

## Amyotrophic Lateral Sclerosis: An Acupuncture Approach

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### Mini Review

Amyotrophic lateral sclerosis (ALS) is an adult-onset neurodegenerative disorder that has no curative treatment and is usually fatal. Modern medicine treatment is mostly supportive. Acupuncture has much more to offer by way of symptomatic relief and improving quality of life. Useful points for the treatment of bulbar paralysis, paralysis of upper and lower extremities, and correction of underlying Disharmony Patterns are discussed and an illustrative case is presented to demonstrate the acupuncture approach for treating ALS [1].

**Amyotrophic Lateral Sclerosis (ALS)** is the most common motor neuron disease (MND), which is an adult-onset neurodegenerative disorder characterized by progressive degeneration of cells of the lower cranial motor nuclei, anterior-horn cells of the spinal cord, and neurons of the motor cortex extending to the pyramidal tracts [2].

The connection between the symptoms and the underlying neurologic problems were first described by Jean Martin Charcot, MD, who used the term amyotrophic lateral sclerosis [3].

It became well-known in the United States when the baseball player Lou Gehrig was affected by the disease in 1939; then it became known as Lou Gehrig's disease [4]. He died at the age of 37 of the disease. It became well-known worldwide when the famous physicist, Stephen William Hawking, CH, CBE, FRS, FRSA, was diagnosed with ALS in 1963 at the age of 21. He has a slowly progressive form of ALS and is still alive.

**Amyotrophic Lateral Sclerosis (ALS)** is the most common motor neuron disease (MND), which is an adult-onset neurodegenerative disorder characterized by progressive degeneration of cells of the lower cranial motor nuclei, anterior-horn cells of the spinal cord, and neurons of the motor cortex extending to the pyramidal tracts [5].

MND usually manifests between ages 50 and 70 and is more common in men than in women in a ratio of 1.5:1. The prevalence in the United States is 4.3 cases per 100,000 per year in the general population. In different populations, the reported incidence rates vary between 0.6 and 2.4 per 100,000 per year. In the United Kingdom, the age-standardized incidences of MND are 2.6 per 100,000 for women and 3.9 in men. Ninety percent to ninety-five percent of MND cases occur sporadically [6]. The rest are inherited. Most familial MND cases are autosomal-dominant, with 20% of cases having mutations in the SOD1 [antioxidant enzyme copper zinc super oxide dismutase] gene. Mutations in TARD/BP [transactive response DNA-binding protein] account for 5%–10% of familial ALS, mutations in FUS [fused in sarcoma] account for 5%, and mutations in ANG [angiogenin] account for 1% [7].

The term ALS is more widely used in the United States; MND is more widely used in Europe. The presentations are:

➤ ALS (most common) with the loss of upper motor neurons (UMN) and lower motor neurons (LMN), producing a mixed picture in the limbs; ALS can also present with a bulbar onset, manifesting with speech and swallowing difficulties, and with limb manifestations later.

➤ Progressive muscular atrophy (PMA), predominantly with LMN lesions.

➤ Primary lateral sclerosis (PLS), predominantly with UMN lesions; this is rare.

MND may be associated with extra motor features, such as frontotemporal dementia in ALS [8]. Fasciculations in the limb muscles is the hallmark of this disease. Upper-limb lesions are usually of the UMN type. Marked wasting is associated with exaggerated reflexes. The bladder is spared. Pseudobulbar palsy is often associated with emotional lability [9].

### The Diagnostic criteria for ALS include:

➤ Clinical evidence of UMN degeneration

➤ Clinical, neuropathologic, and electrophysiologic evidence of LMN degeneration

➤ Absence of clinical and electrophysiologic evidence of other diseases, such as paraneoplastic syndromes; thyrotoxicosis; inclusion-body myositis; multiple-level, spinal-cord nerve-root compression; spinal muscular atrophy; porphyria; Kennedy's disease; lead poisoning; multifocal neuropathies producing a PMA-like picture; hereditary spastic paraplegia; multiple sclerosis; and spinal-cord compression producing a PLS-like syndrome.

Patients exposed to heavy metals should have their urine tested for their presence. Genetic testing, however, is not indicated as there is no specific treatment [10].

### Conventional Treatment

Treatment is supportive, involving a neurologist, nurse specialist, dietitian, physiotherapist, speech therapist, psychologist, and a gastroenterology-and-respiratory team for feeding and respiratory support. Riluzole, which reduces presynaptic glutamate release, has been shown to extend the lifespan in ALS by ~2–3 months. This is more useful for bulbar ALS. Use of stem cells and cannabis are emerging treatments that need scientific validation.

### Muscular Atrophy in Chinese Medicine

The following facts are significant

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**Received:** 04-Jul-2022, Manuscript No. jcen-22-70376; **Editor assigned:** 06-Jul-2022, PreQC No. jcen-22-70376 (PQ); **Reviewed:** 20-Jul-2022, QC No. jcen-22-70376; **Revised:** 23-Jul-2022, Manuscript No. jcen-22-70376 (R); **Published:** 29-Jul-2022, DOI: 10.4172/jcen.1000155

**Citation:** Diaconu C (2022) Amyotrophic Lateral Sclerosis: An Acupuncture Approach. J Clin Exp Neuroimmunol, 7: 155.

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- Spleen controls the muscles and limbs.
- Spleen Deficiency is often associated with Stomach Deficiency.
- Liver controls the tendons.
- Kidney controls the nerve tissue in general.

