

<sup>1</sup>Abdul Sukkur M,<sup>2</sup> Shrikanth P H<sup>1</sup>PG Scholar, <sup>2</sup>Professor and Head, Department of PG Studies in Samhita and Siddhanta, SDM College of Ayurveda, Udupi, Karnataka, INDIA.**ABSTRACT:**

Ayurveda, being the ancient science of life has manifold therapies for the ailing humanity from simple principles to the most advanced ones. The contemporary medical science has been established since 100 to 150 years, but Ayurveda was emerged and established in full sense many 1000 years ago. Many explanations explained recently in contemporary medical science resembles Ayurvedic view in relation with the etio-pathogenesis of many diseases; the only difference is in nomenclature and their management. Amyotrophic Lateral Sclerosis (ALS) is a motor neuron disease with bad prognosis. The signs and symptoms of ALS resemble some diseases explained in Ayurveda in Vata Vyadhis.

**Key Words:** Ayurveda, Amyotrophic Lateral Sclerosis, Vata Vyadhi.

**INTRODUCTION:** Motor Neuron involvement causing spasticity, Disease is a progressive disorder of exaggerated tendon reflexes, extensor unknown cause, in which there is plantar responses; external ocular degeneration of motor neurons in the muscles and sphincters usually remain spinal cord and cranial nerve nuclei, and intact; no objective sensory deficit, no of pyramidal neurons in the motor intellectual impairment in most cases. cortex. Between 5 and 10 percent of case

are familial and in 20 percent of such families the disease is caused by a mutation in the superoxide dismutase (SOD1) gene. For the remaining 95 percent causes include viral infection, trauma, exposure to toxins and electric shock. The prevalence of disease is 5/100000.

**Clinical features<sup>1</sup> –**

**Onset<sup>1</sup>-** Usually occurs in the age after 50 years, uncommon before the age of 30 years and affects males more commonly than females.

**Symptoms<sup>1</sup>-** Limb muscle weakness, cramps, occasionally fasciculation and disturbance of speech/swallowing (Dysarthria/Dysphagia).

**Signs<sup>1</sup> -** Wasting and fasciculation of muscles, weakness of muscles of limbs, tongue, face and palate; pyramidal tract

**Cause<sup>1</sup> –** The symptoms often begin focally in one part and spread gradually but relentlessly to become widespread.

**Patterns of involvement in motor neuron disease<sup>1</sup>**

**1. Progressive Muscular Atrophy-**

- Predominantly spinal motor neurons affected
- Weakness and wasting of distal limb muscles at first
- Fasciculation in muscles
- Tendon reflexes may be absent

**2. Progressive Bulbar Palsy-**

- Early involvement of tongue, palate and pharyngeal muscles
- Dysarthria/Dysphagia
- Wasting and fasciculation of tongue
- Pyramidal signs may also be present

### 3. Amyotrophic Lateral Sclerosis –

- Combination of distal and proximal muscle wasting and weakness and fasciculation
- Spasticity, exaggerated reflexes, extensor plantars

#### Amyotrophic Lateral Sclerosis:

Amyotrophic Lateral Sclerosis (ALS) results from the death of lower motor neurons in the spinal cord and brain stem and of upper motor neurons (Betz cells) in the motor cortex. The loss of lower motor neurons results in denervation of muscles, muscular atrophy (the “amyotrophy” of the condition), weakness and fasciculations, while the loss of upper motor neurons results in paresis, hyper reflection and spasticity, along with a Babinski sign. An additional consequence of upper motor neuron loss is degeneration of the cortico-spinal tracts in the lateral portion of the spinal cord (“lateral sclerosis”). Sensation usually is unaffected, but cognitive impairment does occur, sometimes as a fronto-temporal dementia<sup>2</sup>.

The disease affects men slightly more frequently than women and becomes clinically manifests in the fifth decade or later, usually beginning with the subtle asymmetric distal extremity weakness. As the disease progresses to involve more of the motor system, muscle strength and bulk diminish and involuntary contractions of individual motor units, termed fasciculations, occur. The disease eventually involves the respiratory muscles, leading to recurrent bouts of pulmonary infection, which is the usual cause of death, the

balance between upper and lower motor neuron involvement of both. In some patients, degeneration of the lower brain stem cranial motor nuclei occurs early and progresses rapidly, a pattern of disease referred to as bulbar amyotrophic lateral sclerosis. With this disease pattern, abnormalities of swallowing and speaking dominate<sup>2</sup>.

