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CASE STUDIES ON SNAYUGATAVATA W.S.R. TO MND

Dr. Sudipta Rudra*[1], Dr. Apala Sengupta[2] and Dr. Abichal Chattopadhyay[3]

[1]3rd Year MD scholar (Ayurveda), Roga Nidana Vikriti Vigyana.
[2]MD, PhD, Reader, Roga Nidana Vikriti Vigyana, Institute of Post Graduate Ayurveda Education and Research, 294/3/1 APC road, Kolkata 9.
[3]MD, PhD, Reader, Head of the Department, Dept. of Sarira-Samhita, Institute of Post Graduate Ayurveda Education and Research, 294/3/1 APC road, Kolkata 9.

***Corresponding Author: Dr. Sudipta Rudra**
3rd Year MD scholar (Ayurveda), Roga Nidana Vikriti Vigyana.

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ABSTRACT

Motor neuron disease is a progressive degenerative disorder of motor neurones in which spinal cord and cranial nerve nuclei and pyramidal neurons of motor cortex get affected. In Ayurveda it can be compared to that of the snayugata vata vyadhi after comparing the signs and symptoms and the etiopathegenesis of both. In these cases virechana followed by Baladi yapana vasti had been administered for 30 days and observations were noted. After completion of study, the subjective parameters like chesta nibritti (immobility), vaksthambh (dysarthria), kampa (fasciculation) etc. were reduced moderately to markedly in most of the cases. Further study should be carried out in large sample to establish the role of the said therapy in this particular disease.

KEYWORDS: Motor neurone disease, Snayugata vata, Virechana, Basti.

INTRODUCTION

The diseases are caused due to alteration of the function of the *Doshas.*[1] *Vayu*, *Pitta* and *Kapha* are considered as *Dosha.*[2] *Vayu* plays the important role to regulate all the system.[3] It posses the *Ruksha*, *sheeta*, *laghu*, *suksha*, *chala*, *vishada*, *khara* qualities.[4] The aggravation of these qualities affects the *dhatus* and *upadhatus* and produces different diseases. *Dhatu kshaya* and *avarana* are the intrinsic factors[5] to cause any disease. In *dhatu kshaya* all the systems gets affected by the *anila* with degeneration.[6] In *snayugatavata*, *meda* gets depleted as *snayu* is formed from *meda*. *Snayugata vata is manifested with vajhya ayama*, *Abhantra ayama*, *Kalli*, *Kubja* etc[7] or a complex phenomena and sign and symptoms of this complex diseases phenomena is very much identical to that of Motor Neuron Disease. Motor Neuron Disease is a neuro degenerative condition (*Snayukshaya*) of upper and lower motor neurons, spinal cord, cranial nerves nuclei and of pyramidal neurons in the motor cortex with the manifestation of limb muscle weakness, cramps, occasionally fasciculation, disturbance of speech, swallowing, but no objective sensory deficit, no intellectual impairment in most cases, etc and symptoms often begin focally in one part and spread gradually but relentlessly to become wide spread. Patterns of involvement of motor neuron disease are progressive muscular atrophy (PMA), progressive bulbar palsy(PBP), pseudo bulbar palsy(PBP), amyotrophic lateral sclerosis(ALS), primary lateral sclerosis(PLS). The prevalence of this disease is about 7/100000.About 5% of cases are familial and 95% of cases are due to viral infection, trauma, exposure to toxin, electric shock etc. Males are more affected than female. Very commonly found after the age of 50 years and uncommon before the age of 30 years.[8] In the present era maximum number of motor neuron disease patients are coming for *Ayurvedic* treatment as there is no such effective measures in the western medicine. In the ancient compendium it was stated that all the diseases were not nomenclature but considering significant characteristics, the nomenclature of the evolving diseases are made in parlance to ancient compendium.[9]

MATERIAL AND METHOD

Selection of the Patients[10]

30 patients were selected from OPD and IPD of IPGAE&R at SVSP hospital irrespective of their sex, occupation and religion. The patients having the *Pratyatma Niyata Lakshana* along with the maximum subjective criteria of *Snayu gata vata* was selected for the study. For this purpose following exclusion and inclusion criteria were adapted.

