Withdrawing antiepileptic drugs from seizure-free children

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Summary

Children with a history of epilepsy may be able to stop their treatment if they have had no seizures for at least two years. Antiepileptic drugs can be successfully withdrawn in up to 70% of cases. Each drug should be gradually tapered off over at least six weeks. This should be done sequentially if the child is taking more than one antiepileptic drug. Successful withdrawal is more likely in younger children and those with idiopathic epilepsy. Children with symptomatic epilepsies have a higher relapse rate, especially if they have associated cognitive and motor disabilities. For some parents, stopping their child's antiepileptic drugs may be more stressful than starting them.

Key words: epilepsy, electroencephalography.

(Aust Prescr 2006;29:18–21)

Introduction

Epilepsy affects 1–2% of children with peaks of onset in infancy, around the age of school entry and in adolescence. Around 70% of childhood epilepsies will eventually remit so withdrawal of antiepileptic drugs is often possible.[1] Most children are delighted at the prospect whereas parents may be apprehensive. Each child must be managed individually while considering numerous factors regarding the epilepsy, the family and the wider community.

When to stop

We normally consider withdrawing antiepileptic drugs after a child has been seizure-free for a minimum of two years. Some studies have explored stopping after one year, but this strategy is associated with a slightly higher risk of relapse. Stopping after a year can be considered if requested by parents or, for example, if a child is seizure-free but is troubled by adverse effects.

Consider the chances of successfully withdrawing treatment

Before withdrawing treatment it is important to review the diagnosis and natural history of the epilepsy by asking:

- is this epilepsy?
- do the data support the diagnosis of a particular epilepsy syndrome?
- is treatment withdrawal appropriate given the absence of seizures and the natural history of the epilepsy?

Sometimes this review may identify children who have other paroxysmal disorders such as breath holding, parasomnias, migraine, isolated acute symptomatic seizures and especially convulsive syncope.

Diagnosis predicts outcome

The type of epilepsy is one of the most important predictors of outcome.[2] A simple practical approach is to decide if the child has an idiopathic or a symptomatic epilepsy (Fig. 1).

In idiopathic epilepsies the child is neurologically normal and the brain is structurally sound. Idiopathic epilepsy may be focal (localisation related) or generalised.

Remission is most likely in:

- idiopathic localisation related (partial) epilepsies, such as benign rolandic epilepsy
- generalised epilepsies, such as childhood absence epilepsy
- onset of generalised epilepsy in early childhood rather than in adolescence.

In symptomatic epilepsies the child more often has static neurological abnormalities and a known aetiology associated with structural damage (Fig. 1). Remission is much less likely, particularly if the epilepsy began in early childhood.

Epileptic encephalopathies, including Lennox-Gastaut and West syndromes[2], encompass particularly serious associations of resistant seizures and electroencephalogram (EEG) abnormalities. Failure of control is associated with cognitive and motor decline and remission is unlikely.

Other factors

Successful withdrawal is significantly associated with[1]:

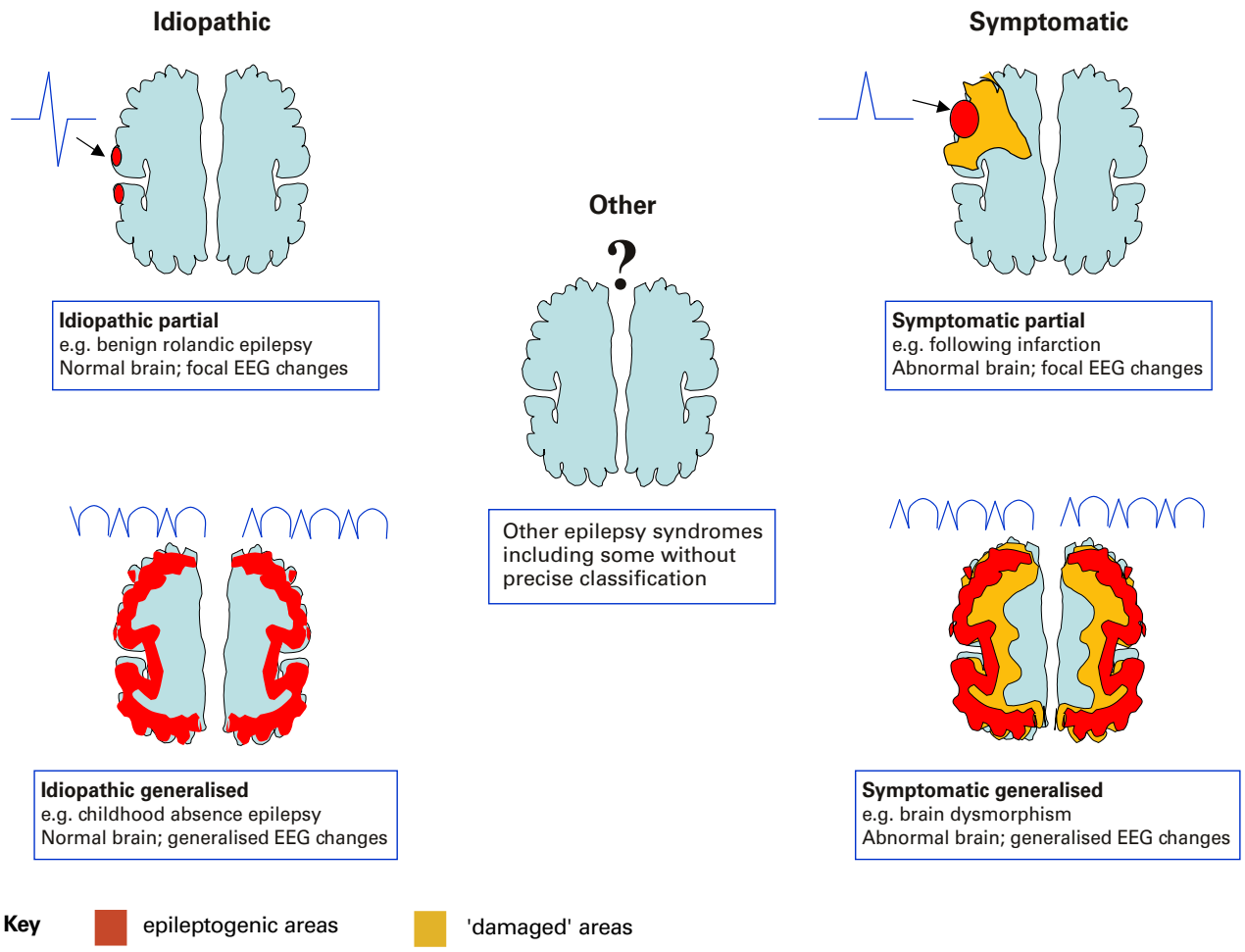
- good control with one antiepileptic drug
- children between the ages of five and nine years.

Failure of withdrawal is significantly associated with[1]:

- cognitive disability
- motor disability.

Fig. 1

The epilepsies: a simple clinical classification



In some cases antiepileptic drugs have other beneficial effects which may warrant continuing treatment despite the absence of seizures. If the drugs are continued, the reasons for ongoing treatment should be well documented and discussed with the child's parents.

Some parents may need to be persuaded to withdraw their child's treatment, even if the drugs are causing cognitive, behavioural or cosmetic adverse effects. This is particularly the case when the child's initial seizures were stressful or hard to control.

Is the child really seizure-free?

Most studies have used clinical criteria to assess when a child is seizure-free. It seems reasonable to work on the principle that the child is seizure-free if no seizures have been seen. However, a concern frequently voiced by parents is that they may be missing brief events or nocturnal seizures.

Some parents may request an EEG, however, while an epileptiform EEG prior to withdrawal is associated with a higher risk of relapse, the test is not reliable in predicting who will remain seizure-free. Similarly, a normal EEG does not guarantee remission. Children on 'spike suppressing' medication such as the benzodiazepines, sodium valproate and ethosuximide, may have a normal EEG irrespective of the state of their underlying epilepsy. We treat children and not their EEG so antiepileptic drug withdrawal is the only way of confirming remission.

Planning the withdrawal of therapy

Drug withdrawal should take place at a mutually convenient time for the child, family, school and the supervising practitioner. It may be appropriate to commence reduction:

- during school holidays as initial parental surveillance may be better
- well before the patient wants to learn to drive in order to allow a significant medication-free period
- in the summer if the child's seizures are triggered by winter illness.

It may be inappropriate to withdraw therapy:

- immediately before overseas travel

- during a period of high physical or emotional stress or excitement such as Christmas, or the start of high school
- when children are not staying at home
- when the supervising physician will be absent for the critical weaning period.

Preparing the family

The family may feel anxious about antiepileptic drug withdrawal and the venture may be unsuccessful. Always discuss and prepare them for relapse in order to reduce any subsequent disappointment.

Refresh the parents' knowledge of acute seizure management including cardiopulmonary resuscitation if requested. While not routine, the practice of having benzodiazepines available for emergency treatment in children with a history of convulsive seizures can be reassuring for some parents – especially rural families living far from medical help.

Preparing the school and other carers

Schools and preschools occasionally react to the prospect of antiepileptic drug withdrawal by cocooning a child, with resulting stigma and stress, particularly if convulsive seizures have previously occurred at school or if family anxieties are efficiently transferred. Teachers are not trained health professionals and may reasonably view the risk of relapse with trepidation. Hypervigilance with over-reporting of benign paroxysmal phenomena such as daydreaming and tantrums does happen and is potentially confusing. In difficult situations a visit from a nurse educator or one of the lay epilepsy organisations may be helpful. A new seizure management plan, if requested, should stress positive first aid management and avoid jargon and undue emphasis on frightening and unnecessary allusions to cardiorespiratory arrest or brain damage.

