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Determination of the Effect of Lactate Values in the First Blood Taken of Patients Admitted to the Emergency Department with Epileptic Seizures on Prognosis

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Abstract

Epileptic seizures occur as a result of sudden, excessive and abnormal discharge in cerebral neuron groups. It can be defined as different clinical symptoms. Grand mal type has the most severe attacks, and motor activity characteristically consists of tonic and subsequent clonic phases. Epilepsy in industrialized countries incidence values vary between 20-70 / 100,000. Average epilepsy for developed countries the prevalence of 6/1000 and in developing countries, studies, which performed with the WHO protocol, this ratio is calculated to be 18.5 / 1000 on average. In epilepsy mortality etiologies are still being investigated. PH and CO 2 levels are measured with arterial blood gas. CO2 level is a good indicator of ventilation. Lactic acidosis one hour after the seizure and associated metabolic acidosis may occur. However, in this case, no treatment is usually required. Acidosis lasting more than an hour should be investigated for other reasons. In our study, retrospectively, between January 2020-March 2020, patients with seizure and epileptic seizures as the primary diagnosis, the age between 18-75 years and whose blood gas was studied were included. Lactate values in blood gas are on file and patients were observed for mortality. 102 patients whose results were evaluated, mean age was 40. 41% women, 58% was male. The mean blood gas lactate values were 3.39. In another study[3] Biochemical CK, LDH and Prolactin values of patients who had a seizure by the time entering E.R. and those who without seizure were compared. All three values tend to increase in patients presenting with epileptic seizures. 2 of the patients in our study died and their lactate values were compared with other patients. There was no significant difference. In conclusion, in determining mortality and morbidity rates in the management of epilepsy patients lactate has not been a pioneering guide. There are not many studies on this. The patients' clinic is more valuable than lactate levels. Patients with frequent seizures should be followed up in intensive care units.

Keywords: Blood gas, Epileptic, Lactate

Introduction

Epilepsy is one of the most common serious neurological diseases. Epileptic seizures can be defined as different clinical symptoms that occur as a result of sudden, excessive, and abnormal discharge in cerebral neuron groups. Grand mal is the most severe attacks, and motor activity characteristically consists of tonic and subsequent clonic phases[1]. Epilepsy incidence values vary between 20-70 / 100,000 in industrialized countries. It is calculated that the average prevalence of epilepsy in developed countries is 6/1000, and in the prevalence studies conducted with the WHO protocol, this rate is 18.5 / 1000 in developing countries. Approximately 50 million of the world's population are patients with epilepsy. It is estimated that 700 thousand epilepsy patients in Turkey[2].

In addition to clinical information for the diagnosis of epilepsy, the most important auxiliary diagnosis method is Electro Encephalo Radiography (EEG) and EEG should be performed on every patient who is thought to have seizures. The first diagnosis should be made within the first week, and in other cases, the EEG should be done within 4 weeks at the latest after the request. EEG cannot be used alone to diagnose epilepsy. EEG can be used as an aid in determining the sei-

zure type and prognosis of epilepsy syndrome in individuals suspected of having epilepsy. This can provide an accurate prediction of prognosis in individuals. Seeing an epileptiform activity in the EEGs of individuals with seizures that occur without a triggering cause for the first time indicates a high probability of seizure recurrence. Special investigations may always be required for individuals with diagnostic difficulties. In cases where the diagnosis of epilepsy or syndrome is uncertain, repetitive EEG scans may be useful.

The etiology of epileptic seizures in adults differs. The most common cause is a brain tumor. If the seizure started before the age of 20 without a history of head trauma, 10% of the patients may have a brain tumor. Seizures are often the first symptom of an intracranial mass[3]. Head injury is the other most common cause in young adults. While a minority of severe closed head injuries have seizures, the incidence increases significantly in open head injuries with skull and dura penetration. Post-traumatic seizures can occur within a year after injury. Therefore, patients with head injuries can use anticonvulsants prophylactically for one year. It is very difficult to determine the role of heredity in etiology. Some patients may have a predisposition to epilepsy. Etiological investigations can take years without finding a cause. Risk factors in the etiology of recurrent seizures include young

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age, genetic predisposition, acquired brain damage, hypoxia, and metabolic causes. Fever is a common risk factor in children (responsible for 52% of cases).

Seizures can be triggered by various stimuli in patients with epilepsy. These warnings may differ from individual to individual. One of the most common precipitating factors in children is watching television in a poorly lit environment. Especially smells, noise, certain types of music, and being afraid of something can be counted among other precipitating factors. Other conditions that trigger seizures in epileptic patients are metabolic imbalance and electrolyte imbalance, fatigue, hypoglycemia, insomnia, emotional stress, electrical shock, febrile illnesses, alcohol use, drinking too much water, constipation, menstruation, and hyperventilation.

