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POSTER PCR212

Correlation Between Myasthenia Gravis Disease Severity and Impairment of Activities of Daily Living among Real-World Patients in the United States and Five European Countries

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INTRODUCTION

- Myasthenia Gravis (MG) is an chronic, neuromuscular condition that profoundly impairs activities of daily living (ADL)[1].
- The relationship between MG severity and ADL is not well understood.

OBJECTIVES

- To understand the relationship between Myasthenia Gravis Foundation of America (MGFA) classification and scores from a modified version of the MG-ADL in patients with MG.
- To examine differences in specific symptom domains captured by the modified MG-ADL by MGFA classification among patients with MG in a real-world setting.

METHODS

- Data were drawn from the Adelphi MG Disease Specific Programme™ (DSP™), a real-world, cross-sectional survey with retrospective data collection of physicians and their patients with MG conducted in France, Germany, Italy, Spain, the UK and USA, March – September 2020[2].
- Physicians provided data on their first six consecutive patients with MG including demographics, clinical characteristics, MGFA classification (Class I, II, III, or IV) and disease impact.
- A modified MG-ADL score was derived from questioning close to the validated tool[3]. A higher score indicates greater impairment. Five of eight domains were created reflecting current symptom severity (absence '0', mild '1', moderate '2' and severe '3'). Impaired speech was derived by taking the higher severity of two symptoms (dysarthria or slurred speech). Ability to arise from a chair and ability to brush teeth were binary (able '0', required assistance '2').
- Demographic characteristics and MGFA score analyses were descriptive. Kruskall Wallis tests were used to compare MGFA class against each MG-ADL domain score.
- A linear regression analysis was used to test the association between MGFA class and modified MG-ADL scores while adjusting for sex and Charlson Comorbidity Index (CCI). Marginal means and standard errors were reported.
- Bivariate comparisons and regression analyses were performed using Stata v.17 (StataCorp. 2021. Stata Statistical Software: Release 17. College Station, TX: StataCorp LLC.).

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RESULTS

- Data were provided by 222 physicians with respect to 1232 MG patients with modified MG-ADL scores and MGFA classifications I-IV.
- Overall, 50.2% of patients were female, mean [standard deviation] age was 54.2 [16.3]. Mean time from diagnosis to survey was 3.8 years [4.8] (***Table 1***).
- MGFA class at time of survey was reported for all patients. Overall, 29.8% of patients were MGFA class I (ocular), 47.0% were class II (mild) and 23.2% were class III/IV (moderate/severe; ***Table 1***).
- Class I patients had a marginal mean [standard error] modified MG-ADL score of 1.9 [0.3]. Those in class II averaged 3.5 [0.3] and those in class III/IV averaged 6.0 ([0.5] (***Table 2, Figure 1***). Class I had significantly lower MG-ADL scores while adjusted for sex and CCI (p<0.01; ***Table 2, Figure 1***).
- Severe symptoms were not reported in four out of the six symptom domains for class I patients and 0.8% of class I patients were reported with blurred or double vision and/or drooping of one or both eyelids. Physicians reported, 0.3% of class I patients required assistance with oral hygiene and/or arising from a chair. (***Figure 2***).
- Overall significance across MGFA classification I, II and III/IV was tested (inclusive of symptoms not present / mild / moderate / severe or assistance not required / assistance required). The significant differences across each domain of the modified MG-ADL by MGFA classification are reported in **Figure 2**.

Table 1. *Patient demographics*

MG Patients (MGFA classes I – IV)	n=1232
Sex; Female, n (%)	620 (50.2)
Age; mean (standard deviation; SD)	54.2 (16.3)
MGFA classification; class I, n (%)	367 (29.8)
MGFA classification; class II, n (%)	579 (47.0)
MGFA classification; class III/IV, n (%)	286 (23.2)
	n=1115
Time since diagnosis; years, mean (SD)	3.8 (4.8)

Table 2. *Linear prediction of MG-ADL scores*

MGFA Class	Marginal mean	Standard error	*p*	95% CI
Class I	1.88	0.31	0.000	[1.27 – 2.49]
Class II	3.47	0.30	0.000	[2.88 – 4.05]
Class III/IV	6.04	0.54	0.000	[5.00 – 7.10]

