SPEECH MOVEMENT CLASSIFICATION FOR ASSESSING AND TREATING ALS

https://neurodegenerationresearch.eu/survey/speech-movement-classification-for-assessing-and-treating-als/

Principal Investigators

GREEN, JORDAN R

Institution

MGH INSTITUTE OF HEALTH PROFESSIONS

Contact information of lead PI
Country

USA

Title of project or programme

SPEECH MOVEMENT CLASSIFICATION FOR ASSESSING AND TREATING ALS

Source of funding information

NIH (NINDS)

Total sum awarded (Euro)

€ 2,857,600.00

Start date of award

01/12/2013

Total duration of award in years

3

The project/programme is most relevant to:

Motor neurone diseases

Keywords

Amyotrophic Lateral Sclerosis, Speech, Classification, Movement, oral communication

Research Abstract

DESCRIPTION (provided by applicant): The purpose of this project is advance the assessment and treatment of speech motor impairments due to ALS using novel computer-based approaches. Recently developed speech movement tracking technology will be used to record

movements of tongue, lips, and jaw in 50 persons with ALS and 50 healthy control participants. The speech movement data will be analyzed using custom machine learning algorithms to address three important translational needs in person with ALS: improved early detection of speech motor involvement, improved progress monitoring of speech motor decline, and improved options for maintaining oral communication. The established interdisciplinary team with expertise in data mining, speech- language pathology, clinical neurology, and spatial statistics are well positioned to conduct this research. If successful, the specific aims have the potential to transform clinical practice for speech-language pathologists, neurologists, and other related health care professionals. The propose research will enhance human health by making an impact on individuals with speech motor impairment due to ALS and potentially to a broad range of other speech motor due to stroke, traumatic brain injury, multiple sclerosis, Parkinson's disease, cerebral palsy, traumatic brain injury, and orofacial or laryngeal cancer.

Lay Summary
PUBLIC HEALTH RELEVANCE: ALS is one of the most common motor neuron diseases. According to the National Institute of Neurological Disorders and Stroke, approximately 30,000 Americans are living with ALS (NINDS, 2003). Recent evidence suggests ALS incidence is increasing in the general population (Strong & Rosenfeld, 2003), particularly among Gulf War veterans who are nearly twice as likely to develop the disease as veterans not deployed to the Gulf (Haley, 2003). This project is focused on the development and validation of novel machine-learning based tools for improving the assessment and treatment of patients with speech motor impairments due to ALS. If successful, this research may (1) improve early detection and prognostic accuracy, (2) and address the critical need for objective outcome measures for ongoing experimental drug trials, and (3) provide information to develop a novel oral communication device for persons with moderate to severe speech impairment. These developments may ameliorate the socioeconomic burden of speech motor impairments as well as the quality of life for these patients, their families, and the people they closely interact wit.

Further information available at:

Types:
Investments > €500k

Member States:
United States of America

Diseases:
Motor neurone diseases

Years:
2016

Database Categories:
N/A

Database Tags:
N/A