Licensing Opportunity

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The PACTT is proposing an exclusive or non-exclusive license on a technology predicting comatose patient awakening based on electroencephalography (EEG):

Fields:

- Coma in ICU patients
- Intensive care medicine
- Therapeutic Hypothermia
- Electroencephalography

Development Phase:

Ongoing clinical validation on a cohort of around 100 patients.

So far, proved on 73 patients with 91% prediction within the first two days of coma. *The test encourages the maintenance of life support and in no case it can suggest the withdrawal of critical care.*

Patent Status:

US Provisional filed application number 61/609,4444, priority date of March 12, 2012 in the name of CHUV and naming as inventor Marzia De Lucia and Athina Tzovara. PCT extension WO2013-135722.

Innovative aspects:

Novel method that allows reliable prediction of comatose patient chances of awakening during the first 48 hours of coma.

Additional information is available upon request. (N° Ref. IDF 29/11)

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A Novel Method for Early Predictive Evaluation of Comatose Patient's Awakening

Background

Head trauma and anoxic encephalopathy are the most common causes of acute coma. Many of these comatose patients do not survive. Clinical tests provide little information about patients' chances of surviving. Progresses in this field would help clinicians in taking appropriate decisions about life support and would make family members more aware of the future of the patient.

Description of the invention

The method described in the invention can be used in a clinical routine to help taking therapeutic decisions and optimizing clinical care for each single patient. The invention consists of an automatic and quantitative test for predicting the chance of awakening in comatose patients based on the analysis of EEG data.

The described method based on auditory Evoked Potentials (AEPs) could easily be implemented in a software embedded in a clinical EEG machine for fast and automatic prediction of patient's outcome. Importantly, the results show that the method can provide reliable prediction already during the first 2 days of coma.

Proof of concept

Electrophysiological responses to auditory stimuli were examined at early stages of coma. By employing multivariate EEG decoding, the inventors quantified the degree of sound discrimination during the first 24hours of coma in a cohort of 73 patients who underwent therapeutic hypothermia. The improvement of this discrimination during the following 24h was 91% predictive of awakening and 3-month survival from acute coma. A deterioration on auditory discrimination is not informative.

Publication:

Tzovara A, Rossetti A, Spierer L, Grivel J, Murray M, Oddo M, De Lucia M. Progression of auditory discrimination bases on neural decoding predicts awakening from coma. Brain 2013, 136(Pt 1):81-9.

Applications and competitive advantages

- 91% of patients with a positive test later awoke
- A positive test encourages the maintenance of life support in case of uncertain outcome
- Fills a prognostic gap (current tests reveal which patients who will NOT awake)
- Automatic and quantitative method
- State of the art clinical method (validated patients who undergo therapeutic hypothermia)