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Diagnosing Epilepsy

To make a diagnosis of epilepsy, it is necessary to establish a tendency to recurrent, spontaneous epileptic seizures. Many people have a single, isolated epileptic seizure at some point in their lives, but if a person has more than one, then a diagnosis of epilepsy may well be considered.

Epileptic seizures are due to intermittent and temporary disturbance in the brain, which produces some or all of the following symptoms:

Disturbance of consciousness or awareness

Alterations of bodily movement, sensation or posture

More often than not, the person concerned will have no recollection of what has actually happened. For this reason, it is very important for someone else i.e. a parent or spouse, to report the seizure to the person's doctor who may be their GP, a Hospital Doctor or Consultant Neurologist.

Seeing an epileptic seizure for the first time is a frightening experience. Nevertheless, it is very important to remember and relate, accurately, all the events surrounding the seizure and the details of the seizure itself. The Doctor is heavily dependent on an accurate eye-witness account which may be the only information on which the diagnosis rests:

He fell to the ground and began to shake and twitch uncontrollably - seemed to have trouble breathing and became pale and clammy. After about 2 minutes, the shaking ceased and he came round, but was a bit confused. Before the seizure he was acting quite normally - but suddenly he cried out and the seizure began.

Once the doctor has this information, a number of questions are asked:

Has the person really had a seizure, or is there some other explanation for the events that occurred?

Was the seizure due to disturbance within the brain, or was it due to some other cause?

Has the person only had one seizure, or have other seizures occurred in the past?

If the doctor is satisfied that the events were epileptic seizures (there are many other conditions that can be confused with epilepsy), then the question is asked:

Is there some identifiable cause, within the brain itself, such as a tumour, which itself is treatable?

To help answer this, the doctor may arrange for the patient to have a number of tests. These are designed to help confirm diagnosis, and also to determine any identifiable cause of the epilepsy.

The tests do not always make a diagnosis of epilepsy; this usually remains a clinical decision based on what happened to the person. It's perfectly possible to have normal or clear tests results and still be diagnosed with epilepsy.

BLOOD TESTS

These check the general health of the person and help to exclude the presence of abnormal amounts of various substances in the body as a cause for the seizures.

BRAIN SCANS

These help to exclude a structural cause for the seizures. CT or MRI scans of the brain may be requested. In many people, such tests will be normal.

EEG – ELECTROENCEPHALOGRAM

This test measures the electrical activity of the surface of the brain. Electrodes are placed on the brain. Electrodes are placed on the scalp and the signals picked up are amplified and recorded onto paper. It is a painless procedure lasting about 30 minutes.

It should be remembered that the EEG can only give information about the electrical activity of the brain during the period of the recording. Only if patterns characteristic of epilepsy are seen during the routine recording, is the EEG of value in the diagnosis. A normal EEG does not exclude the possibility of epilepsy.

Sometimes longer term EEG (ambulatory EEG) may be necessary. The person wears a small pack containing an audio cassette tape around their waist, with wires underneath their clothing, going up to their head. EEG monitoring can then take place over a number of days and the person can carry on with their normal activities.

EXPLAINING EPILEPSY

WHAT IS EPILEPSY?

The brain is a highly complex structure of millions of nerve cells (neurons). Their activity is usually well organized and they possess mechanisms for self-regulation. The neurons in the brain are responsible for a wide range of functions including:

- Consciousness
- Awareness
- Movement
- Bodily Posture

A sudden temporary disruption in some or all of these functions may be termed a "seizure".

Such an event may be caused by some disturbance arising within the brain itself (an intrinsic cause) or, more rarely by a lack of oxygen or glucose. Many people have a single seizure at some time in their lives, but this does not constitute epilepsy. If an individual has a tendency to experience repeated seizures, due to an intrinsic disturbance of neuronal function within the brain, then the term "epilepsy" may properly be used.

It should be noted, however, that epilepsy is not just one condition. Also, it is not always easy to give an explanation in each individual case of why seizures begin, or why they continue. The epilepsies, therefore, affect different people in different ways. When offering explanations, it is important to remember that there are still many misconceptions about this condition. People may need reassurance that it is not an illness or a disease.

WHAT IS A SEIZURE?

An epileptic seizure (sometimes called a fit, an attack, a turn or a blackout) happens when ordinary highly complex brain activity is suddenly disrupted.

Seizures can take many forms, since the brain is responsible for a wide range of functions. Intelligence, personality, mood memory, sensations, movement and consciousness are controlled within the brain; any of these functions may be temporarily disturbed during the course of an epileptic seizure.

Other factors may also determine the type of seizure, such as, whether the person is asleep or awake, what they are doing at the time, the type of epilepsy they have and whether all or part of the brain is affected.

WHAT CAUSES EPILEPSY?

Any person's brain has the capacity to produce a seizure, if the circumstances are appropriate. Most brains are not likely to do this spontaneously, and can, therefore, be said to have a high "seizure threshold" or high resistance to seizures. Individuals vary as to their threshold and it is probably one part of the genetic characteristics. Someone with a low threshold might develop epilepsy spontaneously, without other factors being involved. Sometimes, a predisposition to seizures can be seen in some families, where several members are affected.

The genetics of epilepsy, however, are not straightforward. In some individuals, the existing seizure threshold may be lowered if the brain is subject to unusual stimulation, such as, certain frequencies of flickering light and some drugs, or is injured. If the injury is severe e.g. due to a road traffic accident, infection, birth trauma, stroke or tumour, then epilepsy may develop as a consequence.

Many individuals attribute the onset of their seizures to some relatively minor event, such as a blow on the head or an emotional upset. Although, these cannot be completely discounted, in such cases, it is likely that family predisposition to seizures plays a more important role.

HOW MANY PEOPLE HAVE EPILEPSY?

Epilepsy is a tendency to have recurrent unprovoked seizures. It is the most common serious chronic neurological condition in the world. A recent epidemiological study shows that in Ireland there are 37,000 people with epilepsy. **(Linehan et al., 2009)**

Anyone can develop epilepsy; it occurs in all ages, races and social classes. Seizures tend to start in infancy or by late adolescence, but the incident rises again after 65 years of age.

QUESTIONS TO ASK YOUR DOCTOR

- What (if anything) has caused my seizures?
- What is epilepsy?
- How is it diagnosed?
- What is my type of Epilepsy called?
- Will I need to take medication?
- Who develops Epilepsy?
- Will I have to pay for my drugs?
- What happens if the medication does not control my seizures?
- What happens during a seizure?
- Can epilepsy harm me?
- How can I harm myself?
- How can I help myself?
- How will Epilepsy affect me?
- What do I tell people and must I disclose my Epilepsy?
- Are there things I cannot do?
- What things can I continue to do normally, under supervision or in the future?
- Can I use a computer safely?
- What is the likelihood I will achieve control on medication?
- Will my medication cause side effects?
- How important is it to always take my medication?