Successful use of transcranial magnetic stimulation in difficult to treat hypersexual disorder

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ABSTRACT

Hypersexual disorder has phenomenological resemblance with impulsive-compulsive spectrum disorders. Inhibitory repetitive transcranial magnetic stimulation (rTMS) over the supplementary motor area (SMA) has been found to be effective in the management of impulsive-compulsive behaviors. Inhibitory rTMS over SMA may be helpful in hypersexual disorder. We highlight here a case of hypersexual disorder (excessive sexual drive) who failed to respond adequately to the conventional pharmacological treatment and responded with rTMS augmentation.

KEY WORDS: Hypersexual disorder, repetitive transcranial magnetic stimulation, supplementary motor area

INTRODUCTION

Hypersexual disorder is primarily conceptualized as a disorder of sexual desire, with an impulsivity component.[1] It has symptoms befalling impulsive, compulsive, and addiction domains such as recurrent and intense sexual thoughts, urges, or behaviors, inability to control or stop the sexual behavior, and repetitively engaging in sexual behaviors disregarding associated risks.[1,2] Selective serotonin reuptake inhibitors, antihormonal medications (medroxyprogesterone acetate [MPA], cyproterone acetate, gonadotropin-releasing hormone analogs), and other pharmacological agents (naltrexone, topiramate) have been shown to reduce sexual behavior in some patients; however, substantial evidence of effectiveness is lacking.[2] Transcranial magnetic stimulation (TMS) has shown promise in management of various disorders involving impulsive-compulsive constructs such as substance addiction, obsessive-compulsive disorder (OCD), and Tourette's syndrome.[3] Considering hypersexual disorder on impulsive-compulsive spectrum, TMS may be useful in management.

CASE REPORT

We report the case of a 29-year-old male who presented with complaints of intense and uncontrollable sexual urges for the past 15 years. The patient would be preoccupied with perverted erotic fantasies most of the time. He would voyeur, frottage, read erotic literature, masturbate multiple times a day, visit sex workers, and feel relieved by getting indulged in the sexual acts. He felt these sexual thoughts and arousals to be pleasurable, however, excessive along with distressing consequences. There was gradual increase in frequency and severity of symptoms, which caused marital disharmony and impairments in daily functioning. Out of despair, once he attempted to mutilate his genitalia through sharp weapon, though unsuccessfully.

The patient had earlier sought consultation from multiple health-care providers and received trials of multiple antidepressants (fluoxetine, sertraline, clomipramine, alone as well as in combination) for adequate dosages and

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duration. Attempts with antipsychotic augmentation, psychological interventions, and electroconvulsive therapy had also been tried without any significant benefit. He had shown improvement on depot MPA but discontinued it due to intolerable side effects. His medical history was unremarkable. Computed tomography scan of the brain and hormonal assays (thyroid function tests, prolactin level, cortisol level, and androgen levels) were normal. A diagnosis of excessive sexual drive (ICD-10 F52.7) was made. He scored 109 on the 14-item sexual desire inventory (SDI) and 40 on 10-item sexual compulsivity scale (SCS); the maximum attainable scores on both the scales. The patient was unwilling for hormonal therapy due to the past adverse experiences. He was prescribed escitalopram (up to 20 mg/day). Psychological interventions such as scheduling of daily activities, relaxation exercises, and mindfulness meditation were done. As there was no significant improvement over ongoing treatment, repetitive-TMS (rTMS) was planned for treatment augmentation. The therapy procedure was explained to him, and written consent was obtained. The resting motor threshold (RMT) was determined, and 1 Hz TMS at 80% of RMT was administered over the supplementary motor area (SMA) using the MediStim (MS-30) TMS therapy system (Medicaid systems). Stimulation site was at junction of anterior two-fifth and posterior three-fifth (according to the International 10/20 System of electrode placement) of nasion-inion distance in midline. Each treatment session consisted of 14 trains of eighty pulses each with 5 seconds inter-train interval delivered over 19 minutes, giving a total of 1120 pulses/session. A total of 22 sessions, over 4 consecutive weeks, were delivered. There was gradual improvement in his symptoms. He had a better control on his sexual thoughts and the frequency of masturbation decreased. There was about 90% reduction in SDI and SCS scores over 4-week time on rTMS and concurrent pharmacotherapy. The improvement persisted till 3 months follow-up during which frequency of sexual thoughts was significantly decreased and he resumed his work.

DISCUSSION

Hypersexual disorder may have neurobiological underpinnings similar to other impulsive-compulsive spectrum disorders where dysfunctions of cortical-striatal-thalamic-cortical (CSTC) circuitry have been demonstrated.[4] In CSTC loop, distinct cortical areas (such as dorsolateral prefrontal cortex, SMA, orbitofrontal cortex, medial prefrontal cortex, and anterior cingulate gyrus) associated with different neurocognitive domains may be involved.[4,5] The SMA has been shown to have widespread functional connections with other areas of the brain involved in cognitive processes and motor control. Moreover, altered SMA connectivity has been demonstrated in patients suffering from OCD. Studies further suggest reduced cortico-subcortical regulation and increased cortical excitability to play a part in repetitive behaviors.[6,7] rTMS targeting this loop (particularly to the SMA) has been shown to reduce compulsive behaviors in OCD patients, and similar underlying mechanism might be responsible for the beneficial effect in our patient.[6]

TMS is a safe modality of treatment. Approximately 5% patients may complain about some mild adverse events such as headache and nausea, following the session of TMS.[8] Patients with metallic implant (aneurysmal clips, cochlear implants) and pacemaker need caution as the magnetic field may alter their functioning or may cause tissue damage.[9] Seizure is an extremely rare side effect with TMS, may be seen in patients using medications that lower their seizure threshold.[9]

This is, to the best of our knowledge, the first report highlighting efficacy of rTMS in hypersexual desire disorder. In our case, TMS was effective in suppressing the difficult to treat hypersexual symptoms safely. Thus, TMS could be considered as a treatment option in patients with hypersexual disorder.

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Conflicts of interest
There are no conflicts of interest.

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