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A NEW WIRELESS ACCELEROMETRY DEVICE FOR MOTOR EPILEPSY DETECTION: A WAY TO DECREASE ECONOMIC BURDEN OF EPILEPTIC POPULATION

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Objective: Epilepsy is a serious neurological condition with different types of manifestations which sometimes are difficult to diagnose accurately. Epileptic status is the failure of seizure termination, which seriously threaten the patients' life, especially for those suffer generalized tonic clonic seizure when they are alone. Difficulties in diagnosis, especially when no one witnessed the emergence of seizures, and hospitalization due to epileptic status increase the economic burden of epileptic population. In order to monitor the seizures for sake of seeking help from family members timely and help diagnosis, portable epilepsy monitory device is necessary to be invented and widely used in areas where medical resources are limited. The objective of this study was to quantitatively analyze the movement trajectories of temporal lobe seizure and psychogenic non-epileptic seizure.

Method: From these movement trajectories obtained from patients, amplitude, frequency, proximal/distal limb amplitude ratios, and shoulder/abdominal amplitude ratios measurements were calculated. One-way ANOVA were used to analyze all the data.

Result: The results revealed statistically significant differences in average amplitude, as well as proximal/distal limb amplitude ratios in supplementary motor area(SMA) seizures when compared with those of temporal lobe seizures and psychogenic non-epileptic seizures. This study proved the feasibility of quantitative analysis of SMA seizures and suggested that it should be further evaluated for its capability to distinguish different seizure manifestations for the diagnosis of epilepsy.

Conclusion: The wireless monitory device we developed shows.

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