Case Report

A case report: Ayurvedic intervention in motor neuron disease contemplating Kaphavrutavata

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1. Introduction

Motor neuron disease (MND) otherwise referred as Amyotrophic lateral sclerosis (ALS) affects human life in various ways. ALS with multifocal onset might exhibit muscle stiffness and muscle weakness of upper and lower limbs, muscle twitching, atrophy, falling/tripping, slurred speech, difficulty in swallowing and loss of dexterity. In Ayurvedic contexts Avarana vayavyadhish are found to have close resemblance to MND. The patient presented with features of multifocal onset of ALS which can be related to Kaphavruta Udana vata. The treatment principle of kaphavarna including Swedana (~sudation), Niruhabasti (~medicated enema), Vamana (~therapeutic emesis) Virechana (~purgation) and Saripipana (~oral intake of medicated ghee) along with other oral medications have been explained in Ayurvedic texts. In the present study, the same treatments were administered except for vamana due to patient’s unwillingness. The Functional Rating Scale for ALS (ALSFRS-R) was used for assessment. The ALSFRS-R score before the treatment was 29 which was increased to 38 with remarkable improvement in Salivation and moderate improvement in Speech, Swallowing, Walking, Climbing stairs, Dyspnea and Orthopnea. The treatment was found to be highly effective in preventing the late stage complications which usually occur within 1−2 years of the disease onset and thereby helps the patient to be self-reliant.

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2. Case report

A 29 years old male patient (Fig. 1) was presented to our hospital on 17/04/2018 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, difficulty in swallowing and loss of dexterity. In various ways. ALS with multifocal onset might exhibit muscle stiffness and muscle weakness of upper and lower limbs, muscle twitching, atrophy, falling/tripping, slurred speech, difficulty in swallowing and loss of dexterity. In Ayurvedic contexts Avarana vayavyadhish are found to have close resemblance to MND. The patient presented with features of multifocal onset of ALS which can be related to Kaphavruta Udana vata. The treatment principle of kaphavarna including Swedana (~sudation), Niruhabasti (~medicated enema), Vamana (~therapeutic emesis) Virechana (~purgation) and Saripipana (~oral intake of medicated ghee) along with other oral medications have been explained in Ayurvedic texts. In the present study, the same treatments were administered except for vamana due to patient’s unwillingness. The Functional Rating Scale for ALS (ALSFRS-R) was used for assessment. The ALSFRS-R score before the treatment was 29 which was increased to 38 with remarkable improvement in Salivation and moderate improvement in Speech, Swallowing, Walking, Climbing stairs, Dyspnea and Orthopnea. The treatment was found to be highly effective in preventing the late stage complications which usually occur within 1−2 years of the disease onset and thereby helps the patient to be self-reliant.

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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.

Patient initially developed the weakness in bilateral lower limbs for which he was taken to the physician on 10/01/2018. He was advised for MRI whole spine which revealed mild disc bulge at L4-L5 and was administered with few analgesics and nervine injections but symptoms persisted. Gradually he developed stiffness in bilateral lower limbs followed by tripping. Later the same things were noticed in bilateral upper limbs along with slurred speech. The patient was referred to a neurologist on 24/02/2018 and he was assessed using MRC (Medical Research Council) scale [11] and is mentioned in Table 1.

DTR (Deep Tendon Reflex) in bilateral upper and lower limbs were exaggerated and their grading is presented in Table 2.

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 which comprised of following 12 variables [12].

The patient with Kapha-vata prakruti had MADHYAMA (Moderate) Agni (Digestives) Pramana (Body Dimensions) Vayu (age) Aharashakti (appetite) and VARA (Inadequate) Srotaka (Body tissue essence) Satmya (compatibility), Samhanana (body compactness) Satva (Tolerance) and Vyayamashakti (Physical endurance).

The kapha-vatotkleshaka nidana (causative factors) would aggravate kapha and vata respectively and in extreme conditions the aggravated kapha would lead to avarama (occlusion) of udanavatavahasrotas (channels of uddanavata). Due to obstruction to its own gati (movement) vata gets vitiated and depending on the srotas it is being occluded respective symptoms occur [13]. Hence the malfunctioning of udana, vyana and prana vata can be noted in elements like rasa (nutritional essence), raktha (vascular tissue), mamsa (muscular tissue), medha (fat tissue), majja (marrow) snayu and kandara (Tendons and Ligaments).