**Pathogenesis<sup>3</sup>** – While most cases are sporadic, 5 to 10 percent are familial, mostly with autosomal dominant inheritance.

**Morphology<sup>3</sup>** – The most striking gross changes are found in anterior roots of the spinal cord, which are thin and gray (rather than white). In especially severe cases, the precentral gyrus (motor cortex) may be mildly atrophic.

The death of upper motor neurons results in degeneration of the descending cortico-spinal tracts. This is usually easily seen in the spinal cord. With the loss of innervations from the death of anterior horn cells, skeletal muscles show neurogenic atrophy.

**Investigations<sup>3</sup>** – Electromyography, Spinal Imaging and Brain Scanning, CSF examination.

**Management<sup>1</sup>** –

- Psychological and physical support, with the help from occupational and speech therapists and physiotherapists, is essential to maintain the patients quality of life.
- Mechanical aids such as splints, walking aids, wheel chair, communication devices, etc. reduce handicap.

- Feeding percutaneous gastrostomy may be needed if necessary because of bulbar failure.
- Non-invasive ventilator support has been shown to improve the quality of life by alleviating symptoms from weak respiratory muscles and has a small effect on prolonging life.
- Relief of distress in terminal stages usually requires the use of opiates and sedative drugs.
- The glutamate antagonist, riluzole, has been shown to have a small effect in prolonging life expectancy by about 2 months. Other agents such as nerve growth factor show promise.

**AYURVEDIC VIEW :** Aggravation of Vata occurs in two ways viz. a) occupying the empty channels caused by Dhaatu Kshaya (tissue depletion) and b) producing increased functioning in the channels and so occupied and by getting enveloped or surrounded or hindered by the Doshas which have accumulated in the channels and producing decreased or loss of functioning of the channels<sup>4</sup>.

In the first kind, Vata is the only Dosha producing the effect, hence very powerful; while in the second kind Vata is associated with any one or more of the other Doshas, hence not very powerful<sup>4</sup>. The disease ALS in the initial stage is like the second kind and chronicity of the disease turns it to the first kind, hence with a bad prognosis.

**DISCUSSION:** When the aggravated Vata affects all the Dhamanis (Nerves) produces constrictions or contractions of the body again and again. The disease is called Akshepaka. When localised all over the body Vata produces pain,

stiffness, convulsions, loss of tactile sensation, contractions and tremors. The disease is Sarvanga Vata. The aggravated Vata getting obstructed in its path enters into the channels connected to the Hrudaya (Heart or Brain) produces pain, bends the body, the patient breaths with difficulty, his eyes static and drooping down, makes unconscious. Here the disease is Apatantraka or Apatanaka. When the Hrudaya (Heart or Brain) becomes relieved from the influence of Maaruta (Vata), the patient regains health means the convulsions will stop. 95 percent of the cause of the disease is viral infections, trauma, etc. the Doshas getting lodged in the wounds situated on vital spots (Marmas) get aggravated by Vata and then spread all over the body from the feet to the head and produce convulsions due to traumatic wounds or haemorrhage associated with thirst and yellowish white colour of the body. Here the disease is Vranayaama and the Vranayaama has bad prognosis.

The management of disease explained according to the condition. Immediate treatment is advised in Ayurveda, where importance should be given in curing the Vata alone or Vata associated with other Doshas. The treatment procedures include Snehapana, Abhyanjana, Nasya, Raktamoksha, Veshtana, Upanahana, etc.<sup>5</sup>

**CONCLUSION:** ALS is a neurodegenerative disease that depends on the pattern of brain involvement. Many neurodegenerative diseases preferentially affect a primary set of brain regions, but other regions can be

involved later in the disease course. Many of the neurodegenerative diseases are associated with various protein aggregates, which serve as pathologic hall marks. Ayurvedic approach is similar to contemporary medicine explanations were neurodegeneration is identified as aggravation of the morbid humour or factor as Vata. The etio-pathogenesis and signs and symptoms are also similar.

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#### Corresponding Author :

Dr. Abdul Sukkur M, PG Scholar, Department of PG Dept. Of Samhita and Siddhanta, SDM College of Ayurveda, Kuthpady, Udupi, Karnataka, INDIA.

EMail id- drabdulsukkur@gmail.com

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