by using 'unpaired t-test with Welch correction' shows the following effect:

Sr. no.	Inter group comparison	Mean diff. (n=14)	't' value	'p' value	Result
SPASTICITY					
Rt Upper Limb	A - B	0.304	1.933	p>0.05	N.S.
Lt Upper Limb	A – B	O.607	3.707	<0.01	V.S.
Rt Lower Limb	A – B	0.360	2.941	0.007	V.S.
Lt Upper Limb	A - B	0.695	5.605	<0.001	V.S.

Table no-4 Inter group comparison of group A and group B by using 'unpaired t-test with Welch correction' shows the following effect

Sr. no.	Inter group comparison	Mean diff. (n=14)	't' value	'p' value	Result
POWER					
Rt Upper Limb	A - B	-0.286	1.523	>0.05	N.S.
Lt Upper Limb	A - B	-0.608	3.185	0.003	V.S.
Rt Lower Limb	A - B	-0.143	0.770	>0.10	N.S.
Lt Upper Limb	A - B	-0.286	0.286	>0.10	N.S.

Effect on Spasticity using Ashwarth scale

Right upper limb- At the end of 3rd month in group A there was decrease of 15.23% spasticity which was significant (p<0.02), while in group B there was decrease of 19.60% spasticity which was very significant (p<0.001).Inter group comparison was found very significant improvement in group B (p<0.01) among group A & B.

Left upper limb- At the end of 3rd month in group A there was decrease of 15.23% spasticity which was significant (p<0.02), while in group B there was decrease of 25.52% spasticity which was very significant (p<0.01). The inter group comparison showed that Group B had very significant advantage over Group A with p<0.01.

Right lower limb-- At the end of 3rd month in group A there was decrease of 4.34% spasticity which was insignificant (> 0.10), while in group B there was decrease of 13.07 % spasticity which was significant (p<0.02).The inter group comparison showed that Group B had very significant advantage over Group A with (p<0.01).

Left lower limb- At the end of 3rd month in group A 4.34% improvement seen which was insignificant (p>0.10), while in group B 18.85% decrease in spasticity was seen which was very significant (p<0.01). The inter group comparison between Group A and Group B showed that Group

B had very significant advantage over Group A with p<0.001.

Effect on Power-using MRC grading

Right upper limb-- At the end of 3rd month in group A 12.89% improvement which was seen which was significant (p<0.02) while in group B 21.95% improvement was seen which was extremely significant (p<0.001).The inter group comparison between Group A and Group B showed that Group B had no significant advantage over Group A with p>0.05.

Left upper limb-- At the end of 3rd month in group A shows significant result (p<0.02) observed, while in group B 17.76% improvement was seen which was extremely significant (p<0.001).The inter group comparison between Group A and Group B showed that Group B had very significant advantage over Group A with p<0.01.

Right lower limb--At the end of 3rd month in group A 10.50% improvement was seen which was significant (p<0.05) while in group B 21.07% improvement was seen which was very significant (p<0.01).The inter group comparison between Group A and Group B showed that Group B had no significant advantage over Group A with (p>0.10).

Left lower limb- At the end of 3rd month in group A there was 10.50% improvement seen which was significant (p<0.05), while in group B 19.98% improvement was seen which was very significant (p<0.01). The inter group comparison between Group A and Group B showed that Group B had no significant advantage over Group A with p>0.10.

DISCUSSION:The results of both the groups most of the time gained the statistically significant result (p<0.05) proving physiotherapy as the standard management of the Cerebral palsy. However in most places group B was present with maximum improvement and some highly significant results then group A. Hence proving the efficacy of *Ayurvedic* modalities to be new way of better management in the field of Cerebral palsy.

Decrease in spasticity and improvement in power was seen well in upper limbs than lower limbs in both the groups. Due to the small muscle mass these muscle upper limbs respond early then strong lower limb muscles.

Improvement in the power of the upper limb area aided improvement of daily activities. All those works where both upper limb and lower limb are required to complete the task, improvement is not much as expected due to tough spastic muscles of lower limb.

The combined effect of *Abhyanga* and *Swedana* is beneficial to patient by increasing blood circulation to muscles, providing nutrition to muscles, increasing strength of muscles, decreasing spasticity of muscles and contractures of joint, improving of power of muscles.

Hapushadi Yapana Basti is found to be effective in relieving constipation in most of the patients and also shows improvement in appetite.

Madhura Rasa, *Sheeta Veerya* and *Madhura Vipaka* of this yoga in form of Ghrita increases the effectivity of drug in terms of *Vatahara, Balya, Brihana, Medhya karmas.* Lipid solubility, neuro protective, free radical scavenging, antioxidant, nutritive effect of the drug had given additional benefit in nourishing the spastic and strenuous weakened muscles.

Very good improvement is seen in patients with lower age group than the patients with higher age group. Also improvement in patients with less spasticiy is better than the patients with relatively more spasticity. The combination of Ayurvedic procedures proved to be effective in symptoms of recurrent respiratory tract infection with significant decrease in symptoms.

No any adverse effects of procedure and drug were seen in this trial.

Therefore it can be concluded that combined therapy having study drug *Samvardhana Ghrita*, *Panchkarma* procedure along with physiotherapy are effective treatment modalities and can be used efficiently in the management of Cerebral palsy

CONCLUSION: The results of both the groups were most of the time gained the statistically significance proving physiotherapy as the standard management of the Cerebral palsy. However in most places group B was present with maximum improvement and some highly significant results then group A. Hence proving the efficacy of *Ayurvedic* modalities to be new way of better management in the field of Cerebral palsy.

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Coreesponding Author:

Assistant Professor, Dept. of Balaroga,R.A.Podar Medical Collage,worli Mumbai.

Email: dr.kishorgavali@rediffmail.com

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