

投稿範例

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項目類別：

- ☐ Sleep Physiology,
- ☐ Sleep Monitoring,
- ☐ Circadian Rhythm Disorders,
- ☐ Insomnia,
- ☐ Sleep-disordered Breathing,
- ☒ Sleep and Neurological Disorders,
- ☐ Sleep and Psychiatric Disorders,
- ☐ Others_____

摘要類別： ☒ 原著研究摘要 ☐ 個案報告

發表方式： ☐ 口頭宣讀 ☒ 壁報研討會 ☐ 隨大會安排

是否申請論文獎： ☒ 是 ☐ 否

**Deep brain stimulation of anterior nucleus of the thalamus in
Pentylentetrazol-induced seizure rats model enhance REM sleep and decrease
NREM delta power**

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Objective: Epilepsy patients, known as losing body control from sudden clonic convulsion, suffer from sleep disruption. Deep brain stimulation (DBS) is an electrical stimulation treatment for movement disorder at the beginning, but it's been approved for epilepsy treatment by FDA in 2018. The anterior nucleus of the thalamus (ANT) may be a promising brain region for DBS treatment, because the ANT has a wide projection to neocortex via the cingulate gyrus. In this study, we are going to evaluate the anti-epileptic efficacy of ANT DBS and the effects on sleep in the epileptic rats.

Methods: For epilepsy rat model, we injected Pentylentetrazol (PTZ, 40 mg/kg, i.p.), a GABA_A antagonist, in a low dose every day to induce kindling seizure until 14 days. Implantation of electrocorticograph (ECoG) electrodes and a DBS electrode to the ANT have been done for collecting brain wave data and stimulation, respectively. Additional electromyogram (EMG) electrodes were implanted into the neck muscle. The stimulation parameter was set at biphasic pulse 200Hz, 50 μ A, 100 μ sec pulse width. Analysis of sleep states were according to the recordings of ECoG and EMG. The time of wakefulness, NREM sleep, REM sleep and the variation of delta powers in NREM sleep were analyzed.

Results: The delta power in NREM sleep in epileptic rats was decreased from 20.48 μ V²/Hz to 5.9 μ V²/Hz when rats received DBS. Although NREM sleep was not altered by DBS, REM sleep in epileptic rats with DBS was significantly increased in light period, especially at zeitgeber time (ZT) 6, ZT7, ZT8 and ZT9.

Conclusion: DBS seems to decrease the power of synchronized brain wave in NREM sleep which is easily generate seizure, and boosts the duration of REM sleep, the most protective stage of sleep to against focal seizures, generalized seizures, and focal interictal discharges.

中文題目：視丘前核之腦部深層電刺激可提升癲癇大鼠快速動眼期睡眠時間以及降低非快速動眼期 delta power

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