

Specific conventional epileptic crisis

*¹Oleg Cobileanski¹, MD, PhD, Professor; ²Tatiana Prospit, MD; ¹Ion Cazacu, MD;
¹Alexandru Dandara, MD; ¹Dorel Jelaga, MD Undergraduate

¹Department of Psychiatry, Narcology and Medical Psychology, ²Laboratory of Narcology
Nicolae Testemitsanu State University of Medicine and Pharmacy, Chisinau, the Republic of Moldova

*Corresponding author: oleg.cobileanski@usmf.md

Manuscript received June 26, 2019; revised manuscript August 29, 2019

Abstract

Background: The brain controls how the body moves by sending small electrical signals along the nerves to the muscles. Seizures occur when abnormal signs in the brain change the way the body works. Seizures vary from person to person. Some people only have light handshakes and do not lose consciousness. Other people may become unconscious and experience violent whole body trembling. The article focuses on the cases of the seizure, order and behavior during and after the epileptic crisis, the child's febrile convulsions and recommendations.

Conclusions: Our knowledge about the causes of epileptic seizures increases the chance of preventing them. Correct actions in the crisis, follow-up of the crisis particularity minimize the risk of traumatization and ensures correct therapy of the pathology that causes the crisis. Correct treatment and cognition of contraindications reduce syncope repetition. Correct informing people about the crises particularities allows understanding the seriousness of the consequences of a crisis.

Key words: epileptic crisis, causes of seizures, help during the epileptic seizure.

Introduction

The brain controls how the body moves by sending small electrical signals along the nerves to the muscles. Seizures occur when abnormal signs in the brain change the way the body works [1].

Seizures vary from person to person. Some people only have light handshakes and do not lose consciousness. Other people may become unconscious and experience violent whole body trembling [2].

Body shakes, both, mild and violent, do not always occur in seizures. Some patients who have crises lose briefly contact with the environment and look at a fixed point. Although the person is awake, he does not normally respond to what's happening around him. After the crisis, the patient does not remember the episode. Not every tremor of the body is caused by seizures. Many medical conditions can cause a type of body trembling that usually affects your hands and head (tremors) [3-5].

A small number of patients will have only one life-threatening seizure. A single crisis usually takes less than 3 minutes and is not followed by a second crisis. Any normal healthy person may have a single crisis under certain conditions. A heavy head blow may trigger such a seizure. A crisis does not always mean that there is a serious health problem [6-8].

The patient who has a first seizure should consult a psychiatrist. It is important to remove from diagnosis severe conditions that can cause seizures. Febrile seizures are the most common causes of single seizures, especially in childhood [9-11].

Causes of seizures

Epilepsy is a central nervous system disorder that can cause seizures. It may appear at any age. A seizure may be a symptom of another condition such as:

- A cerebral tumor or a structural defect of the brain, such as a cerebral aneurysm;
- An extremely low blood sugar level in a diabetic patient;
- An infection such as meningitis or encephalitis;
- Cerebral surgery or a craniocerebral trauma;
- Fast-growing fever (febrile seizure);
- Giving up alcohol;
- Parasitic infections such as toxoplasmosis;
- Prescribed drugs or illegal drugs;
- Problems that have been present since birth (congenital problems) [12-14].

Eclampsia is a pregnancy-related seizure that is usually caused by high blood pressure. It is a dangerous situation for the mother and the fetus during the convulsion, the intake of oxygen in the fetus decreases very drastically. Eclampsia occurs most often after the 20th week of pregnancy [15-17].

Non-epileptic convulsions, also called pseudocrises, are a condition that can cause seizure-like activity [18].

Non-epileptic seizures are characterized by the loss or alteration of physical functions without the presence of a central nervous system problem. This loss or change results in periods of physical activity and inactivity that resemble epileptic seizures [19, 20].

These types of crises usually relate to mental health problems. Physical symptoms can be caused by emotional

conflicts or stress. Symptoms usually occur suddenly in times of extreme emotional stress. Regardless of the seizure causes, various measures can be taken to protect the patient during convulsions and to get specialized help after the episode [21-23].

