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Epilepsy and the adolescent

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Life poses many difficulties for the individual approaching adolescence, even without the additional burden of a diagnosis of epilepsy. For many, epilepsy will have been diagnosed earlier in childhood, and the taking of medication already be a daily ritual. For others, the diagnosis may be made at this time, and a challenge presented as to how this may now affect their lifestyle. Whatever the situation, it has to be remembered that this time brings much in the way of emotional and physical changes which may not only affect the seizure pattern but also raise questions that need to be addressed as the individual approaches adulthood. It is a time when individuals need to feel in control, and all discussions have to be undertaken with this in mind.

Diagnosis and prognosis

The importance of ensuring that a correct diagnosis is made is paramount, whether an individual presents with ongoing seizures that appear resistant to medication, or as a new presentation with apparent epileptic seizures. Continued reassessment and consideration of alternative diagnoses are required, remembering that the rate of false diagnosis of epilepsy could be at least 10% (Table 1). The diagnosis of the epilepsy syndrome is also important, to maximise prognostic information and outline the likelihood of long term medication to both parents and the teenager. Diagnosis of the syndrome identifies those in whom epilepsy is likely to persist into adulthood, and presents the possibility of alternative management such as surgery (Table 2). In addition, any implications of the underlying aetiology (eg genetic counselling and regular neuro/renal imaging in tuberous sclerosis) need to be fully understood.

Medication

Depending on the age when their diagnosis was made, teenagers are likely to have grown up with decisions usually made by parents. Even if they are seizure-free, the issue of ongoing medication provides them with a different identity to their peers. It is necessary for a teenager to take a role in this as early as possible, with self-documentation of seizure frequency (by the use of

| Table 1. Differential diagnosis of seizures in adolescence. |
|---------------|---------------|---------------|---------------|---------------|
| Syncopal and related disorders | Vasovagal | Hyperventilation | Cardiac |
| Behavioural/psychiatric | Anxiety related | Psychotic episodes | Pseudoseizures |
| Neurological | Migraine | Tics | Intermittent and recurrent ataxia |
| Sleep phenomena | Sleep jerks | Sleep walking | Narcolepsy |

Exist, but none has been adopted with any enthusiasm except in a few districts where excellent services have been created. The issue should be jointly addressed between the medical and nursing colleges and the social care agencies.11.

...
a seizure diary) and administration of medication, to enable the feeling of empowerment. For this to be successful, it is also important for teenagers to comprehend the full extent of their condition and the need for regular medication, with discussion prior to any medication change. In addition, full discussion should be undertaken about any possibility of medication withdrawal, as well as the appropriate timing for such.

**Side effects of anticonvulsants**

Some anticonvulsants may have side effects that require special consideration in this age group. The possibility of visual field constriction secondary to vigabatrin should be evaluated, particularly as this can be easily assessed at this stage. Should the individual already be on vigabatrin, visual fields should be assessed and a decision about continuing the drug made on the basis of response and effects, with a six-monthly check of visual fields should they remain on the medication. Valproate has several side effects (e.g., weight gain, hair loss) that may limit its acceptance as an appropriate medication by this age group. A possible link in girls between sodium valproate and polycystic ovary disease has recently been addressed. It appears that those most at risk are likely to be girls with associated obesity, and therefore risk-benefit again needs to be considered in the context of the epilepsy syndrome and response to medication.

**Genetic implications**

Any genetic implications need to be outlined at an early stage, in particular the risk of having children with epilepsy. The advice given will depend predominantly on the epilepsy syndrome. There is an increased risk of fetal malformation in women with epilepsy, although the reasons for this may include contributions from both genetic and environmental factors. Some of the older anticonvulsants have a reported association with neural tube defects as well as more minor anomalies. The newer anticonvulsants are reportedly of lesser risk, but data are sparse on all the medications in pregnancy and further data collection is being undertaken. Although lamotrigine is advocated as an appropriate alternative in this age group, there is some evidence that it may not be effective in certain epilepsy syndromes.

**Pregnancy**

When considering pregnancy, appropriate management of the epilepsy should be discussed with a neurologist. Any change in medication should be completed prior to conception. There is some evidence that folate reduces the risk of teratogenicity for enzyme-inducing medications and valproate. Folate supplementation (5 mg/day) prior to conception should therefore be recommended. Bearing in mind that at least 30% of teenage pregnancies are unplanned, serious consideration should be given to adding folate to the anticonvulsant regimen at this time. Some anticonvulsant medications (in particular, carbamazepine) may also reduce the effectiveness of the oral contraceptive pill, so a higher dose of oestrogen is required to try to ensure adequate cover.

**Lifestyle**

The possible consequences of a diagnosis of epilepsy need to be addressed with a teenager at an early stage, including issues with regard to lifestyle, particularly driving and employment (Table 3). Some advice remains common sense as with any teenager, such as avoiding recreational drugs, but additional issues require particular mention. Most teenagers have started to experiment with alcohol; although total abstinence is not necessary, the suggestion must be made to limit the intake, acknowledging that a small amount is likely to have more effect on those with epilepsy than on their friends. Sleep deprivation may also exacerbate seizures.

Driving will be foremost in most teenagers' minds. This is possible, providing that the individual has been seizure-free (on or off medication) for 12 months, or has experienced only nocturnal seizures for three years. This requires special consideration when contemplating withdrawal of medication. Individuals must stop driving whilst this is taking place and for six months thereafter. The consequences of a possible seizure occurring during the withdrawal period (e.g., if examinations will be taken) should be discussed, and therefore the timing of such a manoeuvre carefully planned.

The choice of employment often presents a problem for someone with epilepsy, not only for that individual but also for their family. Career choice is wide, but some jobs cannot be considered by those with epilepsy, namely, the armed forces and driving.
The child with associated disabilities

Mild learning disability

Many of the issues that need to be considered for a child with epilepsy who also has mild associated disabilities are the same as for those without additional difficulties, although specifics about career advice may need particular attention. It is hoped that such difficulties will have been recognised within the educational system (as a statement of special educational needs). Difficulties need to be recognised at whatever stage prior to age 16 years so that further educational or employment provision can be considered before this time.

Moderate to severe learning disability

For the child with more severe learning difficulties, issues are likely to be somewhat different. Total dependence is likely to continue, although a period of adjustment with regard to physical as well as emotional changes must be recognised. The set-up of paediatric services is different from that of adult services where the responsibility of care of an individual with epilepsy is likely to differ within geographical areas according to local organisational issues. Where other disabilities exist (eg physical handicap), any multidisciplinary input required may need to be addressed. Placement issues must be considered early, with a period of decision making for the parents - who are likely to realise the difficulties of care at home and the need for support services, but have to overcome their feelings of guilt about considering a residential placement. It remains important to organise transitional care services and early involvement of the adult learning disability team.

Follow-up

Parents of an individual with long-standing epilepsy often find the transition to adult services hard. An adolescent clinic run by both a paediatrician/paediatric neurologist and an adult neurologist allows a smoother transition, with discussion about and recognition of the best way forward. This may sometimes involve a wider expertise as part of a multidisciplinary team. Follow-up in the long term may most appropriately be led by an adult neurologist with a special interest in epilepsy, the general practitioner in some instances, in others by the adult learning disability team, but this needs to be planned and appropriate handover put in place from as early as the age of 14 years.

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