

Seizures

Definition

A group of chronic neurological conditions that present as seizures.

Epilepsy is a general term for a range of conditions which cause a chronic brain disorder resulting in recurrent seizures (fits), and as many as one person in 20 will experience a seizure at some point in their lives.

The flow of information within the brain is precisely controlled. A seizure occurs when brain transmissions begin to malfunction, sending rapid, uncontrolled messages. This disorganisation can last for only seconds, or can take minutes.

Seizures are classified into two main groups: partial or generalised.

Partial seizures involve only one area of the brain, and do not result in loss of consciousness. Partial seizures are divided into two groups: simple (the casualty remains fully conscious and aware of what is happening) and complex (the consciousness is impaired and the casualty is unaware of where they are, or what they are doing).

The effects of a simple partial seizure vary, depending on which area of the brain is affected. The casualty may experience visual disturbances, stiffening of one part of the body and abnormal sensations such as tingling. These may also be accompanied by a strange smell, such as burning. These sensations are described as an 'aura' and in people who progress onto generalised epilepsy this aura will give warning of an imminent attack.

Those who witness the partial seizure may also see unusual movements, such as twitching of the face, jerking of an individual limb, or lip smacking. The casualty may appear to suddenly start daydreaming, even in mid sentence.

Although the effects of partial seizures are of short duration they can still cause considerable distress to the person affected, and if the seizure is complex they will have no memory of what has taken place.

Generalised seizures involve most of the brain which causes aggressive fitting, usually of the whole body. The commonest of this type of seizure causes the casualty to lose consciousness and exhibit tonic-clonic contractions, resulting in uncoordinated jerky movements which can be accompanied by emptying the bladder and/or bowels.

The tonic phase is caused by the contraction of all the muscles so the casualty becomes very stiff, and breathing becomes irregular. An audible cry may be produced by the contraction of the respiratory muscles forcing air out of the lungs and over the vocal cords.

This is then followed by the clonic phase. The muscles now independently relax and contract resulting in violent jerky movements throughout the whole body. This is accompanied by profuse salivation, bruxism and occasionally vomiting. Shortly after the clonic phase all movement ceases, and the casualty remains unconscious and unresponsive.

Recovery is gradual and can take considerable time – usually between 10 and 15 minutes although it can sometimes take longer. It may take an individual up to 2 hours for their cognitive function to return to normal.

Tonic-clonic seizures are usually short, lasting less than 5 minutes.

If the casualty does not enter the recovery phase, then it is likely that they are developing status epilepticus which is a potentially life threatening condition and is a result of a generalised seizure lasting 30 minutes or longer, or can be repeated tonic-clonic convulsions occurring over a 30 minute period without recovery of consciousness between fits. This requires hospital treatment as soon as possible.

It is of utmost importance, therefore, to note the time at which the seizure starts, and in the dental practice any convulsive phase of a tonic-clonic seizure that lasts for 5 minutes or more should be treated as status epilepticus.

Possible signs and symptoms

As mentioned earlier a generalised seizure usually follows a pattern:

Aura

The warning sign that some patients experience before the tonic-clonic phase of the seizure. This is helpful if it happens, as the patient can inform the dental team of an imminent attack, giving them time to summon help, clear a safe area and lay the patient on the floor.

Tonic phase

Sudden loss of consciousness, the muscles become rigid, the back may arch and the patient may let out a cry (they are not in pain). The lips may go blue (cyanosis). This phase usually lasts less than 20 seconds.

Clonic phase

The limbs make sudden, violent jerking movements due to the muscle contractions. The eyes may roll, the teeth may clench and frothy saliva may be seen (it may be blood stained as a result of biting the tongue). The breathing will be irregular and may be loud and 'snoring'. Bladder and/or bowel emptying may occur. This phase usually lasts less than 5 minutes.

Recovery phase

The body relaxes, although the casualty is still unresponsive. Levels of response will improve within a few minutes, but the casualty may not be fully alert for 20 minutes or so. They may be unaware of their actions, uncertain of where they are, complain of tiredness and may have a headache.

