CASE REPORT

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REPEATED TRANSCRANIAL MAGNETIC STIMULATION AS A SUCCESSFUL AUGMENTATION STRATEGY IN A PATIENT WITH FIRST EPISODE PSYCHOSIS

BİR İLK ATAK PSİKOZ OLGUSUNDA BAŞARILI BİR TEDAVİ GÜÇLENDİRME YAKLAŞIMI OLARAK TEKRARLAYICI TRANSKRANİYAL MANYETİK UYARIM TEDAVİSİ

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Abstract

Repeated transcranial magnetic stimulation (rTMS) is a non-invasive brain stimulation method that may be preferred as an augmentation strategy for psychiatric patients who may not have responded well enough to psychotropic drugs. In psychoses rTMS may act via changing cortical excitability, connectivity and plasticity. rTMS may induce transcallosal inhibition and antipsychotic drugs may extend the duration of this inhibition. We present a first episode psychosis patient initially unresponsive to antipsychotic treatment, in whom 20 sessions of right 1Hz rTMS augmentation resulted in clinical response and who remained in remission by the 8th month of treatment. We suggest that rTMS is a well-tolerated treatment that may not be reserved only for treatment resistant patients but may also be considered early on in the management of psychiatric disorders.

Keywords: Repeated Transcranial Magnetic Stimulation, augmentation, first episode psychosis, antipsychotic augmentation

Özet

Tekrarlayıcı transkraniyal manyetik uyarım tedavisi (tTMU), psikotrop ilaçlara yeterli alınamamış psikiyatrik hastalıklarda, tedaviyi güçlendirme amacıyla tercih edilebilecek, invazif olmayan bir beyin uyarım yöntemidir. Psikoz olgularında, tTMU, kortikal uyarılabilirliği, konnektiviteyi ve plastisiteyi değiştirerek etki ediyor olabilir. tTMU transkallozal inhibisyonu indükleyebilir ve antipsikotikler bu inhibisyonun süresini uzatabilir. Bu makalede, ilk antipsikotik ilaç tedavisine yanıtsız bir ilk atak psikoz olgusunda, 20 seans 1Hz sağ tTMU güçlendirmesiyle klinik yanıt gözlenen ve tedavinin 8. ayında remisyonu devam eden bir olguyu sunuyoruz. tTMU'nun sadece tedaviye dirençli olguların tedavisinde değil, aynı zamanda, psikiyatrik bozuklukların erken dönem tedavisinde klinisyenin düşünebileceği umut vaat eden bir yöntem olduğunu öneriyoruz.

Anahtar Kelimeler: *tekrarlayıcı transkraniyal manyetik uyarım, güçlendirme, ilk atak psikoz, antipsikotik güçlendirme*

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1. Introduction

Repeated transcranial magnetic stimulation (rTMS) is a non-invasive brain stimulation method that may be preferred as an augmentation strategy for psychiatric patients who may not have responded well enough to psychotropic drugs (Mishra et al., 2011). Coil placement and stimulation parameters may be changed in different psychopathologies. Low-frequency stimulation (1Hz) decreases cortical excitability and therefore may be suitable for psychopatologies like psychosis that has been suggested to have decreased cortical inhibiton (Sayar et al., 2015).

We present a first episode psychosis patient initially unresponsive to antipsychotic treatment, in whom 20 sessions of right 1Hz rTMS augmentation resulted in clinical response and who remained in remission by the 8th month of treatment.

2. Case

25 years old male single depot worker came to our outpatient psychiatry clinic with complaints of feeling unhappy, restlessness, fearfulness, thoughts of being followed, fear of being harmed and hearing tingling sounds. His mother told that he became introverted, got dull, talked about receiving personal messages via television and was afraid someone would harm him and his family. He had thoughts of his telephone being tape-wired. He believed his boss had given money to third parties to make news about him and that he was fired because of these gossips.

His symptoms started 6 weeks before his admission to our outpatient clinic. Before his symptoms started his brother was sent on a work mission as a soldier to a city in eastern Turkey and he got anxious and felt intense fear for his brother. He was admitted to the emergency psychiatry service of a hospital with generalized anxiety, intense fear and agitation. He was started on olanzapine 10mg/day after being monitored for a day at the emergency department with a diagnosis of Acute Psychotic Episode. Two weeks later olanzapine was changed to risperidone 4mg/day and biperiden 2mg/day because his symptoms didn't change. When we examined the patient by the fourth week of risperidone treatment, he still had ideas of reference, delusions of persecution and auditory hallucinations and therefore we added pimozide 2mg to augment his treatment. He developed extrapyramidal symptoms of rigidity in both upper extremities and his symptoms did not resolve, therefore pimozid was withdrawn from the treatment and risperidone 4mg/day and biperiden 2mg/day were augmented with 20 sessions of 1 Hz rTMS over the right dorsolateral prefrontal cortex. He tolerated rTMS very-well without any side-effects. His PANSS scores dropped from "115" to "18" by the 20th session and to "8" 8th months after rTMS.

3. Discussion

We presented a first episode psychosis patient unresponsive to two antipsychotic trials who has responded well to rTMS treatment and who remained in remission by the 8th month of treatment. Data concerning the use of rTMS for the treatment of psychiatric diagnoses other than major depressive disorder like schizophrenia has been accumulating in the past few years (Sayar et al., 2015).

In psychoses rTMS may act via changing cortical excitability, connectivity and plasticity (Hasan et al., 2013; Sayar et al., 2015). It has been reported that cortical inhibition is reduced in schizophrenia (Rogash et al., 2014). rTMS may induce transcallosal inhibition and antipsychotic drugs may extend the duration of this inhibition (Liu et al., 2009; Sayar et al., 2015).

Antipsychotics show their effects by 3 weeks as explained by the depolarization block hypothesis and therefore it might be argued that the patient might have responded if the clinicians had waited a little longer (Pucak& Grace, 1994). However, depolarization block hypothesis has been refuted by early onset and progressive accumulation hypothesis which shortly suggests that antipsychotic effects can be observed clinically in the first few days of treatment (Agid et al., 2006). Our patient had not shown any signs of improvement in the first weeks and it is probably predominantly cortical inhibitory effects of rTMS that resulted in clinical amelioration of the patient in the first place. The patient must have stayed in remission by the 8th month with only risperidone because of the progressive accumulation of the drug's effects.

Untreated psychosis may cause neurodegeneration, therefore finding the best treatment available to fully control the symptoms of a first episode psychosis patient is important for further preservation of neuronal reserve (Anderson et al., 2014). Use of rTMS for treatment of schizophrenia has not been approved by FDA yet and it is still an investigational treatment modality, therefore individual cases like ours will be contributing to the efficacy and safety database of rTMS in schizophrenia.

rTMS is safe and tolerable in patients with pathologic positive sensory phenomena (Muller et al., 2012). What is more rTMS may have positive effects on neuroplasticity (Nakamura et al., 2015). We suggest that rTMS may be a promising treatment augmentation option for first episode psychosis patients due to it's tolerability and probable effects on neuroplasticity which may help preserve brain tissue and maybe help improve the dysfunctional connectivity of psychosis. rTMS is a promising treatment tool that may not be reserved only for treatment resistant patients but may also be considered early on in the management of various psychiatric disorders.

Authors' Disclosure: rTMS has not been approved by FDA for the treatment of schizophrenic syndromes and it is still an investigational treatment procedure for these syndromes. The mentioned patient has given written informed consent for the application of rTMS regarding this.

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