



MANAGEMENT OF AMYOTROPHIC LATERAL SCLEROSIS THROUGH AYURVEDA PRINCIPLES - CASE REPORT

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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 udana and vyana vata according to Ayurveda. Efficacy of treatment was calculated by using Amyotrophic Lateral Sclerosis Functional Rating Scale -Revised (ATSFRS-R). Before treatment, total score of ALSFRS-R was 18 and at the time of discharge the score was 24, Various panchakarma procedures includes sarvanga abhyanga, bashpa sweda and Basti were implemented along with internal Ayurvedic medicines. There was a significant improvement observed in muscle power, ability to walk, and shortness of breath.

Key Words: ALS, kapha avrita udana and vyana, Rajayapana basti

INTRODUCTION

Amyotrophic lateral sclerosis (ALS) is a progressive, paralytic disorder characterized by degeneration of motor neurons in the brain and spinal cord¹. It begins insidiously with focal weakness but spreads relentlessly to involve most muscles, including the diaphragm. Typically, death due to respiratory paralysis occurs in 3 to 5 years. Motor neurons are grouped into upper populations in the motor cortex and lower populations in the brain stem and spinal cord; lower motor neurons innervate muscle. When corticospinal (upper) motor neurons fail, muscle stiffness and spasticity result. When lower motor neurons become affected, they initially show excessive electrical irritability, leading to spontaneous muscle twitching (fasciculations); as they degenerate, they lose synaptic connectivity with their target muscles, which then

atrophy. ALS typically begins in the limbs, but about one third of cases are bulbar, heralded by difficulty chewing, speaking, or swallowing. The prevalence of the disease is said to be 4.5 per 100,000 populations and in the year 2016 alone it is estimated that 34,325 deaths occurred due to MND globally, About 10% of ALS cases are familial, usually inherited as dominant traits. The remaining 90% of cases of ALS are sporadic (occurring without a family history). In cases of sporadic ALS, the ratio of affected males to affected females may approach 2:1; in familial ALS, the ratio is closer to 1:1. ALS is the most frequent neurodegenerative disorder of midlife, with an onset in the middle-to-late 50s. An onset in the late teenage or early adult years is usually indicative of familial ALS.

The proper understanding regarding the disease still needs to be done but it is believed that genetic mutations within superoxide dismutase 1 (SOD1) and C9orf72 is linked with its occurrence.

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 denervational 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. Vata action is much resemble with nervous system function, so symptoms of ALS resemble with vitiated Vata symptoms. ALS can be correlated with Kapha Avrita Udana Vata², Kapha Avrita Vyana³ Vata. Clinical features like Vakswara-graha (~difficulty in speech), Dourbalya (~generalized weakness), Sarvagatragurutva (~heaviness), Aruchi (~anorexia) and Vaivarnya (~loss of lustre of the skin) pertaining to Kaphavruta udanavata can be related to multifocal onset of ALS . hence ,the choice of treatment should be Ana abhishyandi, Snigdha, Srotoshodhaka drugs, Kapha and Pitta Avirudha (without affect homeostasis of Kapha and Pitta) and Vatahara Chikitsa and Yapana Basti⁴ . Here a case report of Amyotrophic lateral sclerosis managed through Ayurveda and its outcome is discussed.

Case report:

A 29 year old male patient approached OPD of GAMC, Mysuru Dept. of Kayachikitsa with the complaints of weakness in bilateral upper and lower limbs associated with twitching and also associated with difficulty in speech and breathing on exertion .Detailed history of present illness revealed that Patient was said to be healthy before 1 and ½ year, Then he developed weakness of right lower limb which was insidious in onset and gradually progressive in nature. After a month he noticed twitching around shoulder and gradually all over the body. 2 months later developed weakness of right upper limb, left lower limb and left upper limb,. Then patient consulted a neurologist at his clinic, where initial evaluation was done and patient was referred to NIMHANS for further evaluation and management. There after patient visited NIMHANS where he was

admitted for 3 days (26/03/21 TO 28/03/21) and treated for his illness, and they also advised to continue same treatment protocol at K R Hospital, Mysuru.

