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An AYURVED MANAGEMENT OF AMYOTROPHIC LATERAL SCLEROSIS: A Case Study

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Abstract: Amyotrophic lateral sclerosis (ALS) is the most common adult motor neuron disease and it is characterized by selective death of upper and lower motor neurons causing muscle atrophy, weakness and spasticity. The present report deals with a case of ALS diagnosed as *Kapha Avrita Praana, Udaana and Vyaana Vata* according to *Ayurveda*. Efficacy of treatment was calculated by using Amyotrophic Lateral Sclerosis Functional Rating Scale – Revised (ALSFRS-R). Before treatment, total score of ALSFRS-R was 17 and at the time of discharge the score was 29. A 66 years old male patient was presented to our hospital with history of muscle weakness in bilateral upper and lower limbs associated with slurred speech, imbalance in walking, heaviness especially in both lower limbs for the past 7 months The condition rapidly progressed in the 2 months prior and found difficulty in climbing stairs and swelling in the left foot. Gradually he developed slowness of speech hence consulted allopathic hospital and treated with glutamate blockers, muscle relaxant and physiotherapy. His response to allopathic medications found to be slow. Various *Panchakarma* procedures like *Udwartana, Sarvanga Abhyanga, Bashpa Sweda, Shashtika Shali Pinda Sweda and Vasti* were implemented.

*K*eywords- Amyotrophic lateral sclerosis, *Panchakarma Ayurveda*, *Kaphapravrutavata, Rasayana* therapy.

INTRODUCTION

The term Amyotrophic lateral sclerosis (ALS) is used synonymously with MND [1]. Amyotrophic lateral sclerosis is the most common form of progressive motor neuron disease [2]. ALS is considered to be a neurodegenerative disorder usually affecting the motor functions of either limbs (limb onset) or head and neck (bulbar onset) or both (multifocal) exhibiting symptoms related to either Upper motor neuron disease (UMN) or Lower motor neuron disease (LMN) or both [3] Degeneration of the corticospinal axons causes thinning and scarring (sclerosis) of the lateral aspects of the spinal cord. In addition, as the brain stem and spinal motor neurons die, there is thinning of the ventral roots and denervetional atrophy (amyotrophy) of the muscles of the tongue, oropharynx, and limbs. No therapy offers a substantial clinical benefit for patients with ALS. The drugs riluzole and edaravone, which have been approved by the Food and Drug Administration for the treatment of ALS, provide a limited improvement in survival. Riluzole acts by suppressing excessive motor neuron firing, and edaravone by suppressing oxidative stress. According to *Ayurveda* there is no exact correlation of ALS but the sign and symptoms it is mainly *Vatika* disorder. *Vata* is the main *Dosha* of human body and it regulates the other two *Dosha* and it also regulates all main function of body. This disease can be correlated to *Kaphapravrutavata*.

The treatment principle *kaphavarana* including *Swedana* (~sudation), *Niruhabasti* (~medicated enema), *Sarpipana* (~oral intake of medicated ghee) along with other oral medications have been explained in Ayurvedic texts. For the management or to slow down further progression of the disease and for the depleted tissues the effective therapy is *Brihmana* and *Rasayana* therapies.

Case report

A 66 years old male patient was presented to our hospital with history of muscle weakness in bilateral upper and lower limbs associated with slurred speech, imbalance in walking, heaviness especially in both lower limbs for the past 7 months. The patient had no past medical history reported absence of smoking or alcohol consumption. Bowel habits were normal and family history was not significant Examination findings after admitting the patient in our hospital thorough examination was done. The patient with steppage gait had postural imbalance, slurred speech with slight impairment in memory (memory was assessed through questionnaire related to names, places, locations, relations, work and so on). The cranial nerve examinations were normal except for presence of tongue fasciculations. The sensory system was found intact. Muscles were normotonic with no evident wasting. The power of the muscles was assessed using MRC (Medical Research Council) scale[4].

