Reducing Provider Variance in the Timing and Screening for Transcranial Magnetic Stimulation in Patients with Treatment Resistant Depression

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Background to the Problem

- Depression is an epidemic affecting more than 300 million people and the leading cause of disability worldwide [11]
- Patients with treatment resistant depression (TRD) often have a history of multiple medication trials before novel treatment approaches are considered [5]
- Transcranial magnetic stimulation (TMS) is a promising treatment for TRD linked to cost savings, greater quality adjusted life years and overall success of treatment response [6, 8, 10]
- Many mental health providers have little exposure to or understanding of TMS [7]
- Inconsistent definitions for TRD and the existing TMS practice guidelines result in conflicting pathways of care [1, 2, 3, 8, 9]
- Early screening and shared, informed decision making promote positive health outcomes [4]

Purpose & Aims

Purpose: To reduce variability among clinicians in how they screen patients for TRD and TMS by implementing and evaluating a standardized process and screening tools

Aim 1: Determine whether an educational session on TRD and TMS will increase knowledge of psychiatric providers

Aim 2: Determine if the Maudsley Staging Method will increase the number of patients screened for TRD

Aim 3: Determine if the Adapted TMS Appropriateness Scale will increase the number of patients being screened for TMS

Methods

Design: Quasi-experimental pre-post QI project

Setting: Private psychiatric practice in New York City

Sample:

- 1 psychiatrist and 5 psychiatric nurse practitioners
- Patients age 18+ with a diagnosis of MDD, unspecified depressive disorder or TRD

Intervention:

- 1-hour educational session
- TRD and TMS Screening

Data Collection: Pre/post quiz, 12-week retrospective chart review

Results

Knowledge Scores with Education:

- 6 participants (100%) completed pre- and post- education quiz
- Pre-education: *Mdn* knowledge score = 4 (IQR: 3, 5)
- Post-education: *Mdn* knowledge score = 5 (IQR: 4, 5)
- No statistically significant difference between the knowledge scores before and after the educational session (p = 0.10)

Table 1. Baseline Characteristics of Provider Participants

Demographic Characteristics	(N = 6)
Age, mean (SD)	41.5 (8.62)
Sex, n (%)	
Male	3 (50)
Female	3 (50)
Years of Employment, n (%)	
<5	1 (16.66)
5-10	4 (66.66)
>10	1 (16.66)

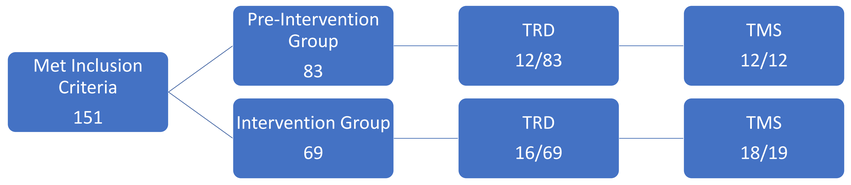
TRD Screening:

- Pre-intervention: 16.9% of patients screened positive for TRD
- Post-intervention: 38% of patients screened positive for TRD
- There was a statistically significant increase (p = 0.047) in the number of patients who screened positive for TRD using the Maudsley Staging Method

TMS Screening:

- Pre-intervention: 100% of patients with TRD screened positive for TMS
- Post-intervention: 94.7% of patients with TRD screened positive for TMS
- No statistically significant association between the Adapted TMS Appropriateness Scale and number of patients who screened for TMS

Figure 1. Project Participant Flowchart



Discussion

Findings:

- Providing education to psychiatric providers about TRD and TMS is clinically meaningful in expanding their knowledge of tools and interventions available for the enhancement of clinical care
- The Maudsley Staging method supports clinicians in identifying patients with TRD
- Despite the lack of statistical significance using the Adapted TMS Appropriateness Scale, all but one patient who screened positive for TMS was provided information about TMS as a potential treatment option.

Strengths:

- Prior research has not attempted to adapt a screening tool to support providers in identifying candidates for TMS
- The findings support the existing literature identifying the Maudsley Staging Method as a valuable tool to identify TRD

Limitations:

- Small sample size
- Redundancy in questions between both screening tools
- Lack of validated screening tool for TMS

Recommendations:

- Further work is needed to create standardized training and screening tools for psychiatric providers in the care of patients with TRD and in the use of TMS

Conclusion

With education and improvements in screening for TRD, providers may be more inclined to discuss TMS as an alternative treatment option at the time of TRD diagnosis.