Epilepsy and brain tumours

Information sheet 13

Introduction

Epilepsy is the most common serious neurological condition worldwide. At any one time, at least one in 130 people have epilepsy and five percent of all people will have a seizure at some time in their life. Most people with epilepsy have normal brain scans and only a very small proportion have a brain tumour.

Our information on epilepsy will help you talk to your doctor or medical team about your condition. It should not be used as a substitute for professional care.

What is epilepsy?

Epilepsy is a neurological condition where there is a tendency for people to have seizures that start in the brain.

Brain tumours and epilepsy

There are many different causes for epilepsy. Symptomatic or secondary epilepsy is when there is a known cause for the condition such as a tumour on the brain.

Epileptic seizures

Epileptic seizures are caused by a disturbance in the electrical activity of the brain (and so they always start in the brain). What happens to the person during the seizure depends on where in the brain this disrupted activity happens.There are about 40 different types of epileptic seizure: in some the person is aware of what is happening, in others they become confused and unaware of their surroundings, or they may become briefly 'absent' or fall to the ground and convulse (shake).

Generalised seizures

- Primary generalised seizures are where the chemical and electrical disturbance occurs throughout all of the brain all at once. These seizures come on without warning. This can result in a convulsion, also known as grand mal, or simply cause a momentary loss of awareness lasting seconds (absence) or sudden jerks (myoclonic).
- Secondary generalised seizures - occasionally the focus of electrical activity can spread from a localised area to involve the whole brain. When this occurs it causes a convulsion with loss of consciousness and movements of arms and legs. These convulsions usually differ from those of primary generalised epilepsy only in that there is frequently a "warning" before losing consciousness.

Partial/Focal seizures

In partial/focal seizures, the seizure happens in, and affects, just one part of the brain.

Most people with a brain tumour and epilepsy will have partial/focal epilepsy because the tumour causes a focal disturbance in one part of the brain.

You may experience symptoms in the part of the body that is controlled by the brain area that is being affected by the seizure. For example, if the seizure starts in the part of the brain that controls movement there will be jerking of the limbs. If it involves the part of the brain that perceives sensation, it causes a strange tingling in the limbs. If it affects the temporal lobe of the brain, where thoughts and memories are stored, it may produce a feeling of disorientation, a funny smell, deja vu, panic attacks or strange recurring thoughts. These seizures can occur without any loss of awareness (simple partial seizures), or with loss of awareness for a short period (complex partial seizures).

Simple partial seizures

If the area of the brain affected by the seizure is small, this is called a simple partial seizure.

The person will be awake during the seizure and will remember what happened to them.

Complex partial seizures

A larger area of the brain is affected by the seizure. This could cause the person to be only partly conscious and they may not remember the seizure.

If I have seizures does it mean my tumour is more severe?

No. About 80% of people with less serious glioma brain tumours, and only 20 - 30% of people with more serious brain tumours will have seizures. Seizures can also occur with benign brain tumours (such as meningioma) or tumours that have spread to the brain from another site of the body (metastases).

How is epilepsy diagnosed?

Because there is no obvious sign a person has epilepsy, unless they are having a seizure, it can make diagnosing epilepsy difficult. A diagnosis is usually made after a person has had more than one epileptic seizure. When a person has had a seizure they may not remember what happened, so it can be helpful to have information from someone who saw the seizure happening.

A number of investigations, including blood tests, an Electroencephalogram (EEG) and scans may provide additional information.

The EEG is a painless, safe procedure where thin wires are placed onto the scalp and these wires (electrodes) can demonstrate any irregularities in the normal activity of the brain. Frequently, however, the EEG is completely normal between attacks.

A CT (computerised tomography) brain scan or MRI (magnetic resonance imaging) brain scan will produce pictures of the structure of the brain and will demonstrate where the abnormality is in the brain.

Can epilepsy be treated?

Yes, people with epilepsy can take anti-epileptic drugs (AEDs) or some people with epilepsy may be able to have surgery.

Do seizures injure the brain?

There is no evidence that the average seizure has any lasting effect on how the brain works. Many people with epilepsy have had hundreds of seizures in their lives, without any noticeable changes in their alertness or intelligence.

Sometimes after a partial or generalised seizure, there can be a weakness on one side of the body for minutes or occasionally days (Todd’s paresis), but this usually resolves completely.

Rarely, seizures that last an unusually long time, or a series of non-stop seizures, may produce changes in the brain that can affect the brain’s abilities, but this is uncommon.

0845 4500 386
enquiries@braintumouruk.org.uk
braintumouruk.org.uk
Tower House, Latimer Park
Chesham, Bucks, HP5 1TU

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