During the crisis:

- Guide the person to stretch on the floor;
- Human bites may also occur;
- If the patient has a convulsion and is on the floor, it is good to put something soft under his head;
- If the patient sheds it is better to turn him on one side;
- It is advisable not to try to keep the patient on the floor or move him;
- It is good for the person who helps the patient to be careful about the way the crisis manifests itself so that he can describe it to the medical staff;
- Keeping calm;
- Moving furniture and objects that can injure the patient during a crisis;
- Placement of an object in the patient's mouth may result in additional injuries, such as tooth pricking and mandible fracture;
- Protecting the person from the impact;
- Turning the patient to one side, mouth down, unless the person opposes mobilization;
- Trying to keep the person from falling [24, 25].

After the crisis:

- The patient should not drive, swim, climb, until he or she consults a physician;
- Checking if the person has struck during the seizure;
- If the patient can not be turned back during the crisis, this can be done after the seizure, when the patient is more relaxed;
- If the patient has breathing problems, fingers can be used to release the saliva from the airways;
- Most patients are sleepy or confused after a convulsion;
- Providing a safe area where the patient can relax;
- The patient must be accompanied until he becomes fully aware of the environment;
- The patient should not drink or eat until he is fully awake and conscious;
- Widening too tight garments from the neck or the middle [26-28].

The help given to a person during an epileptic seizure:

An epileptic seizure or seizure crisis can be scary. A convulsive crisis temporarily interferes with muscle control, movement, speech, vision or consciousness. It can cause violent shaking of a person's whole body for seconds or minutes, accompanied by loss of consciousness [29, 30].

Convulsions can be mild or severe and affect patients differently. Even if people feel helpless when they are near a sick person who has seizures and is difficult to look at, there are many things that can help [31, 32].

Help granted during seizures:

- Do not insert anything, including fingers, into the patient's mouth;

- Do not try to keep the patient lying down;
- Inserting a material into the patient's mouth with epilepsy can be harmful;
- Move away furniture or other objects that could harm the person during the crisis;
- Protect from falls if possible;
- Turn the patient to one side, with his mouth down, only if he can be moved;
- Try to protect the person from injuries [33-35].

After a convulsive crisis:

- Examine whether the patient has suffered injuries;
- If the patient can not turn to one side during convulsions help him to do this after the crisis is over when the patient is more relaxed;
- If the patient has dyspnea, clean the mouth;
- Choose a safe area where the patient can sit;
- Do not offer anything to eat or drink;
- A person who has just experienced a seizure is often confused for a short time after the crisis;
- To oversee the patient until he / she is aware and familiar with the surroundings.

Things to follow during a seizure

Try to remember and remind the doctor:

- The way the patient's body moves;
- Seizure duration;
- The patient's behavior before the crisis;
- The patient's behavior mode immediately after convulsions;
- If the person has suffered an injury during the seizure;
- Call for medical help [36-39].

Seizures do not always require urgent medical attention. However, call for emergency services immediately if:

- The person experiencing a seizure has a breathing stop (apnea) for more than 30 seconds;
- The seizure has duration longer than 5 minutes (the patient may experience a life-threatening condition due to prolonged convulsions called epileptic status);
- More than one convulsive crisis occurs within one hour;
- The person who has a seizure does not normally react one hour after seizures or has any of the following symptoms:
 - The patient is not completely awake;
 - Confusion;
 - Nausea or vomiting;
 - Dizziness;
 - Inability to walk or sit;
 - Fever;
 - Seizures occur after the patient complains of sudden headache;
 - Seizures occur after signs of vascular accident as a disorder;
 - Speech dyslexia;
 - Understanding of speech presents some difficulty;
 - Visual disturbances;

- Inability to move different body segments to one side (apraxies);
- Seizures occur after a lesion in the cephalic extremity;
- A pregnant woman who has seizures;
- It may be a sign of preeclampsia (pregnancy toxemia, manifested by increased blood pressure);
- A person with diabetes has seizures: low blood sugar level (hypoglycaemia) or high blood sugar level (hyperglycemia) can cause seizures in a diabetic patient;
- Seizures have occurred after drug use [40-45].