Exclusion Criteria

1. Patients below the age of 30 years and above 70 years of age.[11]

2. Patients those who are not willing to include themselves in the study.
3. Patients suffering from *Mamsa gata Vata,*[12] *Asthi gata Vata,*[13] *Majja gata Vata*[14] along with the any other systemic diseases like Hepatic Failure, Renal Failure, Cardiac Disorder, Diabetic Mellitus with Neuropathy, Malignancy and Thyroid Disorders and Pregnancy.
4. Patients with certain sign and symptoms which are not satisfying the subjective criteria of *Snayu gata vata.*
5. Patients receiving any other supplementary therapy.

Inclusion Criteria

1. Patients having the sign and symptoms of *Snayu gata Vata.*
2. Patient above 30 years of age and below 70 years of age.[11]
3. Patients willing to include themselves in the study.
4. Primarily detected *Snayu gata Vata* patients not taking any medicines.
5. Patients presenting the *Pratyatma niyata lakshana* and satisfying the maximum subjective criteria of *Snayu gata Vata*.

Subjective Parameters:[15,16,17,18,19]

1. Chesta nivritti, vaikalya,
2. Samkocha, Padjangha uru-kara-mula avamoton, Antarayamyatte griba(manyasthambha) / griba abamridyate, Pristhayam
3. Lalasrab
4. Kubjatva
5. Jrimbha
6. Kampa/ akshepan
7. Sarbanga sarbadehajam
8. Jatvega nihanyesha(death).

OBJECTIVE PARAMETER

1. CT (Computed Tomography) scan of brain.
2. MRI (Magnetic Resonance Imaging) of Spinal cord.
3. EMG(Electromyography).
4. Examination of CSF(Cerebrospinal fluid).
5. Serum Creatine Kinase(CK).
6. NCV (Nerve Conduction Velocity) test.
7. Blood for FBS (Fasting blood sugar) and PPBS(Post prandial blood sugar) .

Adoption of Therapy

Baladi Yapan Basti was administered in selected patients at a dose of 400 ml per day for a period of one month at the time of 8am -9am. After one month, all the subjective and objective parameters were evaluated.

Baladi Yapan Basti consists of eight palas of B*ala, Atibala, Apamarga and Atmagupta* and one *anjjali* of half crushed *Yav,* had been made to a decoction by boiling with milk and water. To this decoction, *Guda, Ghee,Taila and Saindhav lavan* should be added, used as *basti.*

By virtue of *balya*[20] and *rasayana* properties *baladi yapana basti* acts on *Snayu gata Vata.* Therapeutically *Basti* is very effective to counteract the *Snayu gata vata* disease process. There is none other than *Vayu* which is the most important causative factor of diseases in *Sakha, Kostha, Marma Urdha, Sarvavayava*, and *Anga.*[21]*Vayu* is responsible for the separation and union of *Doshas, Malas*, and *Dhatus,* it is considered to be the causative factor of all diseases. When it gets exceedingly aggravated there is no remedy other than B*asti* for its alleviation.[22]

Therefore, *Basti* is considered by physicians to be half of the entire therapeutic measures. Some physician said that *Basti* represents the whole of therapeutic measures.[23] Hence *Basti* therapy had been adapted.

The efficacy of the stipulated *Baladi Yapan Basti* on *Snayu gata Vata was* evaluated on the basis of the statistical analysis.

Preparation of CRF(Clinical Report File)

Prior to the administration of the drug, Inform Consent Form (ICMR guideline) was filled up by the willing patient. Clinical report file was prepared in which all the clinical and therapeutic data of individual patients along with dropout cases will be recorded.

Duration of study

Study was conducted during the year 2014-2017.

Dropped out of patient

Among the 30 patients total 7 patients were dropped out during study course. Hence clinical study was done in 23 patients.

Follow Up

All the patients were admitted in IPD and observed everyday for a 30 days schedule. All the datas were collected after the completion of 30 days.

Assessment of Subjevtive Parameters

Subjective parameters were evaluated by the preliminary approach of arbitrary grading system. The grading was done on the basis of appropriate literary meaning of particular terms.

