**Abstract**

Over 50 million persons worldwide are affected by epilepsy. It can affect equally young babies as well as old people. Epilepsy is a brain disorder characterized by the neurobiological, cognitive, psychological and social consequences. It is known for sudden, unexpected transitions from normal to pathological behavioral states called epileptic seizures. Epilepsy poses a significant burden to society due to associated healthcare cost to treat and control the unpredictable and spontaneous occurrence of seizures.

Electroencephalogram has been traditionally used to diagnose patients by evaluating those brain functions that might correspond to epilepsy. Although it is known that the EEG enables the detection of the beginning of an epileptic crisis, in the event that the intracranial electrodes are in the epi "focus", what the EEG cannot detect is that before the critical neuro discharge, no signal at the level of the EEG can anticipate the beginning of the crisis. However, what the linear analysis of the EEG did not reveal, Dr Francisco Varela, by analyzing the synchrony between brain waves as early as 1999, discovered subtle modifications of the brain activity a few minutes before the onset of an epileptic crisis, which an ordinary EEG record cannot detect. Even then, the idea arose to create and perfect a device that would help patients to anticipate an epileptic crisis in time and take the necessary measures at that moment (especially when it comes to children), either cessation of activity, or the administration of effective epileptic treatment.

In the first part of the research, we collected the patients' subjective statements about their feelings before the epileptic crisis; to the extent that they were able to describe their conditions. Thus, we came to the possibility to compare their subjective states of anticipation of an epileptic attack with neurological data and signal analysis, which was done in the second part of the research. It also follows from the analysis that the development of the pre-ictal phase detection algorithm is of key importance for all patients with an epileptic disorder, especially for those of the youngest age. There is a need for a quick screening process that could help neurologists diagnose and determine the patient’s treatment.

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