Patient followed the orders of doctors and underwent 2 days medicinal therapy in KR hospital and again visited NIMHANS for follow up. Where re-evaluation was done & was advised to follow same protocol for next 4 months. But patient had not found any symptomatic relief from medications and he discontinued them. he developed difficulty in getting up from squatting position & difficulty in climbing stairs. During the initial period, patient was able to walk with support of walking stick, later, he required somebody to hold him, not able to mix his food, button or unbutton his shirt, holding a glass of water and later progressed to that extent where he was not able to comb his hairs, lift his arm above head. There after he developed difficulty in speech, which was insidious in onset and in such a manner that he had difficulty to initiate the speech and has to strain to speak but the patient was able to understand the words and respond back to the commands, From past 15 days he developed difficulty in breathing on exertion, Hence he approached Govt Ayurveda Hospital, Mysuru for further management. No history of bowel and bladder dysfunction, headache vomiting and altered sensorium.

Past history: N/K/C/O DM/HTN and No H/O Trauma or any other major medical illness.

Family history: No history of same illness in any of the family members.

CHIKITSA VRITTANTA- @ NIMHANS (26-28/3/21) -Inj. CYCLOPHOSPHAMIDE 500mg in 500ml in NS IV over 6-8hrs for two consecutive days. Adjuvant medicine – Inj. Mesna 100mg in 100 ml NS. Tab. Baclofen 10 mg BD, Tab. Synaptol 50 mg BD

Findings on examination:

Built	:	Moderate
Nourishment	:	Moderate
Pulse	:	74 b / min
BP	:	130/80 mm of Hg
Temperature	:	98.F
Respiratory Rate	:	30 cycles / minute
Spo2	:	98% on RA
Weight :	:	70 kg
Tongue	:	Uncoated
Pallor	:	Absent
Icterus	:	Absent
Cyanosis	:	Absent
Clubbing	:	Absent
Koilonychia	:	Absent
Edema	:	Absent

Lymphadenopathy: Absent

Systemic examination:

HIGHER MENTAL FUNCTIONS

- Conscious and cooperative
- Oriented to time, place and person.
- Memory - intact
- Intelligence - intact
- No evidence of illusion, delusion or hallucination.
- Speech – dysarthria, patient understands what is spoken to him & gives relevant reply.

CRANIAL NERVE EXAMINATION

Hypoglossal nerve :

Protrusion of tongue - absent

Wasting and deviation - absent

Dysarthria - present

Sensory system – Intact

Attitude of limb

Upper limb : normal

Lower limb: normal

2. Nutrition Right Left

Bulk of upper limb :

At Mid arm - 26cm 26cm

At forearm - 23cm 23cm

Bulk of lower limb :

At mid thigh - 43 cm 43cm

At calf - 35cm 35cm

3. Tone Right Left

Lower limbs - Hypertonic Hypertonic

Upper limbs - Hypertonic Hypertonic

4. Power

upper limb : Right – 3/5, Left – 3/5

lower limb : Right – 2/5, left – 2/5

5. Coordination test :

Upper limb: Finger to nose test - Present but sluggish

Dysdiadacokinesis - absent

Lower limb: Knee heel / Heel shine test- Normal

Rhomberg's sign - negative

6. Involuntary movements :

Fasciculation -- present

• Reflexes :

Superficial reflexes	Right	Left
Abdominal reflex –	Present	Present
Plantar reflex -	Present (flexor)	Present (flexor)
Scapular reflex -	Present	Present
Deep reflexes:		
Biceps jerk -		
Triceps jerk -		
Supinator jerk -	Hyperreflexia	
Knee jerk -		
Ankle jerk -		
Clonus -	Absent	

EXAMINATION OF SPEECH

- Fluency : Word output - Dysarthria
 - Initiation difficulty - present
 - Circumlocution
 - Grammar NAD
 - Prosody
 - Paraphasia
 - Neologism
- Comprehension : Single word comprehension
 - Sequences of words
- Repetition : Normal

- Naming and word finding : Normal
- Reading : word
Sentence
Paragraph
- Writing : Patient not able to grip a pen

