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The Effect of rTMS on Sleep Quality and Pain in Patients with Fibromyalgia-Case Series

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Aims
this report is to know the effect of rTMS on sleep quality and pain in fibromyalgia.

Subjects
Case 1, Patient is a right-handed 38-year-old female and diagnosed as having suffered from fibromyalgia since 2012. She is married and has three children. She was following a combined pharmacological management consisting of ant-depressant, sedatives and NSAIDs. She is a housewife and has never been working home outside. The Fibromyalgia impact questionnaire (FIQ) showed a score of 43.8 in the prior to beginning rTMS with a global Pittsburgh sleep quality index (PSQI) score of 18. Case 2, Patient a right-handed 45-year-old female diagnosed as having suffered from fibromyalgia since 1999. The patient is not married. She want to stop working because of widespread pain and fatigue. She was undergoing treatment with po NSAIDs. Sometime she takes a medication for sleep induction. The FIQ showed a score of 62.7 in the prior to beginning rTMS with a global PSQI score of 13. Case 3, Patient is a right-handed 37-year-old female and diagnosed as having suffered from fibromyalgia since 2018. She is married and has no child. She was following a combined pharmacological management consisting of ant-depressant, NSAIDs. She is a housewife and is working beauty shop for a long time. The FIQ showed a score of 38.6 in the prior to beginning rTMS with a global PSQI score of 15.

Methods
magnetic stimulation was applied using a Super-Rapid Magstim Stimulator with a figure-of-eight-shaped coil. Each treatment session consisted of 25 series of eight-second pulses, with 52 s interval between series, at a stimulation frequency of 10 Hz and 80% resting motor threshold intensity, giving a total of 2000 pulses per session. The treatment protocol consisted of one session per day for five consecutive days followed by 2 days without treatment and then another five consecutive days of treatment. The PSQI was assessed for sleep quality. It consists of 19 items and seven domains: subjective sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, use of sleep

medication, and daytime dysfunction. The FIQ and brief pain inventory-short form (BPI) were checked for pain quantification. Beck depression inventory (BDI) was also checked.

Results

1) The global PSQI score and sleep duration were improved in all patients (Table 1). Sleep duration and daytime sleep dysfunction were improved in case 1. Sleep quality, sleep latency and sleep efficiency were improved in case 2. Sleep quality and sleep disturbance were improved in case 3. 2) The pain severity scale and pain interference scale of BPI were improved in only case 3 (Fig. 1). The pain interference scale of BPI and total FIQ score were improved in case 2 (Fig. 2). There was no pain scale improvement in case 1. All cases had improved BDI score.

Conclusions

we think that rTMS could be better helpful method for improving sleep quality and depressive mood than reducing pain in patients with fibromyalgia.

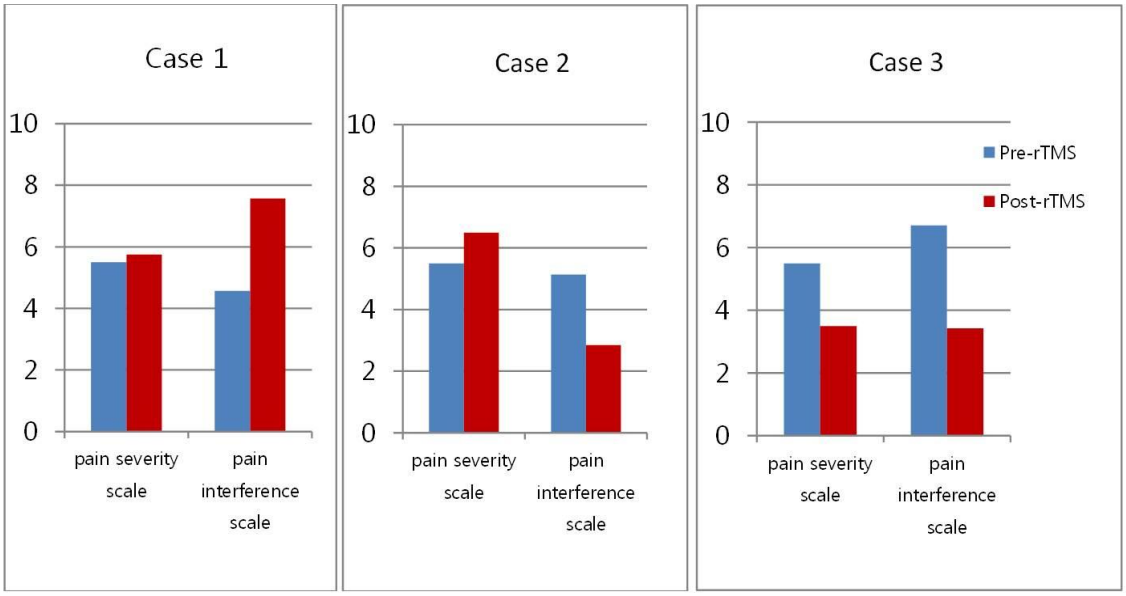

Fig. 1. The Brief Pain Inventory-short form

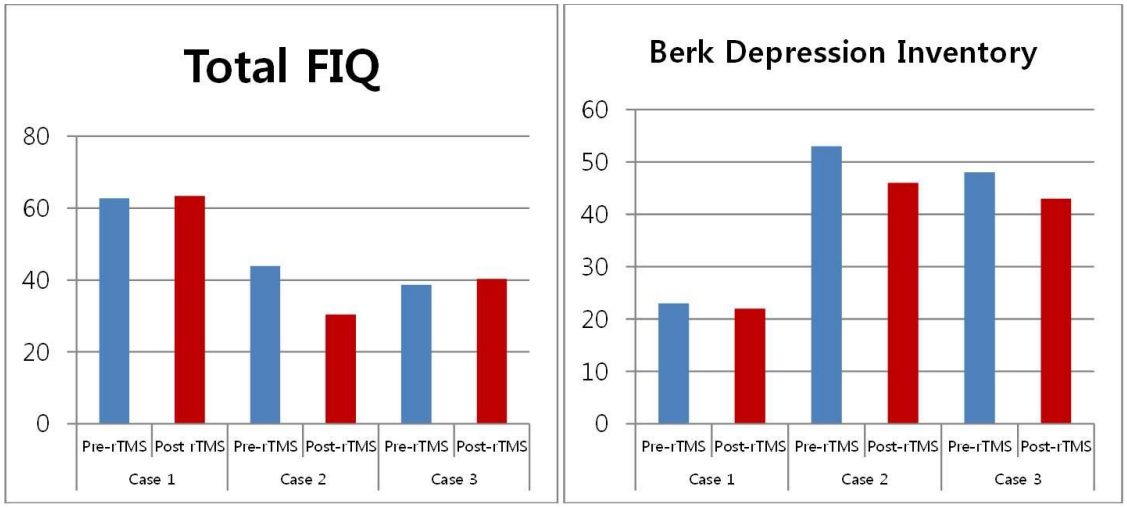

Fig. 2. Fibromyalgia impact questionnaire and Beck depression inventory

Table 1. Sleep quality by PSQI

	Case 1		Case 2		Case 3	
Component	Pre-rTMS	Post rTMS	Pre-rTMS	Post-rTMS	Pre-rTMS	Post-rTMS
Sleep quality	2	2	3	1	3	1
Sleep latency	1	1	3	2	1	1
Sleep duration	3	2	3	2	3	0
Sleep efficiency	0	0	3	0	0	0
Sleep disturbance	2	1	2	2	2	1
Sleep medication	2	2	3	3	3	3
Daytime sleep dysfunction	3	2	1	2	3	3
Global PSQI score	13	10	18	12	15	9