CHESTA NIBRITTI (immobility), and subsequent VAIKALYA (disability).

Table no. 1.

Features	Scores
All limbs are mobile	0
Mobility restricted in one limb	1
Mobility restricted in two limbs	2
Mobility restricted in three limbs	3
Mobility restricted in four limbs and/or trunk	4

Sankochana, Padajangha urukaramula abomatan, Antarayamyatte griba (manyasthambha)/griba abamridyate, Pristhayam (contracture/ cramps and spasticity)

Table no. 2.

Features	Scores
a. Cramps in feet, calf-muscle, thigh, wrist, shoulder joint, back -- nil	0
b. Cramps in feet, calf-muscle, thigh, wrist, shoulder joint, back-- mild	1
c. Cramps in feet, calf-muscle, thigh, wrist, shoulder joint, back—moderate	2
d. Cramps in feet, calf-muscle, thigh, wrist, shoulder joint, back—severe but limited in one or two area(s)	3
e. Cramps in feet, calf-muscle, thigh, wrist, shoulder joint, back—intolerable affecting all over the body	4

Lalasraba (sialorrhoea)
Table no. 3.

Features	Scores
a. Normal salivation	0
b. Drooling—Mild	1
c. Drooling – moderate (with control)	2
d. Drooling – severe (with occasional control)	3
e. Drooling – very severe (unable to control)	4

vakgraha/vaksthambha (dysarthria/dysphasia)
Table no. 4.

Features	Scores
a. Normal speech	0
b. Detectable speech disturbance	1
c. Intelligible with repeating	2
d. Speech combined with nonvocal communication	3
e. Loss of useful speech	4

KUBJATVA(hunk back)
Table no. 5.

Features	Scores
a. Normal (full length ,no reduction)	0
b. Mild bending (within 30 degree from vertical/segital plain).	1
c. Moderate bending (within 60 degree from vertical/segital plain).	2
d. Severe bending (within 90 degree from vertical/segital plain).	3
e. Very severe (crossing/ greater than 90 degree).	4

KAMPA (AKSHEP) (fasciculation)
In bulbar distribution it is present in tongue; in cervical distribution in upper limbs; in lumbar distribution lower limbs; in thoracic distribution back and thoracic region.

Table no. 6.

Features	Scores
a. not present	0
b. occasionally in mild form in 24 hours	1
c. occurs at regular interval in 24 hours	2
d. occurs continuously in 24 hours	3
e. occurs continuously beyond 24hours	4

SARBANGA SARBADEHAJAM (involvement of whole body)
Table no. 7.

Feature	Score
a. Non significant affecting of whole body	0
b. Mild affection of whole body	1
c. Moderate affection of whole body	2
d. Severe affection of whole body	3
e. Patient completely crippled	4

JATVEGA NIHANYESHA (death)
Table no. 8.

Feature	Score
Death	4

Grading has been evaluated as degree of extension of the disease.

Assessment of grading and remarks
Table no. 9.

Grade	Grade point	Remarks
G0	O	Normal
G1	1	Mild
G2	2	Moderate
G3	3	Severe
G4	4	Very severe

Assessment of percentage of relief and remarks
Table no. 9.

Percentage of Relief	Remarks
100 % improvement of subjective parameter	Complete remission
>75%--100% improvement of subjective parameters.	Marked improvement
>50%-- 75% improvement of subjective parameters.	Moderate improvement
>25%-- 50% improvement of subjective parameters.	Mild improvement
Equal or <25% improvement of subjective parameters.	No improvement

RESULT AND DISCUSSIONS

Statistical analysis
The obtained data were analyzed statistically. The values were expressed as Mean ± SEM (standard error of mean). The data were analyzed by paired 't' test. A level of $p<0.001$ was considered as statistically highly significant and $p<0.05$ was considered as statistically

significant. Level of significance was noted and interpreted accordingly.

Assessment the efficacy of drug on subjective parameters statistically

Drug effect was evaluated by statistical method Paired t-test.