Muscles	Right side Scoring out of 5	Left side Scoring out of 5
Biceps	**4**	**4**
Deltoid	**4**	**4**
Triceps	**4**	**4**
Abductor pollicis brevis	**2**	**3**
Extensor carpi radialis	**2**	**3**
Quadriceps	**4**	**4**
Interossei	**1**	**2**

On Examination

1. *Nadi* /Pulse - 68/min
2. *Mala* (stool)- *Malavshtambha* (constipation)
3. *Mutra* (urine)- *Peetavarniya*
4. *Jihva* (tongue) – *Samata*
5. *Kshudha* (appetite)- *Mandya*
6. *Shabda* (speech) - *Prakrut* (normal)
7. *Sparsha* (skin) - *Prakrut* (normal)
8. *Akruti – Madhyam*
9. *Bala – Madhyam Raktadab*
10. (B.P.)- 110/70mmHg
11. *Druk* (eyes) - *Pita Varniya*

Central Nervous System Examination

1. Higher Motor Functions -intact
2. Consciousness- Conscious
3. Orientation to- Time, place, person- Intact
4. Memory - Recent -not affected, Remote- not affected
5. Intelligence- Intact
6. Hallucination and delusion - Absent
7. Speech - Slow and words are mumbled

Treatment Plan[5]

1. *Shodhana*
2. *Rasayana* therapy

MEDICATION	DOSE	*ANUPAN*
T. Chitrakadivat	500MG 1 TDS	*Jal*
T. Lashunarasayana[6]	500MG 2 TDS	*Ghrit*
T. *Brihatvatachintamani*[7]	500MG 2TDS	*Ghrit*
Maha Kalyanaka Ghrita	10 ml twice a day, before food with hot wate	*Koshn Jal*

Treatment procedure	
I. Snehan	
II. Shashtika Sali Pinda Swedam	• Rice bag fomentation • *Shalishtika Sali* (Oryza sativa Linn) boiled in decoction of *Bala* (sida cordifolia linn) and milk
III. Basthi Chikitsa (enema therapy)	*Yogabashti* (Enema therapy) ➢ anuvasana with *Erandamolaadi* tail 150 ml ➢ *Niruh Basti with* Sahachar *Basthi*- 800 ml ➢ *Rajayapana Basthi* - 800 ml for 1 month
IV. Nasya	• *Shadbindu Tail* 4 drops in each nostril
V. Padabhyang	• *Narikel tail*
VI. Udwartana	• Rubbing of warm medicated powder over the body against the direction of hair follicles for 7 days. *Kolakulattadi churna*

Diagnosis & Assessment

A criterion of assessment was based on the scoring of Amyotrophic Lateral Sclerosis Functional Rating Scale Revised (ALSFRS-R). This is composed of 12 Items (Questions). Each question is rated on 5-point (0-4) scale. The 12 Questions of ALSFRS-R asks about speech, swallowing difficulties, motor functions and respiratory problems [8]

Speech	**Grade**	**Salivation**	**Grade**
Normal	+4	Normal	+4
Detectable speech disturbance	+3	Slight but definite excess of saliva in mouth; have nighttime drooling	+3
Intelligible with repeating	+2	Moderately eccessive saliva; may have minimal drooling	+2
Speech combined with non-vocal communications	+1	Marked excess of saliva with some drooling	+1
Loss of useful speech	0	Marked drooling; requires constant tissue or handkerchief	0
Swallowing		**Handwriting**	
Normal eating habits	+4	Normal	+4
Early eating problems; occasional choking	+3	Slow or sloppy; all words are legible	+3
Dietary consistency changes	+2	Not all words are legible	+2
Needs supplemental tube feedings	+1	Able to grip pen but unable to write	+1
Nothing by mouth; exclusively parenteral or internal feeding	0	Unable to gript pen	0
Cutting food and handling utensils		**Dressing and hygiene**	
Normal	+4	Normal function	+4

