A COMPARISON OF ACOUSTIC FEATURES IN LVPPA BEFORE AND AFTER TREATMENT PROGRAMMES

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INTRODUCTION

LOGOPIC PRIMARY PROGRESSIVE APHASIA (ppPPA)

The logopenic variant of primary progressive aphasia (ppPPA) is an age-related neurodegenerative syndrome with isolated language (2), it often co-occurs with underlying Alzheimer disease (AD) (2).

ppPPA:
- Core features: Impaired single-word retrieval in spontaneous speech and naming
- Other features: Phonological speech errors, impaired phonological loop
- Atrophy: Left posterior perisylvian or parietal regions

PHONOLICAL FEATURES, ERRORS, AND PROCESSES

Phonological features describe the differences between perceptually distinct speech sounds in a language. This includes acoustic features and articulatory features.

Phonological features such as duration of silence, syllable structure, etc. are typically used in clinical practice to help diagnose and monitor the progression of disorders such as primary progressive aphasia (PPA) (1). However, the role of these features in differentiating between subtypes of PPA is not well understood (2).

Analysis of speech features can be used to identify underlying neural changes that may be associated with disease progression (3). For example, studies have shown that speech rate and pause duration are reduced in patients with PPA compared to healthy controls (4).

Data from the Philadelphia Language and Memory Network Study (PLMNS) has demonstrated that different acoustic features may be more sensitive to specific subtypes of PPA (5). For instance, patients with Logopenic Primary Progressive Aphasia (LPPA) have been found to have significantly reduced pause duration compared to those with Non-fluent Primary Progressive Aphasia (NfPPA) (6).

Recently, a study by Ficek et al. (7) found that patients with Logopenic Primary Progressive Aphasia (LPPA) had significantly reduced pause duration compared to those with Non-fluent Primary Progressive Aphasia (NfPPA). This finding is consistent with previous research on the role of speech features in differentiating between subtypes of PPA (8).

In this study, we aimed to investigate the role of specific acoustic features in differentiating between subtypes of PPA. We used a combination of perceptual and acoustic speech features to identify patterns that are characteristic of each subtype.

METHODS

We collected speech samples from patients with LPPA and NfPPA and calculated a range of acoustic features, including pause duration, vocal reaction time, and mean vowel phonation duration.

RESULTS

Our results showed that patients with LPPA had significantly reduced pause duration compared to those with NfPPA. Additionally, we found that patients with LPPA had longer vocal reaction times and shorter mean vowel phonation durations compared to those with NfPPA.

CONCLUSIONS

Our findings suggest that specific acoustic features can be used to differentiate between subtypes of PPA. These features may be useful in clinical practice for identifying and monitoring the progression of the disease.