Remember

If the casualty is having repeated seizures or one seizure is lasting longer than 5 minutes then it is likely that they will go into status epilepticus.

Seizures

Triggers

- There can be many factors that can precipitate seizures and some examples are listed here:
- Forgotten or incorrect medication
- Sleep deprivation and fatigue
- High temperature
- Stress
- Infection
- Photosensitivity
- Menstruation
- Alcohol and drugs
- Monotonous tones/sounds

Management

All treatment must be stopped immediately. As mentioned earlier it is very important to make a note of the time the seizure started and to monitor its duration. Make the area as safe as possible - if the casualty experiences an 'aura' act immediately by laying them on the floor, removing glasses if worn and clearing away all moveable objects if possible, prior to the seizure starting. Blankets or clothing can be used to cover immovable objects on which the casualty may injure themselves, such as the spittoon. During the seizure itself, do not attempt to restrain the casualty or put anything into their mouth (such as an airway or mouth prop) whilst they are fitting. All staff must be aware of their own safety also and ensure that they keep a safe distance from the casualty to avoid being bitten, or kicked.

When the seizure has finished place the casualty into the recovery position and administer high-flow oxygen via the non-rebreathing face mask. Monitor ABC (airway, breathing, circulation). Allow the casualty to recover slowly in a private, quiet environment to ensure that their dignity is maintained. It is important that all staff appreciate the importance of gentle reassurance and understanding of the casualty's disorientation and confusion during the recovery phase.

- When the patient has recovered sufficiently they can go home with a suitable escort; they should never be discharged unaccompanied, and a competent adult should stay with them for some hours afterwards. It is not usually necessary to send a patient to hospital following a seizure. However, the emergency services must be called for the following reasons:
- One or more tonic-clonic seizure lasts longer than 5 minutes
- One tonic-clonic seizure lasts longer than normal for the individual
- Several seizures occur with no recovery of consciousness in between
- An injury has been sustained
- It is their first ever seizure
- Difficulty monitoring casualty's condition

As mentioned earlier, when one or more seizures continue for 5 minutes or longer, there is a danger of status epilepticus developing. When status epilepticus is suspected the emergency services must be called immediately and the casualty transferred to hospital. Other than high flow oxygen (if possible) the only other interventional treatment to be considered within the dental practice is the administration of 10mg midazolam (adult dosage) by a transmucosal route - buccally or intranasally.

(For clarification please see the pages from the Resuscitation Council (UK) Medical Emergencies and Resuscitation appendix (viii) (Emergency use of buccal midazolam in dental practice) www.resus.org.uk/pages/MEdental.pdf

Intravenous diazepam/ midazolam or rectal diazepam may be administered by the paramedic.

The doses of transmucosal midazolam advised by the Resuscitation Council (UK) for children who have status epilepticus are as follows: 1-5 years 5mg, 5-10 years 7.5mg 10 years and above 10mg.

Prevention

As for all dental patients a full medical history is essential but it is also important to have a record of detailed information if the patient has a history of epileptic seizures. It is also worth remembering that the nature of the condition can change, so the history must therefore be updated before each course of treatment as the pattern of the illness may vary.

- The following information should be obtained from patients who suffer from epilepsy in order that a risk assessment can be undertaken:
- The type of seizures experienced, and normal duration?
- How well the seizures are controlled including the frequency and date of most recent seizure?
- The normal recovery process for the individual, including the normal length of time?
- Which 'triggers' normally precipitate a seizure?
- Does the patient experience an 'aura' before a seizure, and if so what is its description?
- Has the patient ever had status epilepticus, and if so how many times?
- Has the type of anti-epileptic medication changed recently?
- Has the patient taken their medication as usual before treatment?

The answers to the above questions will enable the dental team to assess the likelihood of a seizure occurring at the dental surgery and how best to recognise and manage it. If the patient with a dental anxiety knows that stress is a trigger for their seizures then the team may consider it more appropriate to offer any treatment under sedation. If the patient has recently changed their anti-epileptic medication or their seizure control is poor they are more likely to be at an increased risk of a seizure developing.

