

Epilepsy, Learning & Behaviour



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Despite the fact that most children with have normal intelligence, it has long been recognised that children with epilepsy are more likely to have to face learning and behavioral problems than other children.

Way back in 1881, the writer William Gowers observed that "the mental state of epileptics...frequently presents deterioration and this constitutes one of the consequences of the disease which is most dreaded and is often most serious".

The causes of the learning and

behavioral problems faced by young people with epilepsy are complex and it can be very helpful to look at them by looking at the interaction of four factors:

1. Pathology
(The cause of the epilepsy)
2. Epileptic Discharges
(The effects of the abnormal brain activity)
3. Psychosocial Factors (Psychological and environmental factors)
4. Antiepileptic Drugs
(Unwanted side effects of the medications)

Contributing factors

1. Pathology of cause

The term "epilepsy" refers to a tendency towards having recurrent seizures. Epilepsy has different manifestations in every individual. Specific factors related to a child's epilepsy may affect learning and behavior. For example, the location of the seizure in the brain – its focus – can be associated with specific learning problems. Seizures arising from the left temporal lobe are characteristically

associated with deficits in verbal memory, whilst seizures arising from the right temporal lobe are characteristically associated with deficits in visual memory. The extent of the seizure focus may be important. When seizures arise from within widespread areas of the brain there is greater likelihood of more severe effects than when the seizures arise from within smaller areas.

The cause of the seizures may also be of importance. When temporal lobe epilepsy is due to scarring of a region within the temporal lobe known as the hippocampus, there is more likely to be a severe effect on learning and behavior than in other causes of temporal lobe epilepsy.

2. Epileptic discharges

Seizures occur as a result of abnormal activity – sometimes referred to as “epileptic discharges” – of nerve cells [neurons] within the brain.

The epileptic discharges experienced by children during seizures can disrupt the cerebral processes involved in learning. However, the effects on learning and behavior are not restricted to the times when seizures are occurring. Such negative effects are unfortunately detectable on some test scores for variable periods after seizures. The seizure type may have some influence, with generalised seizures tending to produce more effect on concentration than localised seizures.

The frequency of the seizures may also be important, and high seizure frequency is associated with more severe impairment. The fact is, epileptic discharges can also occur without leading on to seizures, and this abnormal brain activity can also interfere with learning.

Cognitive impairment is more common during prolonged and generalised discharges than during short or localised discharges. Simple brain functions appear less affected than the higher functions.

3. Psychological factors

Despite major advances in community attitudes, a recent survey of 5000 people with epilepsy revealed that 51% still felt stigmatised.

Anxiety symptoms have been reported by as many as 66% of people with epilepsy, and depression by as many as 80%.

Restriction of lifestyle, dependent behavior, poor academic achievement and a lower rate of marriage may all affect the quality of life in people with epilepsy.

For children the lifestyle restrictions and dependent behavior may stem from necessary restrictions placed by parents on their child, but they can also stem from overprotectiveness. It is certainly not easy to get the balance right, but it is important to try. Poor academic achievement may be a result of missing school, or when at school, missing small but essential snippets of information because of brief absence seizures. It can, as we have discussed, also be a consequence of unhelpful brain discharges which might or might not actually lead to seizures, and to their effect which can last for a period beyond any actual seizures.

We have known for many years that a certain level of anxiety can actually aid learning but if it gets too much learning drops off dramatically. Anything that places a child at the margin of his or her peer group can be very anxiety provoking and can make school learning a more troublesome experience than it need be. Finding ways to participate successfully as a group member is an important goal in most classrooms and most schools work diligently to make sure that their curriculum is inclusive of all children. Talking with your child's teacher about his or her particular circumstances can make a real difference in the school's ability to help your child negotiate the classroom and to have positive school experiences.

4. Antiepileptic drugs

Antiepileptic drugs can have adverse effects on learning and behavior, although these effects can be subtle and are often overestimated.

They can be minimised by keeping the drug concentrations within their target ranges. Reducing the number of antiepileptic drugs, where practicable, may result in cognitive and behavioral improvement.

If you have any concern about the ways in which anti-epileptic medication is affecting your child, bring it to the attention of the person who is prescribing the medication.

Whoever you are seeing, they will be

concerned to minimise any side effects and, like you, will want to find a way for your child to gain freedom from seizures so that their important childhood years are lived with minimum disruption to learning and behavioral development.

I would like to conclude this brief article by saying how important it is for all of us providing care to a child with epilepsy to be able to work together to find the right balance between the positives that medication can bring and any unwanted side effects. It is a major concern for most parents to give pills to their children, particularly when their children may have to learn to tolerate them, and where their benefits may not be immediately noticeable. But it is a shared concern that your doctor will also have. Your epilepsy association can also put you in touch with other parents who have been through some of the same obstacles that you are now facing.

When we think of epilepsy we usually think of their most obvious manifestation – seizures – and accordingly they receive the majority of our attention. However, related behavioral and learning problems are common and must not be neglected, since they can be even more disabling than the seizures. ■