The child's febrile convulsions

Convulsion is a short period of time when the child may become unconscious and has muscle spasms in various areas of the body.

The febrile convulsions are caused by high fever. Fever can be due to an infection (a respiratory viral infection). If the seizures occur, a psychiatrist should be consulted to determine their causes. Febrile convulsions are not signs of epilepsy.

However, patients with epilepsy are most susceptible to febrile seizures [46-48].

What happens during convulsions?

Febrile convulsions duration is less than 5 minutes, but may extend for up to 15 minutes and may be accompanied by the following reactions:

- After the seizures, the child may be indisposed or tired.
- Can lose control of the urinary and anal sphincter.
- May occur changes in the eyes position.
- During convulsions, the baby's hands and feet are spasmic, convulsive (muscle spasms, contractions).
- They may lose consciousness.

At what age febrile seizures can appear

They usually appear between the ages of 6 months to 5 years. The highest incidence is at the age of 12 to 18 months. The febrile convulsions disappear after the age of 5 to 6 years.

Children of parents with a history of febrile seizures have a higher risk of developing them.

What can we do when febrile convulsions occur?

Fearful convulsions usually scare parents, but they are harmless to the child. There are two important things to do:

- We need to make sure that the baby breathes.
- We need to be careful so that the child is not injured during convulsions [49-52].

Recommendations

Parents should remain calm and ensure that the child's breathing is normal. Bending the lips is a sign that he does not breathe. If the child stops breathing, an ambulance service must be called quickly. Ideally, parents should know the cardio-respiration technique and while waiting for the ambulance try to restore the child's breath. If the child breathes, he is better to be placed on the floor or on the ground, so as not to fall during convulsions [45, 53].

The child should be set to the side to avoid choking (he can suffocate by blocking the airways from the base of the tongue). All objects that may cause injury during the con-

vulsion (chairs, tables) must be removed farther. He must not be immobilized or interfere in any way with the movements of his body. It is forbidden to place any object or substance (drugs, water) in the child's mouth, to avoid breathing difficulties. After the seizures, the baby will be very tired and will fall asleep. This is normal. You do not have to wake up the child or give him/her something to drink or eat while he/she is sleeping. Medical staff will recommend decreasing the baby's temperature [35, 54-56].

Conclusions

1. Knowledge of the causes of epileptic seizures increases the chance of preventing them.

2. Correct actions in the crisis, follow-up of the particularity of a crisis, minimize the risk of traumatization and correct therapy of the pathology that causes the crisis.

3. Correct treatment and cognition of contraindications reduce syncope repetition.

4. Correct informing people about the crises particularities allows understanding the seriousness of the consequences of a crisis.