4. Intervention

The treatment was planned according to the protocols of Kaphavrutavata chikitsa which included Swedana (sudation) which was achieved with Ud wartana (rubbing of medicated warm and dry powder) and Pradeha (application of medicated warm paste) followed by Niruhabasti (medicated Enema) in Yoga basti pattern. It was followed by Virechana (purgation) through Nitya virechana methodology and Gruhapana (oral intake of medicated ghee) and oral medications. Yamana (emesis) procedure was skipped citing the irritability of the patient. No other allopathic medications were administered during the course of Ayurvedic intervention. The timeline including procedures along with formulations administered is presented in Table 3.

The Patient was advised to follow the strict Pathya ahara (Dietary regimen for the present condition) preferably freshly cooked. He was also asked to refrain from day-sleep and to avoid all the aggravating factors of vata and kapha. Few mobilizing and 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 [11] and is mentioned in Table 1.

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Table 1

| 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                          |
| Interossei              | 1                            | 2                          |
| Quadriceps              | 4                            | 4                          |
| Hamstrings              | 4                            | 4                          |
| Tibialis anterior        | 3                            | 3                          |
| Gastrocnemius           | 3                            | 3                          |

Fig. 1. Patient after Ud wartana with postural imbalance and claw hands.
stretching exercises were also advised under the supervision of the attendant but were not strictly followed by the patient.

5. Follow-up and outcome

The patient did not appear for follow-up after 04/04/2019 as scheduled, however it was clarified from the patient's next to kin that status-quo maintained till January 2020 after which the data was not collected.

The results were assessed by using ALSFRS-R scoring parameters which includes 12 subjects each varying from 0 to 4 (5 grades) where 0 implies complete loss of function and 4 to be normal and the total score is calculated to assess the prognosis. Higher score indicates better chances of survival and lower score indicate bad prognosis. The assessment was made in different stages of treatment individually i.e., after Swedana (Udwartana & Pradeha), after Niruhabasti, Virechana, Sarippanaand during 1st follow-up and last follow-up. The scoring before the treatment was 29 while after the treatment and follow-up it was found to be 38. There was good improvement in speech, swallowing, cutting food, walking, climbing stairs and orthopnea and salivation was almost normal. But there was no improvement in fine movement activities like handwriting or buttoning the shirts or dress hygiene. The changes in scores noted at different time intervals are presented in Table 4.

The improvement in strength was observed at 1st follow-up in only three muscle groups i.e., left interossei 3/5, right APB 3/5 and right interossei 2/5 but it remained unchanged in other muscles. Deep tendon reflexes of both upper and lower limbs also remained unchanged. No changes were observed in plantar reflex.

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**Table 2**

Showing grading of DTR before the treatment.

| DTR       | Grades | Right side | Left side |
|-----------|--------|------------|-----------|
| Biceps    | 4      | 4          | 4         |
| Triceps   | 4      | 4          | 4         |
| Brachioradialis | 4 | 4          | 4         |
| Patellar (Knee reflex) | 4 | 4          | 4         |
| Achilles tendon (Ankle) | 4 | 4          | 4         |
| Babinski sign | Positive |        |           |

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**Table 3**

Showing treatment techniques and schedule.

| Date       | Treatment Description                                                                 | Route                        |
|------------|---------------------------------------------------------------------------------------|------------------------------|
| 18/04/2018 | Pachuna for 5 days                                                                   | Udwartana at 09:30 am        |
| 22/04/2018 | Rubbing of warm medicated powder over the body against the direction of hair follicles | for 7 days                    |
| 28/04/2018 | T. Lashunarasyayana 500 mg [14] 1 tid                                               | Pradeha at 09:30 am          |
| 05/05/2018 | T. Brihatvatachintamani niu [15] 1 bd                                               | Application of the medicated paste in the opposite direction of hair follicles. |
| 12/05/2018 | Niriha Basti is administered in Yoga basti pattern for 8 days.                       | Procedure- Application of the medicated paste in the opposite direction of hair follicles. |
| 20/05/2018 | T. Lashuna Rasayana 500 mg 1 tid                                                    | Nirthukadvati 500 mg 1 tid before food |
| 05/06/2018 | Nitya Virechana [17]                                                                  | Kolskulattadi churna          |
| 20/06/2018 | Jeernasari [10] 15 ml in the early morning.                                           | Prepared in rectal route      |
| 11/07/2018 | Cap. Guducchi 500 mg [16] 1 Td                                                        | Proper Oleation and Sudation on Day-2, Day-4 and Day-6. |
| 02/10/2018 | T. Lashuna Rasayana 500 mg 1 Td                                                       | Anuvasanabasti                |
| 04/01/2019 | T. Mahavatadvamaksaka rasu [21] 125 mg bd                                            | Murchitatilataila anuvasana    |

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thereby helping to resume normal functioning of Virechana procedure being Niruhabasti which is responsible for speech is in Yoga basti.

