



## Theta burst stimulation for tokophobia during pregnancy



Dear Editor

Tokophobia, defined as fear and avoidance of childbirth, is a common condition affecting 14% of pregnant females [1,2]. It may have serious negative effects on pregnancy and birth outcomes. Here we present a complex case of a woman with tokophobia associated with depression and medical comorbidities, who was treated safely with repetitive transcranial magnetic stimulation (rTMS) along with other interventions (see Fig. 1).

### Case presentation

Ms A, a 27-year-old married woman, presented at 25 weeks of gestation to the perinatal psychiatry outpatient services at the National Institute of Mental Health and Neurosciences, Bangalore, India.

She reported intense fear of pregnancy and delivery, with symptoms of autonomic arousal, agitation and frequent vivid imaginations of vaginal/caesarean delivery since the time she became pregnant. Ms. A had lost 8 kg of weight due to poor appetite, with inconsolable crying spells, sadness, anhedonia, depressive cognitions and death wishes. She felt that a medical termination of her pregnancy was the only solution. On being dissuaded against termination, she made a suicidal attempt of high intentionality and lethality. To allay her anxiety she would watch YouTube videos on childbirth and smoke cigarettes. Her fear of labour caused her to move into a maternity hospital where her mother worked, so that she could receive immediate medical intervention if required.

Ms. A had a history of gestational diabetes mellitus and anaemia. Her obstetric history revealed cervical incompetence, multiple ter-

minations of previous pregnancies due to severe anxiety, one miscarriage and one intrauterine death. She had no live children.

### Predisposing factors including past history

She had an exacerbation of the above-mentioned anxiety symptoms in the past 10 years every time she became pregnant. She also insisted on contraception during every sexual contact and if there was a positive pregnancy test, she would immediately take abortion pills. Premorbidly she was anxious by nature, also very sensitive to critical comments. From early childhood days, she had witnessed violence between parents and there was also a history of intimate partner violence. The predisposing factors were frequent discussion regarding obstetric complications by the mother who worked in a maternity hospital. All these multiple factors would have led to the presentation of tokophobia.

Prior to attending our perinatal psychiatry service, she was treated with Escitalopram 10 mg, Dotheipin 50 mg, Clomipramine 50 mg, Buspirone 20 mg, Risperidone 0.5 mg, along with relaxation techniques. There was poor adherence to treatment and minimal improvement.

A diagnosis of Tokophobia with moderate depression, gestational diabetes mellitus, anaemia and cervical incompetence was made.

### Case management

Following counselling and consent, she was started on sertraline up to 125 mg, which was augmented later with pregabalin up to 225 mg for anxiety and clonazepam 0.75 mg for sleep.

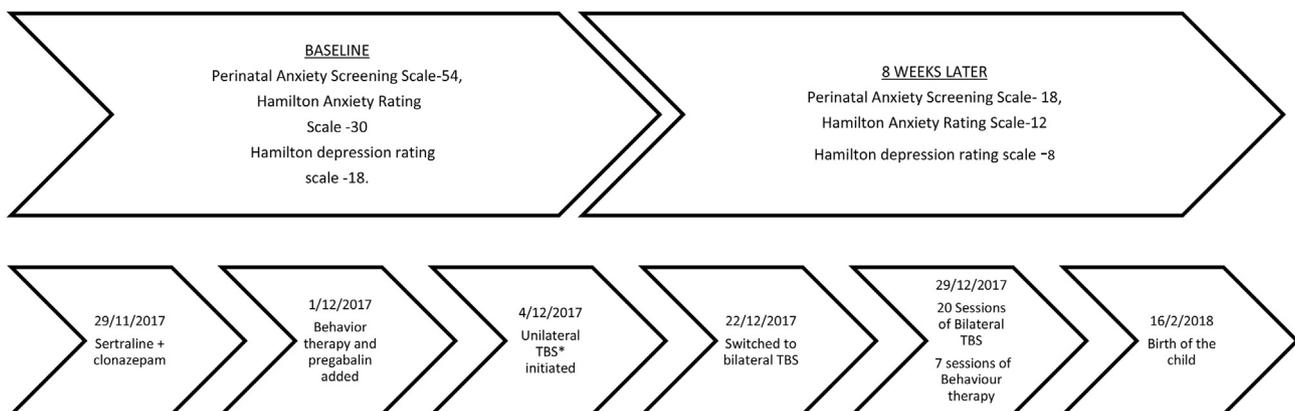


Fig. 1. Timeline of interventions.