In disorders associated with muscle wasting (known as Atrophy Syndrome in Chinese Medicine) there are usually Deficiencies of these functions. These are the Deficiency Patterns. Many times, retention of Dampness and Stasis of Blood can cause paralysis; these are Excess Patterns. The cause of contraction of muscles is usually Liver Deficiency. Twitching of muscles is due to Spleen and Kidney deficiency (usually Yang deficiency), leading to deficiency of Qi and Blood in the channels.

**Scalp Acupuncture:** Scalp acupuncture is gaining popularity. This is most useful for paralysis following stroke but can be used with advantage for patients with degenerative neurologic diseases. There are several zones of treatment, but the major focal point is threading the needle on either side of the GV channel at the level of GV 20, using the motor area the upper part for the leg and the lower part for the arm. Scalp acupuncture is best applied in the early stages when the movement is still close to normal. The results are often dramatic when the patient moves the limbs while the needles are being manipulated.

#### Chinese Diagnosis

This patient's Chinese diagnosis was as follows:

- Cramping pains in the legs were due to Dampness.
- Fatigue, weakness of muscles, and reduced appetite were due to Stomach and Spleen Deficiency, a diagnosis that was supported by the pale tongue and weak pulse.
- Wasting of muscles and low-back pain were due to Liver and Kidney Deficiency, a diagnosis supported by the patient's dry eyes and deep pulse.

#### Nutritional Support

Nutritional support for the patient's nervous system was given in the form of mineral salts, including calcium phosphate; potassium phosphate; potassium chloride; magnesium phosphate; and sodium phosphate. The dose was 0.5 µg each in combination three times per day. An alcoholic extract of garden daisy (*Bellis perennis*) was also included (5 drops daily) for its regenerating effects.

#### Acupuncture Treatment

Acupuncture treatment was given twice per week for 8 weeks and then at monthly intervals. After a period of 6 months, a further course of twice-weekly treatments was given for 8 weeks and then one treatment per month, which is being continued as of this writing

#### Equipment Used

The method utilized by the author is to make anatomical location of the point first. This is confirmed further by the pointer detection. The point location dial is adjusted to maximum, and a search for the point is made using the spring action probe, making sure that the pressure exerted is minimal and uniform. A flashing light and sound indicate point location. This is confirmed further by pressing the stimulator button at a low-intensity level (adjusting the dial to between 2 and 4). There is usually a definite tingling sensation felt by the patient when point location is made. The point is then stimulated for 30 seconds with the polarity switch at the – or + position for reduction or reinforcement,

and the stimulation dial is adjusted to the level of the patient's comfort. The dial is usually set between the levels of tingling sensation and feeling of discomfort.

This is low-frequency equipment (1–16 Hz). The author usually uses 10 Hz; that should be sufficient to provide heat, recovery, enhanced circulation (important for AhShi points) and acupoint stimulation. Lower frequencies are used if there is patient discomfort. The author prefers this equipment for various reasons:

- Point location is accurate, using a combination of anatomical location, instrument-assisted point location, and subjective sensation of tingling felt by the patient.
- It is less time-consuming than initial needle-point stimulation and then connecting with electroacupuncture equipment.
- There is a polarity reversal switch that is more definite in its mode of stimulation and does away with needle manipulation.
- It is very easy to train a patient to self-administer the treatment, using this device during breakthrough episodes.

The equipment is designed for body and ear acupuncture. Any user needs to refer to safety precautions and warnings issued by the manufacturer prior to using this device. Average duration of stimulation of each point in this case was 3 minutes.

#### Conclusion

Acupuncture cannot have a claim to cure ALS but can be offered with confidence to reduce the symptoms associated with all forms of MND and improve a patient's QoL. This needs confirmation by further studies. This illustrative case demonstrated a practical application of the approach. ALS is a classic example of a disease “desperate grown,” and is usually relentlessly progressive. The symptoms are due to a defective flow of Qi (and Blood) in the involved channels, and they need treatment using the channel points. The root causes of the defective flow are the Deficiencies of Kidney, Liver, and Spleen. They must be identified and corrected. Any other seemingly unrelated Disharmonies present must be identified and rectified to bring the patient to a state of equilibrium—and a body in equilibrium often heals. All these are quite time-consuming and require dedication on the part of the acupuncturist and patience on the part of the patient. Perseverance usually helps. In most chronic conditions, acupuncture needs support. A combination of selected mineral salts was given to the current patient to support neurologic regeneration, and the herb **B. perennis** was used to potentiate regeneration further. All these various steps constituted the “desperate appliance.”

#### Author Disclosure Statement

There are no conflicting interests.

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