

NURSING - ISSUES, PROBLEMS AND CHALLENGES

GULBEYAZ CAN • ZELIHA TULEK
EDITORS

MEDICAL NURSING

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**Gulbeyaz Can
and Zeliha Tulek**

Editors

Medical Nursing



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Chapter 50

Epilepsy and Epileptic Seizures

Mukadder Mollaoglu¹
and Yasemin Boy^{2,*}

¹Faculty of Health Sciences, Sivas Cumhuriyet University, Sivas, Turkey

²Faculty of Health Sciences, Tokat Gaziosmanpasa University, Tokat, Turkey

Abstract

Epileptic seizures occur with convulsions caused by sudden and uncontrolled abnormal electrical discharges in the brain. Seizures cause alterations in consciousness, cognitive and emotional changes. Etiologic factors include trauma, genetic, infectious, metabolic, and autoimmune factors, and sometimes the seizures are idiopathic. The goal of treatment is to keep the patient's seizure intervals as long as possible, minimize treatment-related side effects, make the patient a more participatory and productive member of society, and improve the patient's quality of life. Nurses must assess the perceptions of people with epilepsy, their level of knowledge about the disease and treatment, and the factors that influence their adherence to treatment, and plan individualized care. The nurse cares for the patient and family as part of a multidisciplinary team and manages the patient's treatment and care in her role as consultant, educator, researcher, and advocate according to the principles of holistic nursing care.

Keywords: epilepsy, seizures, nursing

Introduction

Epileptic seizures are caused by excessive neuronal activity in the brain. This activity is caused by a specific abnormal pattern of excitation and synchronization between neurons in brain regions. The types of seizures and the precipitating factors are different in each patient [1]. Epilepsy, on the other hand, is a chronic disorder characterized by a tendency to recurrent and unprovoked seizures. Seizures have a significant impact on patients' quality of life. Due to the physical trauma associated with seizures, difficulties at school and work, side effects of medications, and psychosocial difficulties, an individual's quality of life may be impaired [2]. Cognitive regression, memory loss, depression, anxiety, migraine, and disturbed sleep patterns are among the comorbidities associated with epilepsy [1, 2].

In population studies, the incidence of epilepsy in older adults' ranges from 1 to 3 and 1000 persons per year and is estimated to be two to six times higher than in young adults. Epilepsy

* Corresponding Author's Email: yaseminboy5560@gmail.com.

prevalence varies considerably between countries, depending on the local distribution of risks and etiologic factors, the number of seizures at diagnosis, and the inclusion of only active epilepsy (active prevalence) or remission cases (lifetime prevalence). In general, the prevalence of epilepsy is reported to be 4 to 10 per 1000 people per year [2].

Determining the etiology of epilepsy is extremely important in treating the patient's seizures. The International League Against Epilepsy (ILAE) Commission on Classification and Terminology has defined the causes of epilepsy as structural, genetic, infectious, metabolic, autoimmune, and idiopathic [3]. Factors leading to the development of epilepsy often include perinatal causes, traumatic brain injury, cerebrovascular disease, brain tumors, cognitive impairment, dementia, neurodegenerative disorders, alcohol and drug use, central nervous system infections, and electrolyte imbalances. Among acquired causes, traumatic brain injury is the most important factor causing epilepsy in adulthood [4]. Idiopathic causes, including genetic and autoimmune disorders, are also among the factors that cause epilepsy.

Clinical Manifestations

Symptoms vary depending on the type of epileptic seizure. The first step to proper diagnosis and treatment is to determine the type of epileptic seizure. The classification of seizures is done by the ILAE. The latest official update to the ILAE is from 2017 and reportedly applies to all age groups. According to this update, the classification of epilepsy is done in three steps [3]:

- The first step is to define seizure types. Seizures are generally classified as focal (partial) seizures (confined to one hemisphere of the brain), generalized seizures (originating in one part of the brain and spreading rapidly to both hemispheres), and seizures of unknown magnitude (conditions for which there is insufficient information to classify them as focal or generalized).
- The second step is to determine the type of seizure: focal seizure, generalized seizure, combined focal and generalized seizure, and unknown seizure.
- The third step is to identify an epilepsy syndrome based on co-occurring features (seizure types, electroencephalography (EEG) findings, imaging findings, age-related features, triggers, and sometimes prognosis) [3].

The characteristics of focal seizures vary according to the clinical features of the affected brain lobe. The clinical symptoms and findings of focal seizures are shown in Table 1 [5].

The abnormal electrical discharge in generalized seizures spreads throughout the brain causing blackout. This category includes tonic-clonic, absent, myoclonic, tonic, and atonic seizures. The clinical symptoms and findings of generalized seizures are listed below:

- *Absence seizure:* It often occurs in children under four years of age and lasts 0-20 seconds. It begins suddenly with a brief interruption of the person's ongoing activity, such as pausing while speaking, staring at a point, and not appearing to respond. A rhythmic blinking or slight nodding of the head may occur. The abrupt end of the seizure, the absence of confusion, and the resumption of activity as if nothing had happened are typical features of absence seizures.

