Understanding childhood epilepsy

Epilepsy is a common neurological disorder that has been medical knowledge for millennia. Despite this, misconceptions about the condition still prevail. The condition of epilepsy is more complex then it seems: it can be focal or generalised, symptomatic or idiopathic. It can start in childhood and regress or it can start in adulthood. It can be due to a genetic predisposition or a secondary cause following a brain injury or infection.

Broadly speaking, common childhood epilepsies such as the benign rolandic or absence epilepsy types are due to a genetic predisposition, known as idiopathic epilepsy.

Consultant neurologist at King's College Hospital, Dr. Lina Nashef, explains that for epilepsy to be diagnosed, it is not enough for a patient to have one epileptic episode. "You have to show a recurrent liability. Epilepsy is a tendency to have recurrent epileptic seizures," she says. Even when a seizure occurs as a result of an injury or an infection, it could be what Dr. Nashef describes as an acute symptomatic seizure, which, she stresses, does not add up to epilepsy. She continues, "It is so easy to misdiagnose epilepsy. Not every black out, faint or convulsion is epilepsy. A blackout may be due to an underlying heart problem where the blood pressure drops and causes syncope, or someone who has been under stress may have non-epileptic attacks." The defining factors for epilepsy specialists like Dr. Nashef is the presence of abnormal electrical discharge in the brain. There are two levels of management specialists will explore once epilepsy has been diagnosed. They will explore the classification of epilepsy (see table above) and try to ascertain the cause. Relevant treatment options such as drug therapy will then be considered, although medication is only given to those who show a susceptibility to recurrent epileptic attacks.

According to Dr. Nashef, it is possible to grow out of childhood epilepsy, although this usually depends on the age of onset. "If epilepsy presents itself in a child above the age of ten, growing out of it is less likely," she says. "But if you are under ten, with childhood absence epilepsy, for example, it is highly possible childhood epilepsy can disappear by the time the child is 11 or 12."

Of course, the likelihood of 'growing out' of the disorder depends on the epilepsy type and classification. Childhood absence epilepsy and benign rolandic epilepsy are both age-related and most children who have these disorders will cease to have them in later life. However, juvenile myoclonic epilepsy typically appears in pubescent children and early adulthood and usually continues, but the more serious but very rare type of childhood epilepsy, Lennox-Gastaut syndrome can affect the child throughout their lives. The child with this form of epilepsy will have an underlying brain disorder, hence the Lennox-Gastaut syndrome being a symptomatic classification.

Although very uncommon, this form of epilepsy dramatically affects the child in their everyday life. They will often have severe learning difficulties and behavioural problems due to the frequent seizures and the side effects of epileptic medications. Most distressing of all is the frequency of status epilepticus, where the child will appear to be in a constant seizure-like state which can last for hours. Such states can be convulsive or non-convulsive. If non-convulsive, the child can appear to teachers as confused, tired, bored or non-responsive and as

	Generalised epilepsy (both hemispheres of the brain)	**Focal epilepsy** (one region of the brain)
Idiopathic (often due to a genetic cause or predisposition)	• Absence epilepsy (in childhood) • Juvenile myoclonic epilepsy • Tonic clonic seizures	• Benign focal childhood epilepsy (benign rolandic)
Symptomatic (secondary to brain disease/injury)	• West Syndrome (infantile spasms) • Lennox-Gastaut syndrome	• Mostly Temporal lobe epilepsy • Mostly Frontal lobe epilepsy

Adapted from the table at www.webmed.com

such, may not be recognised as an epileptic seizure.

Many children with Lennox-Gastaut syndrome have sleep seizures known as tonic seizures, which affect most of the brain. The child's muscles will stiffen, making sudden jerky movements. Usually, these sleep seizures last only a few seconds, and it is quite possible that the child will continue to sleep through them.

Sleep seizures are also common in benign rolandic epilepsy, although the nature of these seizures are somewhat different to those experienced by the child with Lennox-Gastaut syndrome. "Rolandic epilepsy seizures occur only at night," Dr. Nashef explains. "And although it's not the only epilepsy where sleep is relevant, night time is certainly a key feature for this type of epilepsy." Often, a child woken from a rolandic seizure at night may shake or drool and experience muscle spasm and jerks on one side, which may or may not result in a loss of consciousness. Usually, such seizures are very infrequent and the child's schooling is not affected, but if the epilepsy is severe and the child's sleep is often interrupted by seizures, medication is used to control the severity and frequency of epileptic attacks.

"In Britain, carbamazephine is usually given if the seizures are frequent and disruptive in this condition," Dr. Nashef explains. "Some anti-epileptic drugs are more narrow spectrum than others and can make some seizure types worse." And due to the many anti-epileptic drugs now available, it is crucial to see an epilepsy consultant who will know exactly which drugs should be given for which epilepsy type. "Epilepsy medication is complex," Dr. Nashef adds. "GPs should always refer those with epilepsy to a specialist rather than prescribing medication themselves".

> *"It's the child who looks like he is daydreaming"*

Medication is not the only way of managing severe epilepsy seizures. There are many surgical procedures which can reduce epileptic attacks. Removal of the scarred hippocampus in the brain for those with symptomatic temporal lobe epilepsy is one such option that is a relatively straight-forward procedure. As the hippocampus in the brain is responsible for memory, MRI scans must prove that the scarring does not affect the other hippocampus before surgery can take place. "The hippocampus in the temporal lobe in the brain can cause epilepsy if it is scarred." Dr. Nashef explains. "If you can remove the scarred hippocampus, you can remove the epilepsy. Your chances of being seizure free is then 70 per cent."

What about the child who has not yet been diagnosed? What should a teacher look out for? "It's the child who looks like they are daydreaming but they are actually getting absences," Dr. Nashef says. "They might briefly blank and it seems like they are not concentrating. If a teacher picks this up early enough then it's helpful for an early diagnosis." And because early diagnosis means early treatment, children with epilepsy will have a greater chance of leading a normal and healthy life later on. S

Sources
www.epilepsy.com www.webmd.com
Institute of Psychiatry, Neurology Department.

Fact Box

Some treatments for severe epilepsy seizures

The Vegal Nerve Stimulator (VNS)
Works like a pacemaker. It stimulates the vagus nerve in the neck, which can reduce epileptic discharges. The current is switched on for thirty seconds every five minutes. There is also a magnet which gives a boost of current which can be controlled by the wearer.

Diazepam Suppositories
(As a rescue treatment)
Part of the benzodiazepine family. Administered rectally for a quick effect to stop severe convulsions

Buccal Midazolam
Part of the benzodiazepine family. Although not a licensed drug for treatment of epilepsy, it is now commonly prescribed and has been recommended in the National Institute of Health and Clinical Excellence (NICE) Guidelines. Administered by squirting on the inside of the mouth and can be absorbed quickly.