ASSESSMENT OF SPEECH AND SWALLOWING CHARACTERISTICS IN ADULT EGYPTIAN PATIENTS WITH MYASTHENIA GRAVIS

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INTRODUCTION

Myasthenia Gravis (MG) is a chronic autoimmune neuromuscular disorder characterized by fluctuating muscle weakness due to impaired neuromuscular transmission, primarily from antibodies against acetylcholine receptors (AChR), muscle specific kinase (MuSK), or other less common antibodies. The disease predominantly affects ocular, limb, respiratory, and bulbar muscles, leading to symptoms like ptosis, dysphagia, dysarthria, and myasthenic crisis.

Diagnosis relies on clinical signs, antibody testing, and neurophysiological tests like SFEMG (single fiberelectromyograpohy) and RNS (repetitive nerve stimulation).

Speech affection is common, especially in MuSK MG, in the form of flaccid dysarthria (hypernasality, vocal fatigue, consonant imprecision and altered voice acoustics).

Dysphagia in MG stems from pharyngeal muscle weakness, affecting swallowing safety and efficiency. Also oral phase affection due to masticatory muscles weakness. Tools like video fluoroscopic swallowing study (VFSS), Functional endoscopic evaluation of swallowing (FEES), high resolution manometer and the FEES tensilon test are used for assessment.

AIM OF THE WORK

The aim of this study was to assess speech and swallowing characteristics in adult Egyptian patients with myasthenia gravis in comparison to normal individuals.

PATIENTS AND METHODS

This study was case control study carried over a period of one year on 40 subjects divided into two groups matched for age and sex. Group 1 included 25 patients with myasthenia gravis and group 2 included 15 normal subjects as a control group. With inclusion criteria that all patients were adults and diagnosed with myasthenia gravis, and exclusion criteria were Patients with neurological, systemic diseases and / or structural changes that affected the speech or swallowing. All patients were subjected to detailed history taking, general examination, neurological examination. Speech assessment was done in the form of auditory perceptual assessment, the voice handicap index (VHI), Arabic intelligibility test and acoustic analysis of speechvia MDVP, CSL, and Real-Time Pitch analysis.

Patients' results were compared with normal subjects.

Swallowing assessment was done using bed side swallowing assessment (yale swallow protocol). Dysphagia handicap index and SWAL QOL questionnaires and instrumental assessment by VFSS and\or FEES.

RESULTS

Table 1: Distribution of the studied cases according to auditory perceptual assessment (APA) of speech in cases group (n = 25)

	No.	%
APA of speech		
Prosody	9	36.0
Decreased rate	9	36.0
Decreased stress	9	36.0
Articulation	7	28.0
Consonant imprecision	5	20.0
Consonant substitution	2	8.0
DDK		
Min. – Max.	2.0 – 9.0	
Mean ± SD.	4.44 ± 2.0	
Median (IQR)	4.0 (3.0 – 5.0)	
Resonance	13	52.0
Hyper nasality	13	52.0
Breathing (un coordinated)	4	16.0
Voice	14	56.0

APA of speech: auditory perceptual assessment of speech.
DDK:diadocokinetic rate.

Table 2: Distribution of the studied cases according to FEES in cases group (n =22)

FEES	Fluids		Semi Solid /Solids	
	No.	%	No.	%
PAS				
1	19	86.4	16	72.7
2	0	0.0	0	0.0
3	1	4.5	6	27.3
4	0	0.0	0	0.0
5	1	4.5	0	0.0
6	0	0.0	0	0.0
7	1	4.5	0	0.0
8	0	0.0	0	0.0
Residue				
Yale1	8	36.4	2	9.1
Yale2	11	50.0	11	50.0
Yale3	2	9.1	6	27.3
Yale4	1	4.5	3	13.6
Clearance				
No	3	13.6	3	13.6
Yes	19	86.4	19	86.4

CONCLUSION

Bulbar muscle weakness in myasthenia gravis (MG) results in prominent speech and swallowing impairments. Dysarthria is characterized by deficits in articulation (mainly consonant imprecision), phonation, respiration, prosody and resonance (hypernasality) consistent with flaccid dysarthria due to neuromuscular transmission failure.

Swallowing dysfunction typically involves the oral and pharyngeal phases, with pharyngeal residue being the most significant finding, predisposing to aspiration. This reflects impaired bolus propulsion secondary to pharyngeal muscle weakness. These deficits substantially impact functional communication and nutritional safety, underscoring the need for early, targeted intervention.