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## Poster Presentation

### Minimally Conscious State Improvements with Thalamic Ventralis Intermedius Nucleus Stimulation after Severe Traumatic Brain Injury

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#### **Abstract**

Methods of modulating brain neural plasticity, improving memory and learning, improving recovery from traumatic brain injury, preventing epilepsy, treating memory disorders, and treating persistent impairment of consciousness in humans and animals by nerve stimulation are provided. Widespread loss of cerebral connectivity is assumed to underlie the failure of brain mechanisms that support communication and goal-directed behavior following severe traumatic brain injury. This study was tried to clarify with the effect of deep brain stimulation in patients who had severe traumatic brain injury. Recent studies have shown unexpected preservation of large-scale cerebral networks in patients in the minimally conscious state (MCS), a condition that is characterized by intermittent evidence of awareness of self or the environment. These findings indicate that there might be residual functional capacity in some patients that could be supported by therapeutic interventions. This study was followed after 6-month indicated that bilateral deep brain electrical stimulation (DBS) of the ventral intermediate thalamus modulates behavioral responsiveness in a patient who remained in MSC for 6 years following traumatic brain injury before the intervention. Primary outcome measures were mediated by the frequency of specific cognitively behaviors and functional limb control and oral feeding (secondary outcome measures) increased during periods in which DBS was on as compared with periods in which it was off. Our studies demonstrated early DBS treatment discontinuation for patients with only inconsistent interactive behaviors and motivate further research to develop therapeutic interventions.

**Keywords:** Traumatic Brain Injury, Minimally Conscious State, Deep Brain Stimulation, Neural Plasticity.

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