

Efficacy of High-Frequency Repetitive Transcranial Magnetic Stimulation for Persistent Somatic Symptom Disorder

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Abstract

Background: Somatic Symptom Disorder often co-exists with depression, posing a challenge for effective treatment despite numerous interventions attempted. Repetitive Transcranial Magnetic Stimulation (rTMS), an FDA-approved non-invasive cortical stimulation for mild resistant depression, holds promise when targeting the prefrontal cortex (PFC). In this case report, we explore the efficacy of rTMS in addressing Somatic Symptom Disorder. **Case Report:** A 65-year-old female with multiple medical comorbidities and polypharmacy presented with persistent somatic complaints spanning two years. Extensive medical evaluations yielded normal results. Various psychiatric consultations led to multiple antidepressant and adjunct antipsychotic prescriptions, yet no improvement was observed. Hospital admission for observation and management ensued. Initially on Fluoxetine, Olanzapine, and Topiramate, the patient exhibited no signs of improvement. Subsequently, rTMS, employing the Intermittent Theta Burst (iTBS) protocol, was incorporated into her treatment plan. Upon completion of the rTMS sessions, the patient achieved a full recovery, reporting no residual complaints. **Conclusion:** This case report highlights the effectiveness of rTMS in the management of Persistent Somatic Symptom Disorder, underscoring its potential as a therapeutic option for this challenging condition.

Keywords: Antipsychotic Agents, Depression, Dyslipidemias, Somatic Symptoms, Weight Loss.

Introduction

Somatic Symptoms Disorder considered to be among the most common psychiatric disorders and is usually co-morbid with depressive disorders [1]. This disorder leads to significant dysfunction. There is little evidence for effective treatments for this disorder despite that various treatment modalities have been tried [2]. Repetitive transcranial magnetic stimulation (rTMS) is a non-invasive form of cortical stimulation which has been approved by the FDA since 2008 for mild resistance depression. rTMS had been tested for different conditions which show its effectiveness. In this case report we hypothesized that rTMS delivered over the prefrontal cortex (PFC) may be useful in somatic symptoms disorder and we rationalized that,

because somatic symptoms disorder is frequently co-morbid with depressive disorders, it can prove to be effective for somatic symptoms [3]. To add to that, rTMS has been shown to be effective in reducing pain associated with resistant depression [4]. This case report represents a preliminary investigation into the potential effectiveness of rTMS in somatic symptoms disorder.

Case Report

A 65-year-old female patient with a known history of hypothyroidism and vitamin B₁₂ deficiency had been prescribed thyroxine at a daily dose of 75 µg. Over the course of a year, she experienced significant weight loss, dropping from 68 kg in 2019 to 48 kg in 2020, primarily attributed to dyslipidemia and

dyspepsia. The patient's journey towards seeking medical assistance began two years prior to her presentation at Al-Masarra Hospital. She reported suffering from persistent body aches, abdominal pain, and a multitude of somatic complaints. In her quest for relief, she frequented various healthcare facilities, including hospitals, local health centers, and private clinics, often on a daily basis. At home, she self-administered multiple antacids and pain-killers. Her distress escalated to the point where she would wake her family members in the middle of the night, urgently requesting transportation to a healthcare facility, leading to a significant disruption in her social life. A comprehensive array of medical examinations and investigations was conducted, encompassing CT scans of the head, abdomen, and renal area, oesophagogastroduodenoscopy (OGD), and routine blood tests. Notably, all test results fell within the normal range.

Six months prior to her presentation at Al-Masarra Hospital, her family took the initiative to consult a psychiatrist at a private clinic. The patient was initially prescribed Mirtazapine at a dose of 15 mg at bedtime, which was subsequently increased to 30 mg. Initially, there was an improvement in her condition; however, a subsequent relapse prompted an upward adjustment of the Mirtazapine dose to 45 mg at bedtime. She later received care at Sultan Qaboos University Hospital (SQUH) under a geriatric team, where she was diagnosed with Major Depressive Disorder (MDD) with anxious distress, necessitating the discontinuation of Mirtazapine. Her treatment was then modified to include Duloxetine at an initial dose of 30 mg once daily (OD), later escalated to 60 mg OD, alongside Zolpidem at 5 mg at bedtime. Sub-optimal response to this regimen prompted the addition of Escitalopram at 5 mg OD, leading to the discontinuation of Duloxetine at 60 mg OD. Unfortunately, the patient's intolerance to Escitalopram resulted in the re-prescription of Mirtazapine at a reduced dose of 7.5 mg at bedtime.

Subsequently, due to the patient's frequent visits to the emergency department for somatic

complaints, she was admitted to the mental health ward at SQUH. During this stay, she was prescribed Fluoxetine at 20 mg OD and Olanzapine at 5 mg at bedtime. Upon discharge, her medication regimen was adjusted to Fluoxetine at 40 mg OD and Olanzapine at 10 mg at bedtime. A week later, she was re-admitted to Al-Masarra Hospital with recurrent somatic complaints. While in the ward, she continued to report a multitude of somatic issues, including constipation and dyspepsia. She exhibited restlessness and agitation when her requests for intravenous (IV) fluids, antacids, and pain-killers were not met. In addition to her ongoing medication (Fluoxetine and Olanzapine), she was prescribed Topiramate at 50 mg OD, later escalated to twice daily (BID), with limited observed improvement.

