LONGITUDINAL ASSESSMENTS USING VALIDATED INSTRUMENTS IN MYASTHENIA GRAVIS OUTPATIENTS RECEIVING LONG-TERM THERAPEUTIC PLASMA EXCHANGE

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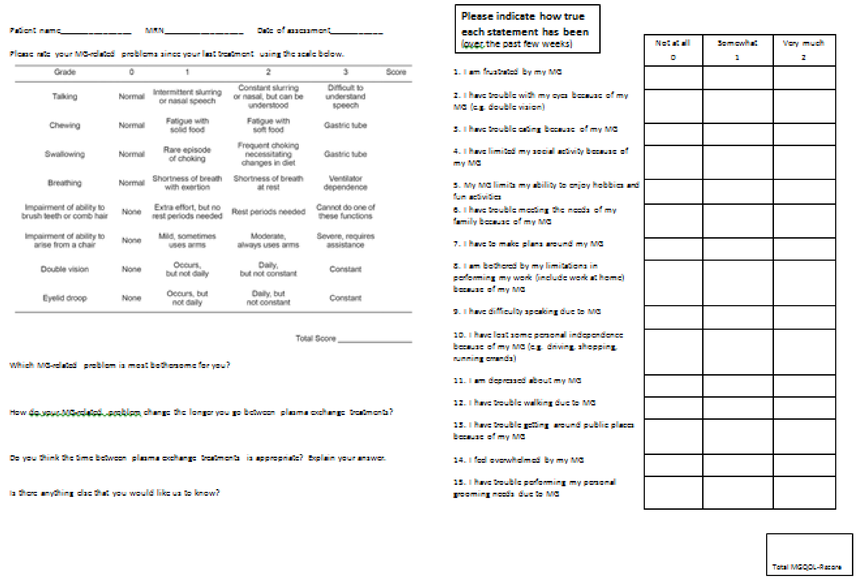
INTRODUCTION and PURPOSE

- In the most recent American Society for Apheresis Guidelines on the Use of Therapeutic Apheresis in Clinical Practice, employing therapeutic plasma exchange (TPE) for long-term treatment of myasthenia gravis (MG) patients
  - New indication
  - Category II, grade 2B recommendation.
- Data for this indication is evolving
- Subjective assessments of these patients are often uninformative,.
- We sought to better characterize the impacts of long-term TPE in these MG patients using validated instruments.

METHODS

In this prospective observational study, we used a combination of validated instruments and open-ended questions clarifying concerns that are routinely applied to MG patients. The two validated instruments were the **MG Activities of Daily Living (MG-ADL)** and **MG Quality of Life 15 (MG-QoL15r**) profiles. Based on previous literature, a 2-point change in the MG-ADL and a 10-point change in the MG-QoL15r indicates significant improvement or worsening. Over a 3-month period, MG patients receiving long-term TPE were assessed using a single-form questionnaire that integrated all of the MG-ADL and MG-QoL15r elements and was completed at every visit. Patients unable to complete the survey due to their medical condition were exempted.

QUESTIONAIRE



Patient name_____ MRN_____ Date of assessment_____

Please rate your MG-related problems since your last treatment using the scale below.

Grade	0	1	2	3	Score
Talking	Normal	Intermittent slurring or nasal speech	Constant slurring or nasal, but can be understood	Difficult to understand speech	
Chewing	Normal	Fatigue with solid food	Fatigue with soft food	Gastric tube	
Swallowing	Normal	Rare episode of choking	Frequent choking necessitating changes in diet	Gastric tube	
Breathing	Normal	Shortness of breath with exertion	Shortness of breath at rest	Ventilator dependence	
Impairment of ability to brush teeth or comb hair	None	Extra effort, but no rest periods needed	Rest periods needed	Cannot do one of these functions	
Impairment of ability to arise from a chair	None	Mild, sometimes uses arms	Moderate, always uses arms	Severe, requires assistance	
Double vision	None	Occurs, but not daily	Daily, but not constant	Constant	
Eyelid droop	None	Occurs, but not daily	Daily, but not constant	Constant	

Total Score _____

Which MG-related problem is most bothersome for you?

How do your MG-related problems change the longer you go between plasma exchange treatments?

Do you think the time between plasma exchange treatments is appropriate? Explain your answer.

Is there anything else that you would like us to know?

