

Examination of brain coordination dynamics underlying hypnosis and volitional acts using intracranial electroencephalography

ABSTRACT:

Our main goals were to investigate the neurophysical mechanisms underlying hypnosis and to examine alterations in consciousness during hypnosis. A novelty of our project is that it investigates the neurophysiological mechanisms of hypnosis using intracranial electroencephalography (iEEG), as the majority of studies on this topic have used other non-invasive modalities. Based on the notion that the “connectivity” among brain regions is fundamental to understand how the brain manages to process information, we assess synchrony patterns and the complexity of those patterns.

A total of 18 patients participated in this study. Usable data were obtained from 11 of those patients. Hypnosis was induced and hypnotizability was assessed using a modified and extended version of the Stanford Hypnotic Susceptibility Scale. Continuous iEEG was recorded with an EEG software in the Epilepsy Unit of the Toronto Western Hospital. The hypnotic sessions were also video recorded.

On the dispute whether hypnosis is an altered state marked by a level of awareness associated with distinctive electrophysiological patterns, our preliminary results point towards a characterization of hypnosis as a state lacking an easily distinguishable pattern from other more “ordinary” mind states. The extensive network analysis here performed does not show a brain network pattern characteristic of the hypnotic condition. This result however may be affected by the limited sample (11 subjects) and the extremely challenging condition in which the practice of hypnosis was conducted in the patients at the Epilepsy Unit.

Keywords

Brain synchrony, Connectivity, Hypnosis

Published Work:

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