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Optimizing RUL rTMS protocols – Is more treatment better?

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Background: Repetitive Transcranial Magnetic Stimulation (rTMS) has been proven to be a safe and effective treatment for Major Depressive Disorder (MDD). While there is similar antidepressant efficacy reported between bilateral, right unilateral and left unilateral treatments, studies have demonstrated advantages to right unilateral treatment (RUL) with regards to safety and tolerability. However, the RUL rTMS protocol is not yet defined.

Objectives: To define the optimal RUL rTMS treatment protocol by exploring the effects of extended rTMS sessions on response rate in treating treatment-resistant depression (TRD).

Methods: The study was conducted in a naturalistic setting comparing two first-time patient groups treated with low frequency (1Hz) RUL rTMS for TRD 3 days/week over 6 weeks. All participants received rTMS 3 days/week for 6 weeks (18 treatments in total). 78 patients received standard 15 minute low frequency RUL rTMS treatment sessions (total rTMS time 270 minutes) and 71 patients received extended low frequency RUL rTMS 30 minute treatment sessions (total rTMS time 540 minutes). All groups were assessed at baseline, mid-treatment and end of treatment. Response and remission rates were compared at mid-treatment (3 weeks [9 sessions]) and end of treatment (6 weeks [18 sessions]) for participants receiving 30 minutes of rTMS treatment. At mid-point these participants would have received a total of 270 minutes of rTMS treatment, and at the end of treatment 540 minutes in total.

Findings: No significant differences in remission or response rates were demonstrated between the patient group receiving standard RUL rTMS and those receiving extended RUL rTMS over 6 weeks. Mid-treatment assessment of patients receiving extended RUL rTMS (total rTMS time 270minutes) showed significantly lower remission and response rates in comparison to the currently accepted RUL rTMS protocol of 270 minutes administered in 18 x 15 minute sessions over 6 weeks.

Conclusions: The findings suggest the standard RUL rTMS protocol of 18 x 15 minute sessions is sufficient for the management of TRD. Condensing the standard total rTMS treatment of 270 minutes into 9 x 30 sessions over 3 weeks in comparison with the currently accepted protocol of 18 x 15 sessions over 6 weeks showed significantly lower rates of response and remission, suggesting spacing of rTMS sessions is needed for optimal treatment.

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Related factors and management principles of postoperative complications of ventricular-peritoneal shunt

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Objective: To explore the related factors and management principles of postoperative complications of ventricular-peritoneal shunt.

Methods: 450 patients who underwent ventricular-peritoneal shunt in our hospital were selected and followed up for at least 5 years. The age, gender, history of disease, classification of hydrocephalus, surgical method and type of shunt tube, postoperative complications and other factors were analyzed. Patients with complications were treated and the clinical treatment effect was analyzed.

Results: Complications occurred in patients, including puncture bleeding, obstruction of shunt tube (decomposition, rupture), intracranial infection, subdural effusion or subdural hematoma caused by excessive drainage and delayed intracranial hematoma. Patients can still get a good prognosis after individualized treatment.

Conclusions: The incidence of postoperative complications of ventricular-peritoneal shunt is not low. Surgery indications should be strictly grasped before surgery. Strict aseptic operation should be performed during the operation. Patients with a previous history of central nervous system infection or craniocerebral surgery should be more cautious. Early skull repair combined with ventricular-peritoneal shunt is positive significance for improving the quality of life of patients undergoing brain surgery. Patients with complications should be treated individually.

Recent Publications

1. Ren, Siyang; Xu, Yinghui (2019) AC016405.3, a novel long noncoding RNA, acts as a tumor suppressor through modulation of TET2 by microRNA-19a-5p sponging in glioblastoma. CANCER SCIENCE, 2019, MAY; 110 (5): 1621 - 1632.

2. Cheng, Tianci; Xu, Yinghui (2018) Effects of Enhancer of Zeste Homolog 2 (EZH2) Expression on Brain Glioma Cell Proliferation and Tumorigenesis.MEDICAL SCIENCE MONITOR , 2018,October; 24: 7249 - 7255.

3. Zhao, Jun; Zhu, Jiabin; Lv, Xiaoshu; Xing, Jinshan; Liu, Shuang; Chen, Chen; Xu, Yinghui (2017) Curcumin potentiates the potent antitumor activity of ACN against glioblastoma by suppressing the PI3K/AKT and NF-kappa B/COX-2 signaling pathways. ONCOTARGETS AND THERAPY , 2017, ; 10 : 5471 - 5482.

4. Diao, Shuo; Zheng, Qianqian; Gao, Jian; Yao, Yiqun; Ren, Siyang; Liu, Yongjian; Xu, Yinghui (2017) Trefoil factor 3 contributes to the malignancy of glioma via regulating HIF-1 alpha. ONCOTARGET , 2017, SEP 29 ; 8 (44): 76770 - 76782.

5. Wang, Jinkui; Yu, Zhenlong; Wang, Chao; Tian, Xiangge; Huo, Xiaokui; Wang, Yan; Sun, Chengpeng; Feng, Lei; Ma, Jing; Zhang, Baojing; Yang, Qining; Ma, Xiaochi; Xu, Yinghui (2017) Dehydrocostus lactone, a natural sesquiterpene lactone, suppresses the biological characteristics of glioma, through inhibition of the NF-kB/COX-2 signaling pathway by targeting IKK beta.AMERICAN JOURNAL OF CANCER RESEARCH , 2017, ; 7 (6): 1270 - +.