Case Report

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Occupational Therapy Intervention in Amyotrophic Lateral Sclerosis: A Case Report

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Abstract

Introduction: Amyotrophic lateral sclerosis (ALS) (the most common form of motor neuron disease) is a progressive and devastating disease involving both lower and upper motor neurons, typically following a relentless path towards death. Occupational therapists are involved in end of life care to improve the quality of life. Adaptive and assistive technology which is other wise a rehabilitative approach is always helpful in improving quality of life. *Case report:* We present cases of two 51-year-old women with amyotrophic lateral sclerosis and the use of assistive and adaptive devices to improve their quality of life. *Conclusion:* Assistive and adaptive devices prescribed and provided were effective in improving quality of life in patients with amyotrophic lateral sclerosis.

Keywords: Lateral Sclerosis; Occupational Therapy Case Report

Introduction

Amyotrophic lateral sclerosis (the most common form of motor neuron disease) is a progressive and devastating disease involving both lower and upper motor neurons, typically following a relentless path towards death [1]. The mean age of onset for sporadic ALS (SALS) varies between 55 and 65 years with a median age of onset of 64 years [2,3,4]. The lifetime risk of developing the condition is 1:400. On average, death results within 2–3 years from symptom onset [5,6,9]. Characterized by heterogeneous patterns of deterioration, presenting symptoms range from falls, limb weakness, communication, and swallowing difficulties to changes in mood, cognition, and behavior [5,7,8,9]. Motor neuron disease encompasses a group of progressive neurologic disorders that destroy cells responsible for the control of essential muscles [10]. Two female patients of 51 years with diagnosis of amyotrophic lateral sclerosis came to National Institute for Locomotor Disabilities for further rehabilitation. They were referred to Occupational Therapy department. Both the patients were dependent in majority of ADL activities. Being an occupational therapist our goal focused on independent ADL and thus improving quality of life.

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Case 1

A left handed, hypertensive lady with diagnosis of anterior horn cell disease from upper socioeconomic status of urban area came to Occupational Therapy department of National Institute for Locomotor disabilities. She was docter by profession. She presented with insidious onset, rapid progressive weakness leading to full dependency on wheelchair for mobility.

- EMG and NCV studies suggestive of anterior horn cell disease
- VEP study suggested bilateral retro optic pathway destruction
- Serum protein electrophoresis showed some increase of beta 1 globulin fraction
- Bone scan report showed increased osteoblastic activity in the bilateral sacroiliac joints and right L4/L5 facet joint.

After Occupational therapy assessment it was found that the patient was fully dependent on ADL activities, she was unable to move her lower extremity and had clumsy movements of upper extremity,

she had generalized wasting of muscles and was highly fatigued and depressed. The Functional Independence Measure (FIM) score was 65/126 and Fatigue Severity Scale (FSS) Score was 62/63.

We found the assets which consisted of the following:-

- She was able to communicate with people independently
- She was used to operate mobile phone with both the hands
- She was able to write slowly with left hand and the words were legible

After identifying the problems we prescribed and also provided adaptive and assistive devices which were required.

Occupational Therapy Intervention

Prescribed Assistive and Adaptive Device

- ✓ Adapted spoon, Fork, Tooth brush (preferably motorized), Hand shower, Handled glass/ Coffee Mug, Comb, Pen, Bath mitt, Bathing brush as demonstrated and suggested
- ✓ Higher level table for eating, washing, brushing as discussed
- ✓ Wheelchair with toilet seat, chest level lapboard and removable arm support
- ✓ Front open Velcro facilitated Modified dressing
- ✓ Use Lifter technology for transfer if possible

Home Care Program

- ✓ Proper positioning on wheelchair.
- ✓ Maintenance of strength and range of motion-active range of motion exercises for both extremities, and perform ADL. Perform ADL with the help of assistive device as far as possible.

Family Involvement in Therapy

- ✓ The family members should encourage the patient for performing the ADL independently.
- ✓ Continuous Psychological support by family member should be provided.

The patient was asked to come and report after 1 month for a follow up, but she did not report. A telephonic conversation with her family members clarified that she was hospitalized due to excessive respiratory distress.

Case 2

A 51 years old depressed housewife with diagnosis of diffuse anterior horn cell disease presented to us with severe slurring of speech with nasal intonation of voice along with difficulty in swallowing food. She had severe weakness of distal muscles of upper extremity initially and later it proceeded towards the proximal muscles but could ambulate independently under supervision. The patient was dependent in feeding, grooming, dressing, bathing. She was taken to the bathroom under supervision. She was unable to write which she used to do before the incident.she cannot even operate the mobile phone. The strength of upper extremity and lower extremity was poor along with endurance level of 50/63. There was impaired manipulation and prehension (FIM score of 49/126, FSS score of 55/63).

- MRI report is suggestive of mild cerebral and cerebrellar atropic changes.
- EMG report was suggestive of diffuse anterior horn cell involvements.

Occupational Therapy Intervention

Prescribed Assistive and Adaptive Device- Adapted spoon, Fork, Tooth brush (Fig. 3), tongue cleaner (Fig. 2), Hand shower, Handled glass/ Coffee Mug, Comb (Fig. 1), Pen, Bath mitt, long handed Bathing brush as demonstrated and suggested. Higher level workstation for eating, washing, brushing as discussed. Front open Velcro facilitated Modified dressing.

Home Exercise Program- Proper positioning, Maintenance of strength and range of motion-active range of motion exercises for both extremities, maintaining strength by making her perform ADL activities

Family Involvement in Therapy- The family members should encourage the patient for doing the ADL activities independently, Continuous Psychological support by family member should be provided.

Follow up

After one month follow up it was found that the FIM score increased from 49/126 to 71/126 that is increase in independency, FSS score was 50/63 from 55/63 which reveals decrease in fatiqueness and thus improved quality of life.

Conclusion

Adaptive and assistive devices are useful technique to increase independency in ADL and thus improving quality of life in patient with anterior horn cell disease or motor neuron disease.

Very few studies was found related to adaptive and assistive devices in ALS. The studies available are from different foreign countries but is not seen in Indian patient with ALS. The adaptive devices provided to the patient are cost effective but effective in increasing independency in ADL.

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