Table 1. Clinical signs and symptoms of focal seizures

Focal seizures	Clinical signs and symptoms
Frontal Lobe Seizures	<ul style="list-style-type: none"> • Seizures are short-term, aura uncertain, frequent repetition and rapid spread. • Head, eyes, and trunk turn to one side. • Excessive mobility of arms and/or legs, aimless throwing, hopping, pedaling, hip rotation, and kicking may occur.
Parietal Lobe Seizures	<ul style="list-style-type: none"> • Rare • Lobe-specific auras; somatosensory, somatic illusion, vertiginous, visual hallucinations, language disorders • Tingling and sudden contractions in the legs, arms and face
Temporal Lobe Seizures	<ul style="list-style-type: none"> • It usually begins with freezing, motor arrest, immersion, and pupillary dilation. Lip smacking, chewing, licking, swallowing, and teeth grinding may occur
Occipital Lobe Seizures	<ul style="list-style-type: none"> • Visual aura is typical • Tonic deviation of the eyes, nystagmus, repetitive eyelid closures or rapid blinking of the eyelid

- *Tonic seizure*: It is characterized by a sudden loss of consciousness and a severe, prolonged muscular rigidity or contraction of the entire body lasting 10-20 seconds. Sometimes the head or eyes are twisted to one side. This type of seizure is rare, is caused by sleep and may recur during the night.
- *Myoclonic seizure*: It occurs suddenly and may be recurrent. There is usually no loss of consciousness but jerking or twitching movements involving the whole body or parts of it. The patient describes the condition as “startling” or “jumpy”. When myoclonus affects the whole body, the patient may fall and injure themselves.
- *Atonic seizure*: consciousness is suddenly lost. Postural tone disappears for a short time. This results in severe falls and serious injury. It is rare.
- *Tonic-clonic seizure (grand mal seizure)*: This is the most common seizure associated with epilepsy. It usually begins without any type of aura or warning. However, some people describe a nonspecific, vague feeling that may occur minutes or hours before the event. There is a sudden loss of consciousness, a loud scream (as air is expelled from the airways by a laryngeal spasm), and a tonic contraction of the appendicular muscles. Loss of postural control occurs, resulting in a fall to the ground. The duration of the seizure varies, ranging from 30 seconds to 2-3 minutes. There is usually a persistent disturbance of consciousness or unconsciousness [5].

Diagnostic Studies

To diagnose epilepsy, a detailed history is first obtained. In addition to neurologic and physical examinations, imaging studies are also performed. The history should be obtained from both the patient and a relative of the patient who has observed the patient’s seizures. EEG, which measures and records electrical activity in the brain, is the gold standard for diagnosing epilepsy. However, this test has its limitations in detecting seizures [6]. Therefore, the diagnosis is made by evaluating all diagnostic tests together.

Medical Management

Classical epilepsy treatment includes pharmacological and surgical treatment, nervus vagus stimulation, and dietary modification.

Antiepileptic drugs provide seizure control in approximately 70% of patients [7]. Although these medications are effective in controlling seizures, they have many side effects that affect the quality of life of those affected. Therefore, these drugs are started at the lowest possible dose and gradually increased. Common side effects of antiepileptic drugs include dizziness, drowsiness, nausea, hyperactivity, and mental confusion [6]. At the end of a seizure-free period of 2-5 years, the drug dose is gradually reduced. If antiepileptic drugs are abruptly discontinued, they can cause status epilepticus, which is the most important complication of epilepsy [7]. Despite drug treatment, about 30% of epilepsy patients are unable to control their seizures and become resistant to the drugs [7].

Surgical treatment can be used only in patients with focal seizures. Surgery involves removing the epileptogenic focus that causes the abnormal discharges in the brain. In patients for whom surgical treatment is not an option, vagus nerve stimulation is used [8]. *Vagus nerve stimulation* has been shown to reduce seizures by up to 40 percent in some epilepsy patients [8]. In addition to these methods, the *ketogenic diet* has been shown to be beneficial in the treatment of drug-resistant epilepsy [9].

Nursing Management and Patient Education

When caring for patients with epilepsy, nurses have many responsibilities that require expertise in seizure management, patient and family education about self-management, and psychosocial support. In the clinical setting, nurses are responsible for effective seizure management and patient safety during an epileptic seizure; in the community, they are responsible for providing psychosocial support and education to the patient's family.

