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Psychiatry and Neuroscience Seminar Series 2024

Dr Marta BORTOLETTO

(Host P Lindberg)

IRCCS Centro San Giovanni di Dio Fatebenefratelli, Brescia, Italia

Emerging trends in the application of TMS-EEG coregistration in psychiatry

Friday, October 4th, 2024, noon

Room D Levy, 102-108 rue de la santé - 75014 Paris

Dr Marta BORTOLETTO

Neurophysiology Lab, IRCCS Centro San Giovanni di Dio Fatebenefratelli, Brescia, Italia

At the Neurophysiology Lab we study the neural mechanisms underlying behavior and cognitive processes, in both healthy and pathological conditions. We operate with innovative techniques for the non-invasive recording of neurophysiological signals and eye movements monitoring, during the course of motor or cognitive tasks, as well as during resting state. We apply cutting edge systems for non-invasive brain neurostimulation, such as transcranial magnetic stimulation (TMS) and transcranial electrical stimulation (tES). Moreover, we have access to the functional magnetic resonance (fMRI), thanks to an institutional convention with the Hospital of Brescia. The main goal of this line of research is to identify specific neurophysiological markers derived from indexes of reactivity and cortico-cortical connectivity, both in the neurological and in the psychiatric field. This objective will be pursued by using an innovative integrated multimodal approach that involves the combination of Transcranial Magnetic Stimulation (TMS) with electroencephalographic recording (EEG). The TMS-EEG co-registration is a non-invasive neurophysiological method that allows to investigate with high accuracy the reactivity and the connectivity of cortical networks. The identification of neurophysiological markers of reactivity and connectivity will allow to understand the neurobiological mechanisms underlying different pathologies, as well as to obtain useful indicators for the diagnosis and clinical prognosis. Moreover, thanks to these indices it will be possible to obtain surrogate markers of response to different types of treatment, to understand the neural basis of clinical improvement.

Keywords:
ELECTROENCEPHALOGRAPHY, TRANSCRANIAL MAGNETIC STIMULATION

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