1. No.

   2021Y017

2. Title

   The neural circuit change and therapeutic possibilities verification of repetitive Transcranial Magnetic Stimulation for the electrically-heated smoking

3. Period

   2021-2023

4. Summary

Currently, insurance coverage for repetitive transcranial magnetic stimulation (rTMS) is limited to depression only. Our research focused on verifying predictors of treatment effectiveness and identifying the correct stimulation location. In terms of predicting treatment response, a quantitative EEG analysis was conducted on patients with depression who underwent rTMS. The analysis revealed that the degree of improvement in depression was related to the CSD of the right rDLPFC and rInsula, on the contralateral side of the stimulation site, as well as the higher FC of the ACC-rDLPFC, ACC-rinsula, and rInsula. It is suggested that higher activity within the SN may be more effective in treating rTMS. Changes in the Insula may predict therapeutic effects of rTMS.

We compared the conventional method of 5 cm, the F3 method of EEG electrode location, and the navigation method to identify stimulus location. We clarified the relationship between the location of the 5 cm-DLPFC and the Navi-DLPFC on the scalp, the distance between these two points, and the therapeutic effect. Our study found that, consistent with previous research, the Navi-DLPFC was typically located more anteriorly and laterally than the 5cm-DLPFC. We also discovered that the closer the 5cm-DLPFC and Navi-DLPFC were to each other, the greater the antidepressant effect. Additionally, we found that proximity in the anterior-posterior direction may lead to a higher therapeutic effect. Furthermore, F3 is closer to Navi-DLPFC than 5cm-DLPFC and may be a viable alternative method.