ASHTASTHANA PAREEKSHA

- Nadi : vata pitta
- Mala : Prakruta (1time a day)
- Mutra : Prakruta (4-5 times in a day)
- Jihwa : Alipta
- Shabda : Vak vikruthi
- Sparsha : Sheetha
- Drik : Prakruta
- Akriti : Madhyama

DASHAVIDHA PAREEKSHA

- Prakriti : Pitta vata
- Vikriti : Dosha – Vata kapha
- Vata : Prana, Udana & Vyana vata.
- Kapha : Tarpaka and Avalambaka kapha
- Dushya – Rasa, Rakta, Mamsa, Meda, Sira, Snayu,
- Desha – Vama Urdhwa adhah shakha, Dakshina adhah urdhwa shakha,
- Bala – Balahani
- Sara : Twak sara, Asthi sara
- Samhanana : Madhyama

ALSFRs (Amyotrophic lateral sclerosis functional rating scale)

Measure	Finding	Score
Speech	Detectable speech disturbance	3
Salivation	Slight but definite excess of salivation, may have nighttime drooling	3
Swallowing	Early eating problems; occasional choking	3
Handwriting	Unable to grip pen	0
Cutting food & handling utensils	No gastrostomy; can cut most foods although clumsy & slow; some help needed	2
Dressing & hygiene	Needs attendant for selfcare	1
Turning in bed & adjusting bed clothes	Can initiate but not turn or adjust sheets alone	1
Walking	Walks with assistance	2
Climbing stairs	cannot	0
Breathing	Shortness of breath on exertion	3

ALSFRS SCORE- 18

INVESTIGATIONS

- MRI Brain Done on 06/02/2021 at KVC diagnostic centre

Observation :

T2 and FLAIR shows high signal intensities in b/l cortico spinal tracts from precetral gyrus and centrum semiovale through posterior internal capsule to the brainstem.

Impression:

? AMYOTROPHIC LATERAL SCLEROSIS

The signs and symptoms of the patient, the investigation reports and examination findings together confirmed the diagnosis of multifocal onset of ALS. The ALSFRS-R scoring was considered for the assessment of the disease

DIAGNOSIS: AMYOTROPHIC LATERAL SCLEROSIS

INTERVENTION:

Both panchakarma procedures and shamanaoushadhi were administered for a period of 20 days.

The treatment planned is listed down in table below.

PANCHAKARMA PROCEDURES	
24/5/2022 – 30/5/2022	Sarvanga abhyanga with Mahanarayana taila followed by Bhaspa sweda
29/5/2022- 5/6/2022	Dashamoola niruha basti Honey- 30 ml Saindhava lavana- 10 gm Sneha- Dhanwantara taila – 60 ml Kalka- shatapushpa churna- 12 gram Kwatha- Dashamoola kwatha- 350 ml
15/6/2022 – 23/6/2022	Mustadi Raja Yapana Basti Saindhava – 6gm Honey - 100ml Mahanarayana taila – 100ml Mustadi yapana kalka - 1 packet Mustadi yapana basti } kwatha } – 200ml Mamsa rasa- 100 ml

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SHAMANOUSHADHI	
22/5/2022 – 30/05/2022	Tab. Agnitundi vati 1-1-1 (B/F) Tab. Trayodashanga guggulu 1-1-1(B/F) Tab. Ekangaveera rasa 1-0-0 (A/F)
9/6/2022- 17/06/2022	Ashwagandha avaleha 1 tsf-0-0 with milk (A/F) Ashwagandha churna 0-0-1tsf with milk (A/F) Kalyanaka ghrita 5ml -0-0 (A/F) Cap. Neuron 1-1-1(A/F)
ADVICE ON DISCHARGE	
25/6/2022	Tab. Trayodashanga guggulu 1-1-1(B/F) Tab. Ekangaveera rasa 1-0-0 (A/F) Ashwagandha churna 1/2tsf BD (A/f) Cap. Neuron 1-0-1(A/F)

RESULTS:

There were beneficial effects for patient in terms of muscle strength in all extremities as the treatment progressed, reduced strength in bilateral lower limbs improved. Patient was able to stand for one to two minutes with out support, climb stairs with support.