She received 10 weeks of cognitive-behaviour therapy (CBT) utilizing cognitive restructuring, relaxation exercises, graded exposure and behavioural activation. There was minimal improvement in her symptoms after 10 weeks of therapy.

At this stage, due to the severity of symptoms, she was offered a trial of theta burst stimulation (TBS), after explaining the potential risks and benefits. Continuous theta burst stimulation (cTBS) over right dorsolateral prefrontal cortex (DLPFC) was initiated with inadequate improvement. Later, it was changed to intermittent theta burst stimulation (600 3-pulse bursts at 5 Hz, in 2 sec train and 8 sec intertrain interval, at 90% of resting motor threshold) over left DLPFC and continuous theta burst stimulation (600 3-pulse bursts at 5 Hz, in 2 sec train at 90% of resting motor threshold) over right DLPFC. She tolerated the sessions well and reported good improvement following 20 bilateral TBS sessions which was given till 28 weeks of gestation. After 2 months of treatment, there was marked reduction of scores on Perinatal Anxiety Screening Scale (PASS) [3], Hamilton Anxiety Rating Scale (HAM-A) [4] and Hamilton depression rating scale [5] from 54, 30, 18 at initial presentation to 18, 12 and 8 respectively after 8 weeks.

Ms A delivered a healthy female baby at term, by lower segment caesarean section (because of her diabetes). The infant, whose birth weight was 1.75 kg, did not have any signs of neonatal behavioural syndrome and had adequate development at 3 months.

## Discussion

Our report highlights the management challenges in a patient with tokophobia. A multimodal treatment was employed considering the severity and refractoriness of the condition.

Tokophobia can be classified as primary where the morbid fear of childbirth predates pregnancy as highlighted in our case and secondary which develops after traumatic childbirth in the previous pregnancy. Tokophobia is usually associated with depression, post-traumatic stress disorder and bonding disorders [1].

Studies on the treatment for fear of childbirth are scanty, and no consensus exists about treatment. Cognitive behavioural interventions are promising [6]. However, in this case, the severity and lack of response to CBT and medications, prompted us to try other somatic interventions.

rTMS over DLPFC has been consistently found to have antidepressant effects and there is evidence for its safety in the antenatal period with no reported adverse effects on pregnancy or foetus [7]. We considered TBS over conventional TMS to keep the duration of sessions to a minimum and to avoid major discomfort. The duration of sessions might decrease from around 60 minutes for bilateral conventional rTMS as compared to around 5 minutes for bilateral TBS protocol. Among the TBS protocols, bilateral TBS has been found to be more efficacious than unilateral TBS [8]. In line with this, our patient showed improvement in both anxiety and depressive symptoms after shifting over to bilateral stimulation. Similar non-invasive brain stimulation protocols, which have an excitatory effect on left prefrontal cortex and inhibitory effect on right prefrontal cortex have been found to be helpful in various anxiety disorders, including phobias [9]. There has been earlier positive reports of use of iTBS for major depression during pregnancy [10]. Thus, TBS may be a promising intervention for treatment of both anxiety and depressive disorders during pregnancy. To the best of our knowledge this is the first report on bilateral TBS during pregnancy.

## Conclusions

Our case exemplifies the various vulnerability factors related to tokophobia, the severity in presentation and its impact on pregnancy outcomes. It also highlights the use of various modalities

of treatment, especially rTMS which appears safe in pregnancy with judicious use of psychotropics and psychological interventions. It is important to closely liaise with obstetricians to monitor obstetric outcome and reduce morbidity.

## Declaration of interest

None.

Informed consent was taken from the subject involved in the study for publication of this report.

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