In light of her unresponsiveness to pharmacological interventions (Fluoxetine at 40 mg OD, Olanzapine at 10 mg at bedtime, and Topiramate at 50 mg BID), the patient was introduced to Repetitive Transcranial Magnetic Stimulation (rTMS). A daily regimen of Intermittent Theta Burst (iTBS) rTMS was administered, targeting the motor threshold of the Dorsomedial Prefrontal Cortex (DMPFC), an area of therapeutic interest. Assessment of her condition was initially conducted using the Beck Depression Inventory and Hamilton Depression Rating scale, with subsequent evaluations performed every fifth session to monitor her progress. After six sessions of rTMS, a notable improvement was evident, characterized by reduced somatic pre-occupations and diminished demand for pain-killers. The recommended iTBS rTMS protocol spans 30-40 sessions; however, the patient achieved remission after the 25th session but continued until a total of 30 sessions had been completed. Following the completion of the prescribed sessions, the patient achieved a full recovery, reporting no lingering complaints. She was discharged with her existing medication regimen, with plans for outpatient clinic follow-up.

Discussion

The manifestation of somatic symptom disorder typically emerges prior to the age of 30 and often prompts individuals to seek treatment due to the ensuing impairment in social, occupational, or other critical aspects of their lives. This condition is characterized by excessive thoughts, emotions, or behaviors pertaining to somatic symptoms or associated health concerns. At least one of the following criteria must be met: an enduring pre-occupation with the perceived seriousness of one's symptoms, a persistent high level of anxiety concerning health symptoms, or an excessive allocation of time and mental energy to ruminating over these symptoms or health-related concerns. The state of symptomatic distress typically endures for more than six months, and even a single somatic symptom can cause significant patient distress or disrupt daily functioning [5].

As of now, there are no specific treatment guidelines available for persistent somatic symptom disorder [5,6]. Generally, persistent somatic symptom disorders remain inadequately researched, lacking substantial evidence on the efficacy of treatment modalities [7]. While there is limited data regarding the effectiveness of repetitive transcranial magnetic stimulation (rTMS) for treating persistent somatic symptom disorder, some evidence does exist regarding the utility of rTMS in addressing pain associated with depressive disorders and conditions like fibromyalgia or neuropathic pain [8].

In this case report, we observed that high-frequency repetitive transcranial magnetic stimulation effectively alleviated pain and addressed the somatic complaints of a patient with persistent somatic symptom disorder. We employed the Intermittent Theta Burst (iTBS) rTMS protocol, and it is noteworthy that the timeline of improvement closely mirrored that reported in trials for chronic pain associated with fibromyalgia [9]. While the exact mechanisms of

action of rTMS remain unclear, it is postulated that processes such as endogenous opioid release, which contribute to functional improvements in brain regions associated with pain perception, may be involved [8]. An intriguing aspect of this case is that the patient reported substantial improvements before completing the full course of rTMS sessions. Ultimately, upon the conclusion of the rTMS sessions, she reported a complete recovery from her symptoms.

The socio-educational background of patients can potentially influence their response to treatment. Several studies have demonstrated significant placebo responses in rTMS trials involving pain disorders [10]. In the context of this case report, it is plausible that a placebo response may have played a significant role in the reported symptom improvement.

Conclusion

Given the limited treatment options available for Persistent Somatic Symptom Disorder, our case underscores the importance of conducting further comprehensive investigations into the potential of rTMS as a viable treatment option for this condition.

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References

1. Singh SM, Prakash V, Choudhary S, Avasthi A. The effectiveness of high-frequency repetitive transcranial magnetic stimulation in persistent somatoform pain disorder: A case series. *Cureus*. 2018;10(6):e2729.
2. Kroenke K. Efficacy of treatment for somatoform disorders: A review of Randomized Controlled Trials. *Psychosomatic Medicine*. 2007;69(9):881-888.
3. Lefaucheur JP, André-Obadia N, Antal A, Ayache SS, Baeken C, Benninger DH, *et al.* Evidence-based guidelines on the therapeutic use of repetitive transcranial magnetic stimulation (rTMS). *Clinical Neurophysiology*. 2014;125(11):2150-2206.

4. Goudra B, Shah D, Balu G, Gouda G, Balu A, Borle A, *et al.* Repetitive transcranial magnetic stimulation in chronic pain: A meta-analysis. *Anesthesia: Essays and Researches*. 2017;11(3):751.
5. Van Dessel N, Den Boeft M, van der Wouden JC, Kleinstäuber M, Leone SS, Terluin B, *et al.* Non-pharmacological interventions for somatoform disorders and medically-unexplained physical symptoms (MUPS) in adults. *Cochrane Database of Systematic Reviews*. 2014;11:CD011142.
6. Kleinstäuber M, Withöft M, Steffanowski A, van Marwijk H, Hiller W, Lambert MJ. Pharmacological interventions for somatoform disorders in adults. *Cochrane Database of Systematic Reviews*. 2014;11:CD010628.
7. Bass C, Peveler R, House A. Somatoform disorders: Severe psychiatric illnesses neglected by psychiatrists. *British Journal of Psychiatry*. 2001;179(1):11-14.
8. Li CT, Su TP, Hsieh JC, Ho ST. Efficacy and practical issues of repetitive transcranial magnetic stimulation on chronic medically unexplained symptoms of pain. *Acta Anaesthesiologica Taiwanica*. 2013;51(2):81-87.
9. Galhardoni R, Correia GS, Araujo H, Yeng LT, Fernandes DT, Kaziyama HH, *et al.* Repetitive transcranial magnetic stimulation in chronic pain: A review of the literature. *Archives of Physical Medicine and Rehabilitation*. 2015;96:S156-172.
10. André-Obadia N, Magnin M, Garcia-Larrea L. On the importance of placebo timing in RTMS studies for pain relief. *Pain*. 2011;152(6):1233-1237.