CHESTA NIVRITTI (immobility), and subsequent VAIKALYA (disability)
Table no. 10.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	3.65	23	2.3	10.84	0.000***
AT**	1.35	23			

***BT – Before Treatment **AT – After Treatment ***Significant at p<.001 level**

Sankochana, Padajangha urukaramula abomatan, Antarayamyatte griba (manyasthambha)/griba abamridyate, Pristhayam (contracture/ cramps and spasticity)

Table no. 11.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	3.43	23	1.87	11.84	0.000***
AT**	1.56	23			

***BT – Before Treatment **AT – After Treatment ***Significant at p<.001 level**

LALASRAVA
Table no. 12.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	3.47	23	2.52	13.47	0.000***
AT**	.95	23			

***BT – Before Treatment **AT – After Treatment ***Significant at p<.001 level**

VAKGRAHA
Table no. 13.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	3.56	23	1.95	11.38	0.000***
AT**	1.61	23			

***BT – Before Treatment **AT – After Treatment ***Significant at p<.001 level**

KUBJATWA
Table no. 14.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	3.69	23	1.78	8.57	0.000***
AT**	1.91	23			

***BT – Before Treatment **AT – After Treatment ***Significant at p<.001 level**

KAMPA/AKSHEPA
Table no. 15.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	3.34	23	1.95	13.29	0.000***
AT**	1.39	23			

***BT – Before Treatment **AT – After Treatment ***Significant at p<.001 level**

SARBANGA SARBADEHAJAM
Table no. 16.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	3.30	23	2.00	15.91	0.000***
AT**	1.30	23			

***BT – Before Treatment **AT – After Treatment ***Significant at p<.001 level**

Effect of drug on objective parameters

Table no. 17: Conduction velocity of ulnar and median nerve.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	32.35	23	-8.478	-10.666	0.000***
AT**	40.83	23			

Table no. 18: Conduction velocity of tibial and peroneal nerve.

	Mean	N	Mean Difference	t Value	Sig. (2 tailed)
BT*	24.04	23	-10.957	-10.636	0.000***
AT**	35.00	23			

Observation and Discussion of the Clinical Signs and Symptoms

Overall affectivity after the administration of drug (***baladi yapana basti***) on the subjective parameters have been justified in the **table no 10—16**.

The results for Paired T test suggested that the mean score for after treatment was significantly lower than the before treatment , since the P value (0.00) was less than the level of significance for this study which was set at 0.05.

It may be revealed from the above observation that the said signs and symptoms were definite manifestation in respect to *snayugata vata* and MND and those subjective parameters were nothing but the characteristics of aggravated *vayu*. The minute analysis proves that these were caused due to altered ***rukshma and vishada guna*** as discussed in conceptual study. And definitely *Baladi yapana basti* played a significant role in reduction of the signs and symptoms of *snayugata vata* as well as MND. The probable mode of action of the drug will be discussed in the conclusion.

Observation and Discussion of the Objective Parameters: t

Generally in MND, the NCV test of four limbs in respect to ulnar, median, tibial and peroneal are done. In this study the normal velocity of ulnar and median nerve is >50 ms. < 35 ms is indicative of pathological condition (likely MND). The normal velocity of tibial and peroneal nerve is > 40ms and < 29 ms is pathological condition (likely MND). The negative t value in both the above mentioned table **(table no. 17-18)** reveals that there is significant increase in the velocity of nerve conduction (concerned nerve) after the treatment. The decreased conduction velocity signifies that the *chala guna of vayu* is decreased but at the same time the *rukshatwa and vishada* guna of *vayu* was aggravated. Increased velocity after the administration of drug signifies the efficacy of drug in arresting the disease process.

SUMMARY AND CONCLUSION

Definite manifestation in respect to *snayugata vata* and MND and those subjective parameters related to MND were nothing but the characteristics of aggravated vayu. The minute analysis proves that these were caused due to altered **rukshma and vishada guna** as discussed in conceptual study. And definitely *Baladi yapana basti* plays a significant role in reduction of the signs and symptoms of *snayugata vata* as well as MND. Further study should be carried out in large sample to establish the role of said therapy on *snayugata vata* as well as MND.

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