CASE SERIES

Case Series of Repetitive Transcranial Magnetic Stimulation in Treatment-Resistant Depression

Kay Lyn Gue[1], Chuong Hock Ting[2]

[1] Department of psychiatry, Hospital Sentosa Kuching, Jalan Penrissen, Kota Sentosa, Batu 7, Kuching 93250, Sarawak, Malaysia
[2] Department of Psychological Medicine, Faculty of Medicine and Health Sciences, University Malaysia Sarawak, Kota Samarahan 94300, Sarawak, Malaysia

ABSTRACT

Introduction: Repetitive transcranial magnetic stimulation (rTMS) is a non-invasive form of brain stimulation therapy and The United States Food and Drug Administration (FDA) approved the use of rTMS for the treatment of major depressive disorder (MDD) in 2008. Meta-analyses have shown that patients with treatment-resistant depression (TRD) showed clinically significant improvement after treatment with rTMS but studies on the efficacy of rTMS in special populations such as the elderly are still very limited. **Case Series:** This case series aimed to report the efficacy of rTMS on treatment-resistant depression in patients of diverse ages in Hospital Sentosa Kuching, Malaysia. Four patients with treatment-resistant depression, aged 17 to 73 years old, completed the course of rTMS. All patients received 20 sessions of rTMS, with 120% motor threshold, 10 Hz rTMS, 3000 pulses per session, and five times per week. The outcome of treatment was measured using The Montgomery–Esberg Depression Rating Scale (MADRS) and responders were defined as having ≥ 50% reduction in score. **Conclusion:** Two patients responded to the treatment and two elderly patients did not respond to the rTMS treatment, but it was well tolerated by all patients. rTMS can be a promising treatment option for TRD and more research may be needed to determine the most effective treatment protocol.
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Corresponding Author:
Chuong Hock Ting, MRCPsych
Email: chting@unimas.my
Tel: +6016-3315598

INTRODUCTION

Depression has become one of the most common mental diseases with the estimated lifetime prevalence ranging from 2 to 21% (1). In Sarawak, the largest state in Malaysia, the reported prevalence of depression in adults was 35.8%. (2). Although pharmacological treatments for depression have expanded over the past decades, there are between 29% and 46% of depressed patients failed to respond fully to antidepressant treatments (3). Patients who show an inadequate response to two antidepressant trials of adequate doses and duration are referred to as having treatment-resistant depression (TRD) (4). These patients often showed a significant decline in daily functioning and suffered from this disabling disorder.

Treatment-resistant depression (TRD) is a highly prevalent and relatively common clinical occurrence that is likely to affect more than one-third of patients with major depressive disorder. These patients do not respond to conventional treatment and often fail to achieve remission (4). Many different treatment modalities aim to help the patient achieve remission and diminish treatment resistance as TRD has a tremendous effect on the patient's quality of life and the societal burden is costly (5). The conventional approach to treatment for depression is usually in the form of pharmacotherapy and/or psychosocial therapies. When monotherapy has failed to provide remission in depression, a better outcome may be obtained by augmenting the antidepressant, changing from a single-action to a double- or multiple-action drug, or combining antidepressants. Both the Canadian Network for Mood and Anxiety Treatments (CANMAT) and the National Institute for Health and Care Excellence (NICE) guidelines have recommendations for how to best optimize pharmacotherapy when a patient presents with partial or no symptom response to an initial antidepressant trial. Another pharmacological strategy would be medication augmentation with lithium, thyroxine, and second-generation antipsychotics (4). Psychotherapy may be undertaken in combination with pharmacological treatments, or on their own once several other interventions have been attempted. However, when pharmacotherapy or psychosocial therapies are ineffective, other treatment options such as brain stimulation therapy could be applied.