The patient with epilepsy should be monitored by the Neurology Department and a Neurologist should be found to contact when necessary. Suitable for patients with epilepsy, their lifestyle, and medical conditions; There should be a plan in which the patient and family are involved in the treatment. It is important to train nurses who specialize in epilepsy. These nurses should be involved in patient-family care and education in a way that supports doctors. Healthcare professionals also have a responsibility to tackle prejudices and misconceptions by informing society and those living with epilepsy patients about epilepsy.

Seizures recur in time for each patient in a certain pattern, usually spontaneously or based on some triggering factors. Between seizures, the patient usually continues his normal life. Although the seizure intervals and types are extremely variable, one or a few specific seizure types tend to recur in the same patient[3]. While talking about the positive effects of physical fitness on general health, patients with epilepsy are always excluded from participating in physical activity. For both patients and physicians, this is because of the fear that physical activity will cause injury and exercise will increase seizures in patients with epilepsy. Due to the high mortality rates, this syndrome should be both prevented and managed effectively. Unfortunately, the management of epilepsy is overlooked and services often fall short. For the successful and effective management of patients with epilepsy, nurses should inform patients about sources of help and support, and provide information on specific issues such as driving, work, and pregnancy. Also, they should know about antiepileptic drugs and know what to do in emergencies[3,4].

In addition to patients with epilepsy who applied to the emergency department, many patients are presenting with a conversion attack. It is important to distinguish between this patient group. It may be difficult to distinguish between clinical observation and pseudo-epileptic seizure and epileptic seizure. In a study related to this[5], muscle enzymes and prolactin levels were investigated in the laboratory. Laboratory findings of fifteen people with generalized tonic-clonic seizures, fifteen people with conversion, and fifteen healthy people were collected and compared. The comparison revealed

that creatine phosphokinase (CPK) levels increased significantly in the first three to four hours following the seizure. It was found to be significantly higher (p <0.05) compared to the CPK values of healthy individuals with conversion seizures. Besides, Lactate dehydrogenase (LDH) was observed to increase significantly (p <0.05) in epileptic patients compared to conversion and healthy individuals. Based on these results, it is concluded that these parameters are effective in distinguishing false seizures from epileptic seizures. In another study[6], CPK levels were found to increase significantly (p <0.05) in epileptic seizures. Serum prolactin levels reach their maximum level in the blood within 20 minutes after epileptic seizures and remain high for a while[7-9]. Especially after generalized tonic-clonic seizures and temporal lobe seizures, an increase is seen. An increase in prolactin level is not expected in pseudo-seizures, simple partial seizures, or frontal lobe seizures. In the study[5], prolactin levels of patients with epileptic seizures were found to be significantly higher (p <0.05) compared to patients with conventional seizures and healthy individuals. To distinguish non-epileptic seizures, including conventional seizures, from epileptic seizures, inexpensive laboratory tests CPK, LDH, and prolactin can be used actively in emergency services.

The etiologies of mortality in epilepsy are still being investigated. PH and CO2 levels are measured with arterial blood gas. The CO2 level is a good indicator of ventilation. Lactic acidosis and associated metabolic acidosis may occur one hour after the seizure. But in this case, it mostly improves without treatment. Other causes are investigated in acidosis lasting longer than an hour. Acidosis may continue in recurrent seizures. In cases of prolonged and recurrent seizures, it is recommended to follow the patient in the intensive care unit.

Method

In our study, patients who applied to the Emergency Medicine Clinic of Istanbul Health Sciences University Kanuni Sultan Süleyman Training and Research Hospital between January 2020 and March 2020 retrospectively, and patients between the ages of 18-75 were examined, and patients with epilepsy seizures and blood gases in their blood were examined as the primary diagnosis. is included. The lactate values in blood gas are on file and patients are observed for mortality.

Results

The mean age of the 102 patients whose results were evaluated was 40 (SD ± 18.18). 41% were women and 58% were men. The mean blood gas lactate values were 3.34 (SD ± 2.28). In another study[3], biochemical CK, LDH, and Prolac-