References

1. Marie Gillig P. Psychogenic nonepileptic seizures. *Innov Clin Neurosci*. 2013;10(11-12):15-18.
2. Iriarte J, Parra J, Urrestarazu E, et al. Controversies in the diagnosis and management of psychogenic pseudoseizures. *Epilepsy Behav*. 2003;4:354-359.
3. Chuchin MIu. [Non-epileptic paroxysms in childhood]. *Pediatrics*. 2005;6:31-36. Russian.
4. Engel J Jr. *Seizures and epilepsy*. 2nd ed. New York: Oxford University Press; 2013. p. 462.
5. Uliaszek AA, Prenskey E, Baslet G. Emotion regulation profiles in psychogenic non-epileptic seizures. *Epilepsy Behav*. 2012;23:3:364-369.
6. Duncan JS. *Epilepsy surgery*. *Clin Med (Lond)*. 2007;7(2):137-42.
7. Brodi MJ, Elder AT, Kwan P. *Epilepsy in later life*. *Lancet Neurol*. 2009;8(11):1019-30.
8. Hatzinger M. [Mood stabilizers]. *Ther Umsch*. 2009;66(6):413-424. German.
9. Magiorkinis E, Sidiropoulou K, Diamantis A. Hallmarks in the history of epilepsy: epilepsy in antiquity. *Epilepsy Behav*. 2010;17(1):103-108.
10. Singh V, Muzina DJ, Calabrese JR. Anticonvulsants in bipolar disorder. *Psychiatr Clin North Am*. 2005;28:301-323.
11. Beghi E. Overview of studies to prevent posttraumatic epilepsy. *Epilepsia*. 2003;44(Suppl.10):21-26.
12. Berg AT. Risk of recurrence after a first unprovoked seizure. *Epilepsia*. 2008;49 Suppl 1:13-8.
13. Ettinger AB, Reed ML, Goldberg JF, Hirschfeld RM. Prevalence of bipolar symptoms in epilepsy vs other chronic health disorders. *Neurology*. 2005;65(4):535-540.
14. Kamyar M, Varner M. *Epilepsy in pregnancy*. *Clin Obstet Gynecol*. 2013;56(2):330-41.
15. Quinn MC, Schofield MJ, Middleton W. Successful psychotherapy for psychogenic seizures in men. *Psychother Res*. 2012;22:6:682-698.
16. Belousova ED. [Pseudoepileptic seizures]. *SS Korsakov J Neurol Psychiatr*. 2008;108(2):19-29. Russian.
17. Bhalla D, Godet B, Druet-Cabanac M, Preux PM. Etiologies of epilepsy: a comprehensive review. *Expert Rev Neurother*. 2011;11(6):861-76.
18. Chang BS, Lowenstein DH. *Epilepsy*. *N Engl J Med*. 2003;349(13):1257-66.
19. Grunze HC. Anticonvulsants in bipolar disorder. *J Ment Health*. 2010;19:127-141.
20. Michael GE, O'Connor RE. The diagnosis and management of seizures