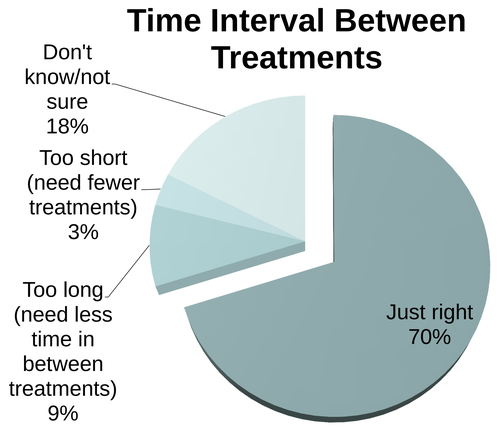
Please indicate how true each statement has been (over the past few weeks)

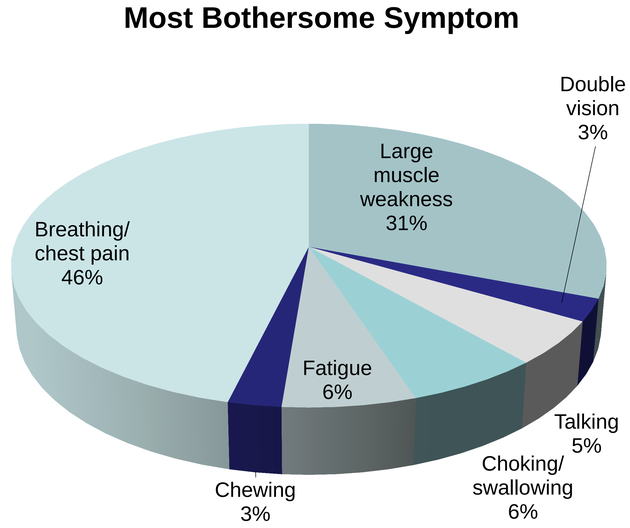
	Not at all 0	Somewhat 1	Very much 2
1. I am frustrated by my MG			
2. I have trouble with my eyes because of my MG (e.g. double vision)			
3. I have trouble eating because of my MG			
4. I have limited my social activity because of my MG			
5. My MG limits my ability to enjoy hobbies and fun activities			
6. I have trouble meeting the needs of my family because of my MG			
7. I have to make plans around my MG			
8. I am bothered by my limitations in performing my work (include work at home) because of my MG			
9. I have difficulty speaking due to MG			
10. I have lost some personal independence because of my MG (e.g. driving, shopping, running errands)			
11. I am depressed about my MG			
12. I have trouble walking due to MG			
13. I have trouble getting around public places because of my MG			
14. I feel overwhelmed by my MG			
15. I have trouble performing my personal grooming needs due to MG			

Total MGQOL-Score

RESULTS

Demographic	Number (%)
Total number of patients	9 (100%)
Total number of treatments	58
Female Patients	5 (56%)
White, non-Hispanic	6 (67%)
Median age	54
Frequency of treatments	3/week to 1/month
Clinically stable patients	5





- Active pharmacotherapy included prednisone, azathioprine, mycophenolate, rituximab, and pyridostigmine.
- All patients reported that lengthening the interval between successive TPE treatments, even by a few days, resulted in noticeable MG changes.
- During the study period, 4 patients (44%) had significant changes identified by the MG-ADL, a mean of 5.5 times per patient (range 2-8) and 2 (22%) had significant changes identified by the MG-QoL15r, a mean of 2 times per patient (range 1-3).
- MG-ADL appeared to be more sensitive in correlating with patient-reported clinical changes, with clinical improvements identified a mean of 3.2 times per patient and clinical deteriorations identified a mean of 2.3 times per patient (compared to 1.5 and 1 times per patient, respectively, for the MG-QoL15r; p=0.03 for interaction effect).
- **Subjective clinical deteriorations were correlated with objectively worsening MG-ADL scores, and was used as evidence to medically justify intensification of TPE therapy.**

CONCLUSIONS

- Objective longitudinal assessments in MG patients receiving long-term TPE may be helpful for accurate disease monitoring.
- A subset of MG patients receiving long-term TPE still has dynamic changes in disease status as assessed by clinical history and two different validated instruments.
- In all patients with stable MG, both the MD-ADL and MG-QoL15r accurately indicated no significant changes.
- In patients with fluctuating disease status, MG-ADL was more sensitive to both clinical improvement and worsening.
- These findings need to be validated in larger studies.