After treatment- Improvement; **The Amyotrophic Lateral Sclerosis Functional Rating Scale (ALSFRS)**

Salivation-normal-4

Swallowing- 4

Handwriting- Not all words are legible-2

Cutting food and handling utensils- 3, No gastrostomy; somewhat slow and clumsy but no help required.

Turning in bed and adjusting bed clothes- 2, Can turn alone or adjust sheets but with great difficulty

Total score- improved from 18 to 24.

Muscle power- Pre and Post Treatment

	BT	AT
Right upper limb	3/5	3/5
Left upper limb	3/5	3/5
Right lower limb	2/5	3/5
Left lower limb	2/5	3/5

Before starting treatment, total score of ALSFRS-R [17] was 19, at the time of discharge the score was 28. Patient showed good improvement in speech, swallowing, salivation, walking and generalized weakness. At the time of discharge, the patient's gait was improved; felt energetic, stiffness of left lower limb decreased with overall improvement in general condition.

DISCUSSION-

ALS with multifocal onset, neurodegenerative disease affecting the motor neurons, in both the spinal cord and medulla (lower motor neurons) and cerebral cortex (upper motor neurons). In Ayurveda we can find that Kaphavruta vyana and udanavata vyadhi en masse (when grouped together) have features almost similar to that of different types of ALS. The present case was given the treatment following generalized protocols of Kaphavruta vata chitkita.

Present case patient complaints of dourbalya more than stiffness Initially to remove ama dosha bhashpa sweda, along with internal medicine agnitundi vati were selected. Agnitundi vati has deepana, pachana action, Swedana helps to pacify kapha and lead to removal of the occlusion to gati (~movement) of vata.

Snehana abhyanga with mahanarayana taila and bhaspa swedana. Along with this, one niruha basti and one yapana basti in yoga basti schedule were prescribed with ten days gap in between the two schedules.

Dashamoola Niruha Basti⁵, having vata-kapha hara, Ama hara, Vedana Sthapaka and Shothagna properties helps to improve the movement of limbs.

After a course of Dashamoola Niruha Basti for 9 days, parihara kala was observed and later Mustadi raja yapana basti in yoga basti pattern was administered.

Yapana Basti perform dual function as Brimhana and Srotoshodhana. i.e Rajayapana Basti⁶ alleviates the Avarana of Vata by reduction of Kapha and normalize the Vata and also having sadyobala janana and

rasayana action. The drugs are having tikta rasa, jeevaniya , balya properties and help in mamsa, asthi and majja poshana .

Trayodashanga guggulu is having a property of Vedanastapaka, Shoolahara and Rasayana. The drugs of Tryodashanga guggulu are Ushna Veerya so reduces stiffness and it also having Deepana, Pachana property also reduces the Ama Dosha and clear the Srotas and normalize the Vata which is vitiated due to obstruction. It is also having Madhura Vipaka, Guru Snigdha and Picchila Guna so it suppresses Vata Dosha and responsible for Balavardhana, so it gives strength to the muscles of affected limbs. It is Vata - Kapha hara in nature, and has Balya - Rasayana action.it is indicated in Pakshaghatha, Dhanurvata, Ardhang Vata, Grdhrasi, Viswachi, Ardhitha, Akshepaka, Avabahuka.

To tackle speech difficulty, deglutition problems, kalyana ghrita is prescribed, It is tridosha hara and clears the dhatu gata ,mala gata dosha. Helpful in dourbalya, vak vikruti.

Ashwagandha avaleha was prescribed to deals with muscle wasting, fasciculations, tremors and generalized weakness. Balya, Bruhmana and Rasayana in action.It is useful in treatment of Neuro-muscular conditions. Aferin (extract of withania somnifera) in early stage treatment in reduces level of SOD 1 (superoxide dismutase) and extends lifespan in a mouse model of ALS⁷.

CONCLUSION

ALS is a rapidly progressive neurodegenerative disorder disturbing both upper and lower motor neuron function. Some time it is life threatening in nature so tough to manage. Ayurvedic diagnosis of MND may vary from patient to patient and at different stages in same patient. Shamanaoushadi and panchakarma therapy helps to improve the muscle weakness and quality of life in patients with ALS.

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