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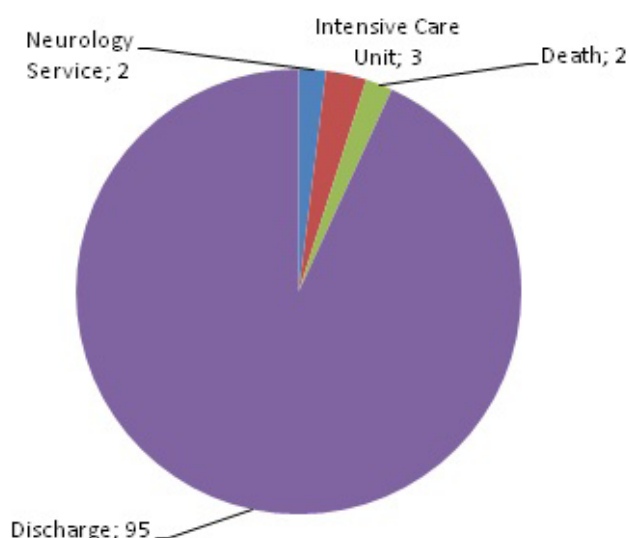
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Table 1: Outcome status of the patients who applied

tin values of patients with and without seizures were compared. As a result of the comparison, it was observed that patients presenting with epileptic seizures were statistically significantly higher (p <0.05). All three values tend to increase in patients presenting with epileptic seizures.

2 of the patients in our study were EX and the mean lactate value was 3.77 (SD ± 2.38), no significant difference (p> 0.05) was found when compared with other patients. In the study, 3 people were admitted to the neurology service for follow-up purposes. The mean lactate of 3 patients hospitalized in the service was 5.89 (SD ± 6.15). Two people in the study were admitted to the intensive care unit with a pre-diagnosis of status epilepticus. The mean lactate means of two patients hospitalized in intensive care was 3.76 (SD ± 0.73). In the cross-statistical study, p> 0.32 was found, and no significant result was found.

Discussion

Although epilepsy is considered a chronic disease, its severity and prognosis are variable. However, the history of the disease and the resulting stigma impair the quality of life in many epilepsy patients. Studies have shown that patients with epilepsy are less self-confident and more prone to anxiety and depression. They are socially isolated, the marriage rate is low and unemployment is higher. Many patients with epilepsy lead a sedentary life and do not participate in physical activity. Bjortholt et al showed that up to half of the patients with epilepsy participated in physical activity. It has been observed that most of them avoid team and other group activities. Lack of physical activity can have many consequences. Patients with epilepsy are at increased risk of developing hypertension, diabetes, and heart disease, as

are those in the general population who are not physically active. Also, the psychological and psychosocial benefits of exercise, such as improved self-esteem and good mood, reduced anxiety, and stress, are also lost. Based on these studies, there is an increased risk of morbidity and mortality in patients with epilepsy who act less than other individuals in society (p <0.05).

Epilepsy patients and their relatives should be educated about the physiology, treatment, and expected results of seizures. The patient is assisted in how drug therapy should be applied while performing activities of daily life without interruption. They should be informed about the name, dosage, frequency, toxicity symptoms, and side effects of the drugs taken. The importance of monitoring the blood levels of anticonvulsant drugs is emphasized. The necessity of avoiding alcohol and emotional stress is explained. The need to provide proper nutrition and rest is explained. Information is given about which activities will be dangerous. The family is informed about security measures. It is ensured that the lack of information about the patient and family is eliminated.

People with epilepsy should have access to services that specialize in epilepsy. A comprehensive follow-up plan that includes the compatibility of the patients with epilepsy and primary and secondary health services should be established. This should include lifestyle and habits as well as medical issues. Nurses specializing in epilepsy should be an important part of the service network of individuals with epilepsy. The key role of epilepsy nurses should be to provide information, education, and support to individuals and families.

Other studies[11] emphasize the importance of evaluating epilepsy patients as multifactorial. It is not enough to evaluate only in terms of seizure frequency and treatments, but also diagnostic difficulties, treatment compliance, and side effects, etc. Psychosocial factors should be addressed and evaluated for the solution of many situations/problems encountered in the clinic. It has once again revealed the necessity of informing and educating their families on these issues. We can reveal these disorders that patients generally avoid telling, only by spending more time with our patients and by special interview methods. The density of the number of patients in epilepsy clinic doctors in Turkey and most of our patients to address only the physical aspects of the necessity to draw attention to this issue shows us again.

In conclusion, lactate could not be a leading guide in determining mortality and morbidity rates in the management of epilepsy patients (p> 0.05). The mean lactate levels of the patients hospitalized in the service were higher than the patients who were hospitalized in the intensive care unit and those who were discharged. According to these results, lactate was not found to be significant in the prognosis and

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follow-up and predictability of morbidity and mortality in the patient (p> 0.05). There are not many studies on this.

The patient's clinic is worth more than lactate. Although the first application clinic of the patient is more meaningful for the condition of the patient during follow-up, it can be attributed to the postictal period of the patients with low Glasgow in our clinical follow-up. Some of them have low Glasgow coma scales that may arise within a few hours. Patients with frequent seizures should be followed up in intensive care units. Early intubation should be considered in patients with low Glasgow scores in terms of aspiration.

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