

CONTRIBUTION OF LONG TERM VIDEO EEG MONITORING TO DIAGNOSIS OF EPILEPSY PATIENTS

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ABSTRACT

Aims: Data obtained by the patient's anamnesis and interictal routine EEG are sometimes not satisfactory for achieving a correct diagnosis of epilepsy. It is considered that some of the treatment resistant epilepsy patients are such kind of cases. In the present study, the contribution of long term video EEG monitoring (VEM) to treatment in the treatment resistant epilepsy patients was investigated.

Methods: Twenty-nine cases were enrolled into the study, and the epilepsy diagnosis and classification were re-evaluated. The ratio of cases who needed a change of treatment after the new diagnosis and classification was calculated.

Results: A significant difference was seen in the diagnosis, classification and treatments (34,5%, 44,8%, 37,8%, respectively) before and after long-term VEM.

Conclusion: Long term VEM seems to be an important tool in re-evaluation of treatment resistant epilepsy patients and in achieving the correct diagnosis.

Key Words: Epilepsy, electroencephalography, seizures

INTRODUCTION

A healthy individual's risk of having epileptic seizures in a lifetime is 5-6%. The chance of the acquisition of an epileptic identity by the patient with the recurrence of the seizure in an unprovoked environment is 0.3-0.5%. The chances of treating the seizures of the epileptic patients have reached 60-70% thanks to the increase of treatment options and investment of new antiepileptic medications. The rest constitutes the group of patient who don't give the desired responses to treatments. The development of electrophysiological examinations and neuroradiologic screening and the increase of people dealing with epilepsy, enables patients to benefit from the treatment options such as epilepsy surgery and vagal nerve stimulation apart from the antiepileptic medical treatments.

The detection of ictal and interictal activities during the electroencephalography (EEG) recording is significant in the diagnosis and treatment of epilepsy. Routine EEG tests are usually conducted under outpatient clinic conditions and are 25-30 min. recordings. Deprived of video recording, it contains only the electroencephalographic recordings. Interictal discharges are

frequently observed during the routine EEG tests, but the contribution of these discharges to the diagnosis is limited. Routine EEG recordings with normal results are not infrequent in epileptic patients. The seizure semiology of the patient needs to be known in order to be able to classify the epileptic seizures and epileptic syndrome of the patient. Occasionally, the information concerning the semiology can be obtained from anamnesis obtained from the patients or their relatives, but mostly information enough to make a classification cannot be achieved.

Long term video EEG monitorization (VEM) recordings are vital to enable ictal recordings besides the interictal discharges. The clinical findings of the patient during the seizures are recorded with the video and can be evaluated simultaneously during the electroencephalographic discharges. The data obtained enable the classification of the epilepsy, definitive diagnosis from other non-epileptic seizures, the identification of the localization of the epileptic focus and the evaluation of the response to the treatment. In several studies, it has been reported that alterations in the diagnosis, the classification and even as a result of these, the treatment had to be made especially after the video EEG evaluations of the treatment resistant epileptic patients.

In the present study, the contribution of long term VEM of treatment resistant epileptic patients to diagnosis, classification and the treatment has been researched.

MATERIAL AND METHODS

Twenty-nine epileptic patients treated and monitored in the Trakya University Faculty of Medicine Department of Neurology Epilepsy Clinic were enrolled in the study. All the cases were the patients whose seizures continued to occur despite 2 appropriate antiepileptic medicines with adequate doses for over 1 year or who had been diagnosed as psychogenic seizure but with on-going complaints. The information of patient gender, age, seizure type, syndromes diagnoses, the time elapses since the epilepsy diagnosis, neurological examination findings, computerized tomography and magnetic resonance screening findings, treatment received prior to VEM have been recorded from the polyclinic records.

The long term VEM recordings of the patients were carried out in the EEG recording rooms in the Neurology Department. Average of 15 hours of the day the patients had attacks or seizures were taken into consideration for the evaluation. The recordings were carried out with the Micromed 32 channel long term Video EEG devices. The EEG electrodes were attached to the scalp of the patients with collodion according to the 10-20 system. The patients and the relatives were asked to press the button at the time of seizure. During the period of the recordings, the patients were under the supervision of EEG technicians.

The recorded seizures and ictal EEG traces were evaluated together, and the epilepsy diagnoses, seizure and syndrome classifications were reconsidered as post-VEM. Whether to alter the treatment or not was decided.

Informed consent was obtained from all cases.

RESULTS

The demographical and clinical specifications of the patients are shown in Table 1.

When the diagnoses of the patients were evaluated after VEM, the 7/25 of the diagnoses of the patients with epilepsy diagnosis were changed and the epileptic seizures were apparently found to be non-epileptic seizures. $\frac{3}{4}$ of the non-epileptic seizures were considered

as epileptic seizures after VEM. VEM made a substantial difference in classification; the classifications of 5/15 patients with partial epilepsy and of 5/5 patients with generalized epilepsy were changed. Treatments of 11/18 patients were changed due to the diagnosis and classification change.

Age (min-max)	33,27±1,14 (15-57)
Epilepsy average period (year) (min-max)	15,23±1,43(1-46)
Male/Female ratio	14/15
Neurological examination finding (none/present)	23/6
MR finding (none/present)	4/17 (no data for 8 patients)
BT finding (none/present)	5/4 (no data for 20 patients)
Seizure Type	15/10/4
(partial-generalized-non-epileptic) (%)	(%51,7-%34,5-%13,8)

Table 1: Demographical and clinical characteristics of the patients

DISCUSSION

In our study, changes in 34.5% of diagnoses, 44.8% of seizure classifications and 37.9% of treatments were made after long term VEM. It was observed that the diagnoses of 3 out of 4 patients whose seizures have been diagnosed as psychogenic prior to VEM, have changed in favor of epilepsy. True diagnoses and treatments of patients who have received wrong diagnoses due to the fact that the diagnoses were based upon the anamnesis and interictal routine EEG, were possible thanks to the simultaneous long term trace and video footage supplied by VEM. Between 44.7% and 56.5% of epilepsy classifications changes were observed in a study carried out with short term VEM recording (1-3 hours). (1) In addition to the classification changes in the study, treatment change was carried out for 36.5% of the patients after VEM. Freitas and his friends (2) have reported, as similar to our study, a 50% change of epileptic seizure and syndrome classification and a greater percentage (55.3 %) of change of major treatment after VEM in their study on pediatric patients. In another study, it shown that 58% of change in diagnosis category has been made after VEM (3).

In the present study, the rate of non-epileptic seizures in epilepsy patients was found to be 7/25 (28%). The rate of obtaining non-epileptic diagnoses ranged between 11 to 15% in other studies (4,5,6). As VEM is greatly beneficial in the distinction of non-epileptic / epileptic seizure and with the distinction of non-epileptic seizures, the emergency cost decrease by 95%, polyclinic costs decrease by 80% and seizure related costs decrease by 84% when 6 months before and after VEM are compared (7).

In conclusion, in the light of this information, we are of the opinion that epileptic classifications carry the margin of error especially when treatment resistant findings are limited to the anamnesis, examination and routine EEG, and that for a definitive diagnosis of seizure type and epileptic syndrome, carrying out long term VEM is essential.

Ethics Committee Approval: This study was approved by Trakya University Faculty of Medicine Scientific Researches Ethics Committee.

Informed Consent: Written informed consent was obtained from the participants of this study.

Conflict of Interest: The authors declared no conflict of interest.

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