Somewhat slow and clumsy but no help needed	+3	Independent and complete self-care with efforts or decreased efficiency	+3
Can cut most foods although clumsy and slow; some help needed	+2	Intermittent assistance or substitute methods	+2
Food must be cut by someone but can still feed slowly	+1	Needs attendant for self-care	+1
Need to be fed	0	Total dependence	0
Turning in bed and adjusting bed cloth		**Walking**	
Normal	+4	Normal	+4
Somewhat slow and clumsy but no help needed	+3	Early ambulation difficulties	+3
Can turn alone or adjust sheets but with great difficulty	+2	Walks with assistance	+2
Can initiate but not turn or adjust sheets alone	+1	Non ambulatory functional movement	+1
Helpless	0	No purposeful leg movement	0
Climbing stairs		**Dyspnoea**	
Normal	+4	None	+4
Slow	+3	Occurs when talking	+3
Mild unsteadlines or fatigue	+2	Occurs with one or more of the following; eating, bathing, dressing	+2
Needs assistance	+1	Occurs at rest, difficulty breathing when either sitting or lying	+1
Can not do	0	Significant difficulty, considering using mechanical respiratory support	0
Orthopnea		**Respiratory insufficiency**	
None	+4	None	+4
Someone difficulty sleeping at night due to shortness of breath; does not routinely use pillows	+3	Intermittent use of BiPAP	+3
Needs extra pillows in order to sleep	+2	Continuous use of BiPAP during the night	+2
Can only sleep sitting up	+1	Continuous use of BiPAP during the night and day	+1
Unable to sleep	0	Invasive mechanical ventilation by intubation or tracheostomy pen	0

The response to the treatment was done by the symptomatic assessment of patient.

Parameters	Before treatment	After treatment
Speech	2	3
Salivation	2	3
Swallowing	3	4
Handwriting	3	4
Cutting food	1	4
Dressing and Hygeine	2	3
Turning in bed	3	3
Walking	2	3
Climbing stairs	0	1
Dyspnea	4	4
Orthopnea	3	4
Respiratory insufficiency	4	4

DISCUSSION

Swedana helps to pacify *Kapha* and and lead to removal of the occlusion to *Gati (~Movement) Of Vata* especially in *Udanavatavaha Srotas* (~Channels). The relief observed in orthopnea could be attributed to this removal of *Kapha* occluding *Udanavatavahasrotas.*

Basti is the best treatment for vitiated *Vata Dosha*. Here *Yapana Basti* was adopted as it has the ability to support life and promote longevity[9]. *Rajayapana Basti* having a positive impact on both neurological disorders and in motor system involvement. *Mustadi Rajayapana Basti* is having *Sadhyo Balajanana* (improves strength quickly), *Vatashamaka* (pacify *Vata Dosha) And Rasayana* properties.

Amyotrophic lateral sclerosis *Being Adrishtaja Vyadhi Or Daivakrita The Ghrita Such As Kalyanaka Ghrita* which is *Balya, Alakshmighna* (destroys misfortune), *Paparakshoghna* (protection against evil spirits) *Balapradam*(provides strength) is selected for *Matrabasti*[10]. Thus the overall effect of *Panchakarma* procedures along with oral medications delayed the progression of the disease. The results were assessed by ALSFRS-R scoring parameters which includes 12 aspects of physical function, *Lashuna* has *Usna Virya* (~hot potency) while *Brihatvatachintamani Rasa* is best *Vatahara* drug especially in neurological debilities. Following *Swedana, Niruhabasti* was administered in *Yoga Basti* pattern to subside *Avruta Dosha* (~Occluded) and thereby helping to resume normal functioning of *Vata. Udanavata* which is responsible for speech is influenced by the administration of *Niruha Basti* and hence improvement in speech is observed.

Conclusion

MND is a serious condition which affects the motor functions of the body. Multifocal onset of ALS can be challenging to treat especially when the duration of the disease is longer. Early diagnosis of the disease may help in preventing the complications. *Kaphavrutaudanavata* can be considered for multifocal ALS where the treatment protocol of *Swedana, Niruhabasti, Sarpipana* could be beneficial in helping the patient to a certain level and prevent end stage complications. The Ayurvedic intervention might help the patients of MND to be self-reliant as it is very essential factor for them. The treatment thus executed for a duration was 21 days had an optimistic impact on the disease, which was shown by the drop in the symptoms

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