Table 4

| Parameters                | Before treatment | After Swedana | After Niruhabasti | After Virechana | After Sarpipana | After 1st Follow-up (2/10/18) | After 2nd Follow-up (4/1/19) |
|---------------------------|------------------|---------------|-------------------|-----------------|-----------------|-------------------------------|-------------------------------|
| Speech                    | 2                | 2             | 3                 | 3               | 3               | 3                            | 3                            |
| Salivation                | 2                | 2             | 3                 | 3               | 4               | 4                            | 4                            |
| Swallowing                | 3                | 3             | 2                 | 3               | 4               | 4                            | 4                            |
| Handwriting               | 2                | 2             | 2                 | 2               | 2               | 2                            | 2                            |
| Cutting Food and HU       | 2                | 2             | 2                 | 2               | 3               | 3                            | 3                            |
| D and H                   | 2                | 2             | 2                 | 2               | 2               | 2                            | 2                            |
| TIB and Bed hygiene       | 3                | 3             | 3                 | 2               | 3               | 3                            | 3                            |
| Walking                   | 2                | 2             | 2                 | 2               | 2               | 3                            | 3                            |
| Climbing                  | 1                | 1             | 1                 | 1               | 1               | 2                            | 2                            |
| Dyspnea                   | 3                | 3             | 3                 | 3               | 4               | 4                            | 4                            |
| Orthopnea                 | 3                | 4             | 4                 | 4               | 4               | 4                            | 4                            |
| Respiratory insufficiency | 4                | 4             | 4                 | 4               | 4               | 4                            | 4                            |

6. Discussion

ALS with multifocal onset is difficult to manage especially if the duration of onset is longer. In Ayurveda we can find that Kaphavruta vyana and udanavatavahadhis 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.

The flow chart depicts the plan of the treatment. (Fig. 2)

7. Probable mode of action

Swedana helps to pacify kapha and and lead to removal of the occlusion of gati (~movement) of vata especially in udanavatavaha srotas (~Channels). The relief observed in orthopnea could be attributed to this removal of kapha occluding udanavatavahasrotas. At this stage the main aim is to remove Avaraka dosha and so drugs such as Lashuna Rasayana and Brihatvatachtintamani rasa were administered. Lashuna has Usna virya (~hot potency) while Brihvatachtintamani 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. Udana vata which is responsible for speech is influenced by the administration of Niruha basti and hence improvement in speech is observed. The Virechana procedure being shodana (~detoxification) removes aggravated doshas from the body which was administered in Nitya virechana pattern as the patient was intolerant of classical methodology of virechana. Later Sarpipana was planned. After Shodana followed by Sarpipana there were improvements in salivation and swallowing both of which are primarily operated by udanavata. Parana sarpi having katu-tikta rasa (pungent-bitter taste) with tri-doshahara effect might be responsible for these improvements up to some extent. Guduchi was administered after detoxification therapies which plays important role in normalizing the tridoshas and is also referred to as amruta (~nectar). Dhanadhanayad kashaya ingredients are predominantly laghu (~light), rusksha (~dry) ushna virya (~hot potency) katu (~pungent) vipaka (bio-transformation end product) and pacifies vata and kapha. It can be assumed that it acts at the level of sira (~blood vessels) and snayu (~ligaments) in Mudhyama rogamarga (~Intermediate pathway of disease) while Mahavatavidhwamsaka rasa is also Vata-kapha shamakula which acts at the levels of mamsa (~muscles) and asthi (~Bones). Bhargavaprikta rasayana was administered to achieve rejuvenation of the whole body. The further course of treatment was halted as the patient did not show-up for consultations.

The overall effect of the Panchakarma procedures along with oral medications efficiently delayed the progression of the disease. Hence respiratory symptoms did not worsen even after almost 2 years of onset of the disease beyond which the follow-up was lost.

8. 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. Kaphavrutanudanavata can be considered for multifocal ALS where the treatment protocol of Swedana, Niruhabasti, Virechana, 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. Further studies can be conducted in larger number and in different types of MND by following different treatment protocols mentioned for Anyonyavarana, Pittavarana and other forms of Kaphavarena after due consideration of the symptoms and stages of the disease.

Consent

A written informed consent was obtained from the patient’s next-of-kin for publication of this case study with images and investigation reports. A copy of the written consent is available for review.
Source of funding

None.

Conflict of interest

None.

Author contributions

Dr. Basavaraj V. Policepatil: Conceptualisation, Methodology, Validation, Formal Analysis, Investigation, Resources, Writing Original Draft, Visualisation, Supervision and Project Administration.

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