

World Summit on

# CLIMATE CHANGE & GLOBAL WARMING

&amp;

International Conference on

# BRAIN STIMULATION

November 26-27, 2018 | Tokyo, Japan

## Effects of ventrolateral thalamic deep brain stimulation on primary motor cortex local field potentials in semiparkinsonina rats

Min Wang, Xuenan Wang, Tianyu Xiang, Zhiyuan Lu, Haiji Sun  
Shandong Normal University, China

Deep brain stimulation (DBS) of the ventrolateral thalamus has been used as an effective method in successfully relieve of tremor in parkinson's disease (PD). However, the exact mechanism of this effect on the local electrical activities throughout the basal ganglia-thalamocortical networks remains to be fully characterized. We applied extracellular constant current pulse trains on ventrolateral thalamic nucleus (VL) through bipolar electrodes and synchronously recorded the local field potential (LFP) activities of primary motor cortex (M1) in control and 6-hydroxydopamine (6-OHDA) lesioned rats. The results showed that DBS of VL is failed to improve in

the test scores of the vibrissae-evoked forelimb placing ( $11.01 \pm 1.1$  vs.  $2.2 \pm 1.0$ ;  $p < 0.01$ ) and adjusting-steps ( $7.01 \pm 1.1$  vs.  $4.30 \pm 0.9$ ;  $p < 0.01$ ) for dopamine lesioned rats. However, stimulation of the VL rectified the LFP activity at 4-12 Hz, 12-35Hz, and 35-70 Hz frequency bands of the M1, which were elevated in 6-OHDA lesioned rats. These data supports the role of VL electrical stimulation in LFP modulation in parkinsonian and provides a basis on the use of chronic electrical stimulation guide future research into treatment of Parkinson's disease and other movement disorders.

minwang@gmail.com