31st Euro Congress on
Psychiatrists and Psychologists
&
25th International Conference on
Neurology & Neurophysiology

conferenceseries.com

April 05-06, 2021

WEBINAR

Electrobulbogram combining with olfactory evoked potentials may provide reliable tools to identify the early nervous system deficits for Covid-19 and Alzheimer patients

Shuiping Dai
USA

Olfactory dysfunction or disorder may occur prior to the other symptoms of COVID-19 and Alzheimer disease, which would be considered as an important clinical features of those diseases. Early quantitative analysis of olfactive dysfunction in preoperative (Pre-OP), intraoperative (OR) and post-anesthesia care unit (PACU) could provide crucial information for diagnostic, treatment and prevention.

Intensive experimental studies in animals using patch-clamp techniques established electrophysiological evidence for olfactory circuits in the animal brain. There are a lot of technique challenges to apply those electrophysiological tools in animals directly to the human brain.

Recently, Iravani et al present a promising method for noninvasive recording of signals from human olfactory bulb (OB) with millisecond precision which they termed Electrobulbogram (EBG) recorded at nasal bridge by EEG electrodes. They optimized electrode position, placing four EEG electrodes on each side of the nasal bridge which is above the eyebrows. A gamma band (~55–65 Hz) was distinguished after about 100–150 ms post stimulus as a promise signal of odor event related synchronization (OERS). Iravani's method overcomes the low signal-to-noise ratio for data acquisition, it is practical and the right time to adapt this method to IOM application.

Here proposal a hypothetical EBG modality would be a useful tool supplementary to other neurophysiological modalities. Using EEG gold cap electrodes in preoperative and PACU, IOM team could regularly check olfactory functions. Applying disposable concentric needle electrodes, EBG could be acquired in OR during craniotomy or other neurological procedures.

EBG combined with multiple neurophysiological modalities may provide reliable information to identify the early nervous system deficits for Covid-19 and Alzheimer patients.

Keywords: Olfactory evoked potentials, Electrobulbogram (EBG) COVID-19, SARS-CoV-2, Olfactory disorders