

Assessment of voice quality and articulation in patients with swallowing (dysphagia) and speech (dysarthria) disorders in the course of Parkinson's disease

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Parkinson's disease (PD) is a spontaneous, progressive, degenerative disease of the central nervous system. Speech disorders in PD usually take the form of hypokinetic dysarthria. These disorders have been the subject of numerous research papers. They have analyzed voice quality, articulatory and prosodic disorders, and abnormality or inadequacy of messages due to cognitive deficits in PD, among others. Research by Rusz (2013) and Polychronis (2019) confirmed that articulatory and phonatory aspects of speech and voice can be used in automatic detection and assessment of dysarthria severity in PD (Moro-Velazquez 2021).

The mechanism of swallowing disorders in PD is also well described in the literature. However, there are few clinical studies on voice quality disorders accompanying dysphagia, although they are considered in diagnosis. The results of Young (2014) study confirm that voice quality analysis can be a safe, non-invasive screening tool for dysphagia patients and can detect patients at high risk for clinically significant aspiration.

It remains an open question to identify objective acoustic parameters indicative of swallowing disorders, and the co-occurrence of dysphagia and dysarthria, especially in patients with PD, although their co-occurrence in the clinical picture of the disease is widely recognized.

During the presentation, the results of the research conducted by the researcher will be presented. An attempt was made to identify specific changes in the acoustic parameters of the voice occurring with swallowing disorders. The research confirms the possibility of using acoustic parameters of the voice in the diagnosis of dysphagia. These data can be used in the early diagnosis of swallowing disorders, which is particularly important, given the limited access to instrumental testing. The information can also be used to create precise electronic tools to automatically detect disorders based on an appropriate sample of the patient's voice.

References

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