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Amyotrophic Lateral Sclerosis (ALS): The Role of Speech-Language Pathologists in Treatment and Symptom Management

The purpose of this presentation is to provide an overview of the neurological impairments associated with the motor neuron disorder Amyotrophic Lateral Sclerosis (ALS). Our primary focus is on the upper and lower motor neuron damage resulting in speech, swallowing, and language symptoms as well as treatment options speech-language pathologists (SLPs) may use with this population.

ALS is the most common degenerative motor neuron disease with no known etiology. The disease is characterized by progressive loss of upper motor neurons and lower motor neurons, causing individuals to gradually lose all motoric abilities, including speech, language, and swallowing functions. Lower motor neurons originate in the brain stem and innervate various structures needed for speech. The progressive loss of lower motor neurons can severely impair an individual's ability to control speech muscles, resulting in difficulty being understood by communication partners. Degeneration of lower motor neurons can also affect an individual's ability to swallow safely, resulting in dysphagia (e.g.: difficulty swallowing). Upper motor neurons originate in the motor cortex of the brain and travel to synapse onto lower motor neurons. Impairments in upper motor neurons can create hyperactive reflexes, increased muscle tone, and spastic weakness in structures needed for speech. Although ALS is predominantly known as a motor neuron disease, current research is showing that ALS may affect the frontal lobe of the brain as well. Studies are showing that ALS patients may present with cognitive impairments, which increase the possibility for impairments in language functioning.

The key concern for ALS patients in terms of their bulbar functioning is their dysphagia diagnosis, or swallowing impairments. Dysphagia and velopharyngeal insufficiency have a negative impact on ALS patients' quality of life, causing malnutrition and constant discomfort. SLPs work in interdisciplinary settings with nutritionists and gastrointestinal specialists to devise comprehensive plans of care, including oral nutritional supplementation, food and fluid consistency adaptation, and postural adjustments during feeding in order to allow the patient to eat without penetration or aspiration. Dysarthria, a speech disorder caused by muscular weakness, is commonly a result of ALS, causing unintelligible speech due to imprecise articulation, velopharyngeal insufficiency, and insufficient resonance, typically progressing over the course of the disease. Due to the degenerative nature of the disease, therapy to rehabilitate speech may not be beneficial. Instead, SLPs may work with patients and their families to modify the environment (e.g.: speaking face-to-face, eliminating background noise) as well as compensatory strategies (e.g.: over-articulating speech, taking frequent breaks to recover respiration) to increase speech intelligibility. As the patient's motoric abilities diminish, SLPs may introduce the use of Assistive Augmentative Communication (AAC) devices that improve the patient's ability to communicate throughout their progression in ensure increased quality of life and maximizing communication effectiveness. The role of the SLP in managing ALS symptoms is primarily focusing on vital swallowing functions and then supplementation of communication through use of AAC devices to improve functional goals and adapt with the progression of the disease.