CI: Confidence Interval

Figure 1. *Marginal mean modified MG-ADL score by MGFA classification with 95% confidence intervals*

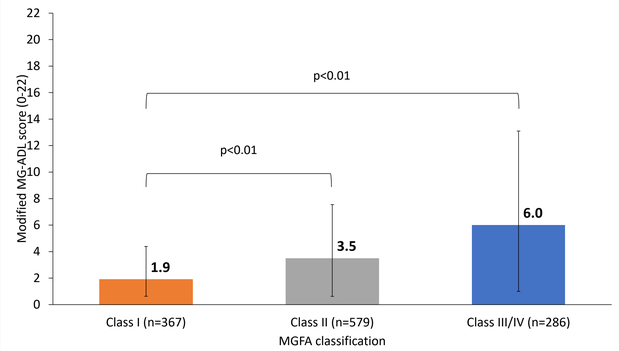
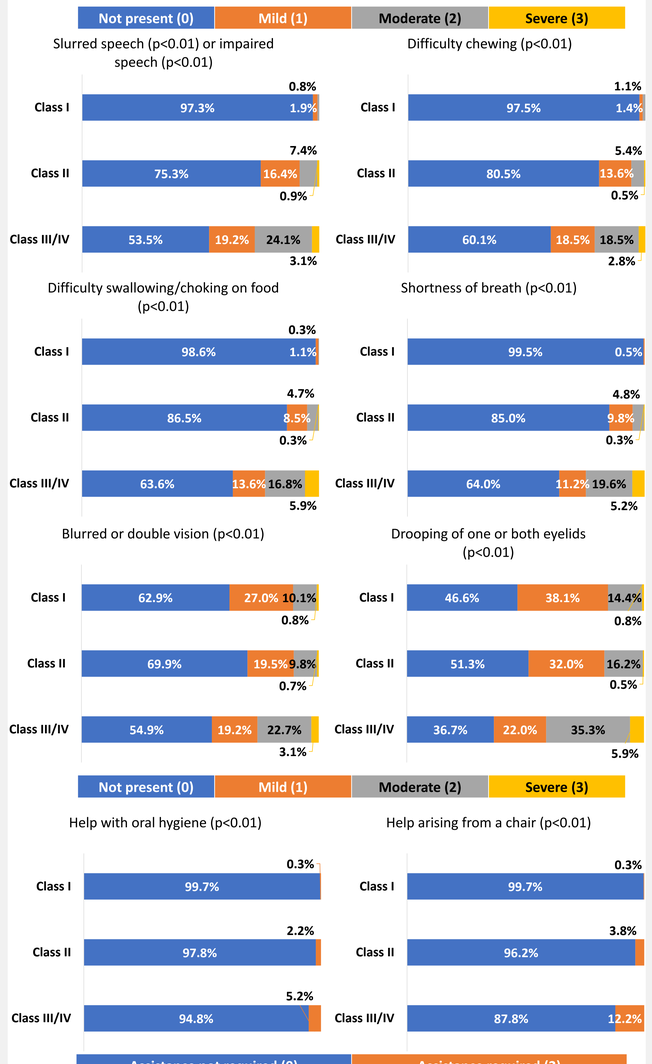


Figure 2. *Each domain of the modified MG-ADL split by MGFA classification with bivariate comparison of significant values*



LIMITATIONS

- The DSP™ was not based on a true random sample of physicians or patients. While minimal inclusion criteria governed the selection of the participating physicians and patients, participation was influenced by willingness to complete the survey.

REFERENCES:

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CONCLUSIONS

These results show increased MG severity aligns with greater impairment of activities of daily living. Increase in MG-ADL score was greater from class II to class III/IV than class I to class II indicating that the trend is not consistently linear.

Treatments that reduce MG severity would greatly benefit patients and improve ADL, particularly in patients with more severe MG.

Further patient-centric research could shed light on the individual domains of the MG-ADL which are most burdensome to patients.

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DISCLOSURES:

JP and ZC are employees of Janssen Scientific Affairs, LLC. JdC, OT, SB and GG are employees of Adelphi Real World. The DSP is a Adelphi Real World product. Janssen were a subscriber to the DSP, and did not influence the original survey through either contribution to the design of questionnaires or data collection. RG is on the advisory board for Argenx, UCB and Janssen and serves as speaker for Argenx and Alexion.