

Single pulse transcranial magnetic stimulation (sTMS) as a non-drug treatment option for pregnant patients with migraine

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Objectives

To understand the utility of sTMS as a non-drug treatment option for pregnant patients with disabling migraine.

Background

The majority of migraine sufferers find that their migraine improves during pregnancy especially after the first trimester. However a significant proportion of sufferers are seen by their doctors when the symptoms persist or worsen during pregnancy, where treatment options become essential. The Clinician has to weigh up the risk of untreated migraine symptoms to the mother and unborn baby with that of the medication risk to the foetus. The selected patients described here, presented to their Neurologists in the headache clinic, seeking advice and treatment for significantly disabling migraine attacks.

Methods

3 patients were prescribed sTMS during the second trimester of their pregnancy. Their disabling attacks continued into their second trimester.

Limited medication options deemed relatively safe for use in pregnancy were already tried, without benefit e.g. paracetamol and codeine.

sTMS was prescribed from the second trimester to use as per the MAB guidelines for all 3 patients.

Patients were reviewed at 6 and 12 week intervals by a clinical liaison with liaison to the Neurologists.

Results

All three patients treated their attacks on a regular basis with benefit:

A reduction in pain severity, shorter attack duration and a reduction in severity of associated symptoms with early treatment where the associated symptoms often did not develop. Two patients have since given birth without complication and continue to treat in the post-partum period. The third patient continues to treat in pregnancy. No adverse effects were reported.

eNeura Therapeutics' Medical Advisory Board
Suggested Treatment Plan for the Acute Treatment of Migraine Using SpringTMS Total Migraine System

The following treatment plan is suggested to derive more meaningful results to assess and advise patients using the SpringTMS Total Migraine System. During the pilot program it is suggested that patient selection emphasize episodic migraine with and without aura.

It is important to:

- Initiate treatment as early as possible when patient first experiences symptoms of migraine, including pain and/or aura symptoms.
- Fill-out the headache diary immediately after treatment or at any time after the migraine attack subsides.
- Record all symptoms, triggers and medications used during each attack in the SpringTMS Online Journal.
- Increase the number of pulses delivered during an attack using the following systematic method as needed to improve pain and symptoms relief.

To Begin:

- Encourage the patient to deliver 2 sequential pulses as early as possible at the beginning of the migraine attack.
- Continue with 2 pulses every 15 minutes for 1-2 hours or until pain and symptoms resolve.
- Encourage patients to withhold using rescue medication for the first hour or two if possible.

Evaluate after the first month (3-4 attacks) - if needed increase the number of pulses delivered

- Encourage the patient to deliver 3 sequential pulses as early as possible at the beginning of the migraine attack.
- Continue with 3 pulses every 15 minutes for 1-2 hours or until pain and symptoms resolve.

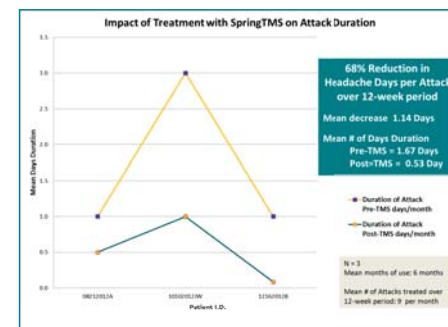
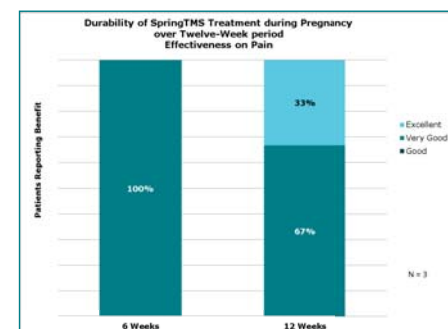
Evaluate again after the second month (3-4 attacks) - if needed increase the number of pulses delivered

- Encourage the patient to deliver 4 sequential pulses as early as possible at the beginning of the migraine attack.
- Continue with 4 pulses every 15 minutes for 1-2 hours or until pain and symptoms resolve.

Medical Advisory Board:

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Patient 1	Patient 2	Patient 3
<p>29 year old with Episodic Migraine with Aura. Pre-pregnancy migraine pattern: Frequency: 12 days per month; Duration of half to 1 day with early Triptan treatment and sleep for some hours.</p> <p>During Pregnancy: Frequency: 2 to 4 days per week, Duration of 2 days, needs to go to bed. Estimated 90% reduced ability to function due to migraine. Post Pregnancy: Breastfeeding and attacks occur 2 to 3 days per week.</p> <p>TMS response: During pregnancy optimum treatment benefit was obtained with 2 consecutive pulses repeated after 15 minutes. Reduced pain severity and duration were consistent. Good response was obtained when treating at mild and moderate severity levels. She could return to function and did not need to go to bed.</p> <p>Post pregnancy: Felt attacks increased due to increased triggers and tried using Triptans, requiring treatment on 4 days per week. Switched back to treating with TMS after a few weeks: treating twice daily with benefit of shorter attacks that did not escalate and could return to function within the hour.</p>	<p>30 year old with Chronic Migraine without aura. Pre-pregnancy pattern: Daily background pain of low severity with superimposed attacks on 2 to 4 days.</p> <p>During Pregnancy: Pattern continued with increased frequency and severity of attacks to 16 days of acute disabling attacks and a daily low level background pain. Attack duration of 1 day. Estimated 50% reduced ability to function due to migraine.</p> <p>TMS response: Found optimal treatment benefit at 2 consecutive pulses repeated after 15 minutes. This typically stopped the attack escalation and reduced the severity back down to a background tolerable level, within 1 to 2 hrs. The disabling associated symptoms resolved or did not develop.</p> <p>Post pregnancy: Is breastfeeding, continues to treat acute attacks and the benefit with TMS continues.</p>	<p>32 year old with Chronic Migraine without aura. Pre-pregnancy: 15 days per month of migraine attacks. Would treat acutely with: Frovatriptan, Syndol (paracetamol + codeine + doxylamine + caffeine) and Naproxen and would go to bed for a few hours and awake with reduced severity. Duration of 1 day.</p> <p>During Pregnancy: Could not use these acute medications and attacks became very severe and disabling. She started treating with Dihydrocodeine during the pregnancy with some reduced pain severity and unchanged duration. She was prescribed TMS during the second trimester.</p> <p>TMS response: Her optimal treatment is a single pulse repeated after 15 to 30 minutes using up to 4 pulses per migraine day. Initially she used Dihydrocodeine with TMS and found this beneficial to reduce the severity and abort the attack within hours. Subsequently she treated with TMS only and continues to do so with excellent benefit. She aborts the attack within an hour with early treatment. The associated symptoms did not develop and she does not have to go to bed for relief.</p> <p>Post pregnancy: Has not returned to previous medications, is breast feeding and the benefit with TMS continues.</p>



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