When the nurse observes a patient having a seizure, he or she should note the characteristics of the seizure accurately. The onset of the seizure (aura or other warning signs), duration, and symptoms occurring during the seizure (twitching, teeth grinding, cyanosis, crying, loss of consciousness, urinary and fecal incontinence, if present) should be noted. If trauma occurs during the seizure, this should also be reported. The patient's head should be protected from trauma and supported by pillows. It should be turned on its side to prevent aspiration, and no attempt should be made to immobilize or open the patient's extremities. If a patient suffers a seizure in bed, the bed rails should be raised to prevent a fall. Epileptic seizures can be a traumatic experience for patients. Therefore, the nurse should not leave the patient alone during the seizure and should provide emotional support as well as physical care to the patient.

Another task of the nurse is to deal with the psychosocial problems that epilepsy brings to the patient and his family. Epilepsy can cause many psychosocial problems because of the nature of the disease and the treatments used. Psychiatric comorbidities, including anxiety, mood disorders, and psychotic disorders, are common in epilepsy. These problems are 2-3 times more common in patients with epilepsy than in the general population [10]. The nurse, together with a multidisciplinary team, should assess the impact of epilepsy on the individual and the family and treat the patient with holistic care.

Patient education is one of the most important roles of the nurse in seizure control. Education and counseling of patients with epilepsy and their families reduces the burden of emergency department visits and associated costs, increases treatment adherence and disease insight, and improves self-esteem and social functioning. Medication management is one of the most important topics that epilepsy nurses should focus on during patient education. The patient and family should be informed about the dose of the medication, side effects, the importance of taking it regularly, and drug-food interactions. It should be noted that status epilepticus may occur if the medication is discontinued without a physician's recommendation [11]. The patient should be informed that exercise and adequate rest will decrease the frequency of seizures. A ketogenic diet (low carbohydrate, high fat) may be recommended as it reduces the frequency of seizures in resistant cases [9]. Fatigue, menstruation, insomnia, stress, alcohol and drug use, excessive light and noise should be avoided as they may trigger seizures.

The family should be informed about first aid for seizures. The patient should keep a seizure diary and bring it with him or her when visiting the outpatient clinic. The patient should carry a card or bracelet stating that he or she has epilepsy. The family should be informed that in cases such as prolonged seizures (>5 minutes), recurrent seizures without complete cessation, or trauma during the seizure, the patient must be taken to the health care facility. Patients and their families should be counseled on the following issues: Choice of workplace (office work that is not very strenuous and tiring and creates a safe environment in case of seizures), sports activities (sports that are safe in case of seizures, such as jogging, gym, etc.) and lifestyle (avoidance of triggering factors such as insomnia, fatigue, certain stimuli) [8].

Conclusion

Epilepsy is a chronic disease that affects individuals physically and psychosocially. In addition to the type of seizures, the frequency of seizures, side effects of antiepileptic drugs, and possible complications affect the course of the disease. The epilepsy patient's physical, psychological, social, and economic assessment and the way he or she copes with problems influence adjustment to the disease. Treatment adherence is critical for seizure control. Patients should be treated together with their families, and care and treatment should continue with a multidisciplinary care approach.

References

- [1] Falco-Walter JJ, Scheffer IE, Fisher RS. The new definition and classification of seizures and epilepsy. *Epilepsy Res.* 2018;139(2018):73–9.
- [2] Beghi E. The Epidemiology of Epilepsy. *Neuroepidemiology.* 2020;54(2):185–91.
- [3] Fisher RS, Cross JH, French JA, Higurashi N, Hirsch E, Jansen FE, et al. Operational classification of seizure types by the International League Against Epilepsy: Position Paper of the ILAE Commission for Classification and Terminology. *Epilepsia.* 2017;58(4):522–30.
- [4] Verma A. Etiology. In: Aatif M. Husain, editor. *Practical Epilepsy.* New York: Demos Medical; 2016. p. 63–6.
- [5] Cheolsu Shin. Pathophysiology. In: Husain AM, editor. *Practical Epilepsy.* New York: Demos Medical; 2016. p. 3–10.

- [6] Shorvon S. The Medical Treatment of Chronic Active Epilepsy. In: Christopher Kennard, editor. *Epilepsy and Epileptic Seizures*. Oxford: Oxford University Press; 2013. p. 253–60.
- [7] Singh S, Sankaraneni R, Antony A. Evidence-based guidelines for the management of epilepsy. *Neurol India*. 2017;65(7):6.
- [8] Parks PJ. *Epilepsy*. e-book: ReferencePoint Press; 2010. 96 p.
- [9] Ułamek-Kozioł M, Czuczwar SJ, Pluta R, Januszewski S. *Ketogenic diet and epilepsy*. Vol. 11, Nutrients. 2019. p. 2510.
- [10] Josephson CB, Jetté N. Psychiatric comorbidities in epilepsy. *International review of psychiatry*. 2017;29(5):409–24.
- [11] Prevos-Morgant M, Leavy Y, Chartrand D, Jurasek L, Osborne Shafer P, Shinnar R, et al. Benefits of the epilepsy specialist nurses (ESN) role, standardized practices and education around the world. *Rev Neurol (Paris)*. 2019;175(3):189–93.