- and status epilepticus in the prehospital setting. *Emerg Med Clin North Am.* 2011;29(1):29-39.
21. Reuber M, Elger CE. Psychogenic nonepileptic seizures: review and update. *Epilepsy Behav.* 2003;4(3):205-216.
 22. Victor M, Ropper AH. *Adams and Victor's principles of neurology.* New York: McGraw-Hill, Medical Pub. Division; 2001. 1692 p.
 23. Neligan A, Hauser WA, Sander JW. The epidemiology of the epilepsies. *Handb Clinl Neurol.* 2012;107:113-33.
 24. Bagary, M. Epilepsy, antiepileptic drugs and suicidality. *Curr Opin Neurol.* 2011;24(2):177-82.
 25. Wheless J, Wilmore J, Brumback, editors. *Advanced therapy in epilepsy.* Shelton, Conn.: People's Medical Pub. House; 2009. p. 443.
 26. Chen DK, So YT, Fisher RS; Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. Use of serum prolactin in diagnosing epileptic seizures: report of the Therapeutics and Technology Assessment Subcommittee of the American Academy of Neurology. *Neurology.* 2005;65(5):668-75.
 27. Brodie MJ, Schachter SC, Kwan PK. *Fast facts: epilepsy.* 5th ed. Abingdon, Oxford, UK: Health Press; 2012. p.10.
 28. Smith DJ, Griffiths E, Kelly M, et al. Unrecognised bipolar disorder in primary care patients with depression. *Br J Psychiatry.* 2011;199:49-56.
 29. Bergey GK. Neurostimulation in the treatment of epilepsy. *Exp Neurol.* 2013;244:87-95.
 30. Browne TR, Holmes GL. *Handbook of epilepsy.* 4th ed. Philadelphia: Lippincott Williams & Wilkins; 2008. p. 7.
 31. Cross JH. Fever and fever-related epilepsies. *Epilepsia.* 2012;53 Suppl 4:3-8.
 32. Karasaki I, Montouris GD, Piperidou C, et al. Patient and caregiver quality of life in psychogenic non-epileptic seizures compared to epileptic seizures. *Seizure.* 2014;23:1:47-54.
 33. Panayiotopoulos CP. A clinical guide to epileptic syndromes and their treatment based on the ILAE classifications and practice parameter guidelines. Rev. 2nd ed. [London]: Springer; 2010. p. 445.
 34. Henning O, Nakken KO. Epilepsi og depresjon [Epilepsy and depression]. *Tidsskr Nor Legeforen.* 2011;131:1298-1301. Norwegian.
 35. McPhee SJ, Hammer GD, editors. *Pathophysiology of disease: an introduction to clinical medicine.* 6th ed. New York: McGraw-Hill Medical; 2010. 737 p.
 36. Podawiltz A. Diagnosing bipolar disorder: signs and symptoms. *J Clin Psychiatry.* 2012;73(2):e06.
 37. Klitochenko GV, Tonkonozhenko NL, Doletskii AN. [Non-epileptic convulsive states in children]. *Med Herald.* 2011;6(3):37-41. Russian.
 38. Walker MC, Schorge S, Kullmann DM, Wykes RC, Heeroma JH, Man-toan L. Gene therapy in status epilepticus. *Epilepsia.* 2013;54 Suppl 6:43-5.
 39. Shorvon SD, Andermann F, Guerrini R, editors. *The causes of epilepsy: common and uncommon causes in adults and children.* Cambridge: Cambridge University Press; 2011. p. 467.
 40. Dubenko AE, Litovchenko TA. [Nonepileptic seizures in patients with really diagnosed epilepsy]. *Epilepsy Paroxysmal Cond.* 2013;5(1):11-14. Russian.
 41. Brathen G. Alkohol og epilepsy [Alcohol and epilepsy]. *Tidsskr Nor Lægeforen.* 2003;123(11):1536-1538. Norwegian.
 42. Wyllie E. *Wyllie's treatment of epilepsy: principles and practice.* Philadelphia: Lippincott Williams & Wilkins; 2012. p. 187.
 43. Radić J, Prpić I, Vukelić P, Sasso A. [Psychogenic non-epileptic seizures in children – a case report]. *Lijec Vjesn.* 2013;135(7-8):209-212. Croatian.
 44. Thurman DJ, Beghi E, Begley CE, et al. Standards for epidemiologic studies and surveillance of epilepsy. *Epilepsia.* 2011;52 Suppl 7:2-26.
 45. Engel J Jr, Pedley TA, editors. *Epilepsy: a comprehensive textbook.* 2nd ed. Philadelphia: Wolters Kluwer Health/Lippincott Williams & Wilkins; 2008. p. 483.
 46. Hughes JR. Absence seizures: a review of recent reports with new concepts. *Epilepsy Behav.* 2009;15(4):404-12.
 47. Mula M, Schmitz B, Jauch R, et al. On the prevalence of bipolar disorder in epilepsy. *Epilepsy Behav.* 2008;13:658-661.
 48. Van der Ree M, Wijnberg I. A review on epilepsy in the horse and the potential of Ambulatory EEG as a diagnostic tool. *Vet Q.* 2012;32(3-4):159-67.
 49. Devlin A, Odell M, Charlton J, Koppel S. Epilepsy and driving: current status of research. *Epilepsy Res.* 2012;102(3):135-52.
 50. Lund C, Haraldsen I, Lossius MI, et al. Psykogene ikke-epileptiske anfall [Psychogenic non-epileptic seizures]. *Tidsskr Nor Legeforen.* 2009;129(22):2348-2351. Norwegian.
 51. Panayiotopoulos CP. The new ILAE report on terminology and concepts for organization of epileptic seizures: a clinician's critical view and contribution. *Epilepsia.* 2011;52(12):2155-60.
 52. Sander JW. The epidemiology of epilepsy revisited. *Curr Opin Neurol.* 2003;16(2):165-70.
 53. Malow BA. Sleep and epilepsy. *Neurol Clin.* 2005;23(4):1127-47.
 54. Newton CR, Garcia HH. Epilepsy in poor regions of the world. *Lancet.* 2012;380(9848):1193-201.
 55. Patidar Y, Gupta M, Khwaja GA, et al. Clinical profile of psychogenic nonepileptic seizures in adults: a study of 63 cases. *Ann Indian Acad Neurol.* 2013;16:2:157-162.
 56. Wilden JA, Cohen-Gadol AA. Evaluation of first nonfebrile seizures. *Am Fam Physician.* 2012;86(4):334-40.