The plan

Give the family a written schedule of convenient dose reductions. A supply of lower dose formulations may be needed, particularly for small children.

One approach is to withdraw the antiepileptic drugs sequentially over two to three months for each drug. A study has shown no difference in relapse rate between a six-week and a nine-month taper[3], but this did not mention benzodiazepines which traditionally have been withdrawn over long periods.

In infancy, an alternative technique allows the child to 'outgrow their dose' then stop treatment when the dose per kilogram becomes negligible. This is practical because rapid somatic growth at this age produces a relative dose reduction more rapidly than in older children.

Families may be very anxious and in the short term frequent contact may be necessary. The plan should therefore include advice about how to deal with recurrent seizures and the possibility of confusing non-epileptic events with seizures.

Successful withdrawal

There is no standard definition of remission – not surprising when we try to classify anything by an absence of symptoms. The rate of remission is thought to be around 50% in children who remain seizure-free at six months with a cumulative probability of 66–96% at one year and 61–91% at two years.[1]

Post-epilepsy management

It is good to meet the family some months after successful drug withdrawal. Sometimes we need to help manage lingering anxieties and boost confidence. Children whose lives have revolved around their epilepsy may need help to refocus on health rather than sickness. Families may seek advice about the requirement for future declarations on driving licences, insurance policies or employment applications.

How long do we maintain 'epilepsy restrictions'?

The critical recommendation for any child with epilepsy is never to swim unsupervised and to shower rather than bathe. Recent campaigns encouraging all Australians not to swim alone may help to reinforce this critical issue with less stigma. Guidelines regarding driving are available from the roads authorities in each state and territory.

Conclusion

Stopping antiepileptic drugs in children is:

- generally a good idea
- usually considered after two seizure-free years
- most often successful in children with idiopathic epilepsies
- best done over a minimum of six weeks for each drug
- often a source of anxiety for parents.

Acknowledgement: Dr Ian Wilkinson made helpful comments regarding the original manuscript.

References

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3. Tennison M, Greenwood R, Lewis D, Thorn M. Discontinuing antiepileptic drugs in children with epilepsy. A comparison of a six-week and a nine-month taper period. N Engl J Med 1994;330:1407-10.

Further reading

Kilpatrick CJ. Withdrawal of antiepileptic drugs in seizure-free adults. Aust Prescr 2004;27:114-7.

Conflict of interest: none declared

Self-test questions

The following statements are either true or false (answers on page 27)

5. Only 30% of children with epilepsy can stop treatment with antiepileptic drugs even if they have had no seizures for two years.
6. The withdrawal of antiepileptic drugs should only be considered in seizure-free children if the electroencephalogram is normal.

PDA review

MiniTG – the personal digital assistant version of Therapeutic Guidelines

Melbourne: Therapeutic Guidelines Limited; 2005.

Price: $125 annual subscription (single licence) for either the Pocket PC or Palm operating system personal digital assistant (PDA)

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MiniTG is a version of the popular series of Therapeutic Guidelines books designed for personal digital assistants (PDA). It therefore inherits the pedigree of solid clinical review and regular revision that has been a key feature of the series. Sensibly the team at Therapeutic Guidelines have used iSilo (http://www.isilo.com), a very robust and reliable document reading program, as a platform to run both the Palm and Pocket PC versions of miniTG. Technically miniTG will have required minimal modification of the current CD-based version of the guidelines – eTG complete. Consequently users of eTG complete will find the interface of miniTG very familiar. The only contents of eTG complete not carried over to miniTG are the direct internet links and some ready reference calculators. Indeed, one hopes that other valuable medical references might also adopt this expedient method of converting their CD-based versions to iSilo PDA documents.

The major advantage of miniTG is its portability, allowing referencing of vital clinical information at the bedside or on a house call. The basic topic divisions of the original books of Therapeutic Guidelines are retained: analgesia, antibiotic, cardiovascular, endocrinology, gastrointestinal, neurology, palliative care, psychotropic and respiratory. There is also a useful section containing information about pregnancy and breastfeeding. Each of these topics starts with a succinct 'Getting to know your drugs' section and then follows with selectable hyperlinked clinical problems or conditions. For those familiar with PDAs, the selection of topics is easy using the pointing stylus in a similar fashion to a computer mouse. Within each section there are hyperlinks to related topics or further clinical information. An especially useful feature is the list of tables, figures and boxes at the end of each major specialist area. These allow rapid review of whole topics, for example the comparison of dosage regimens and adverse effects of the commonly prescribed drugs for Parkinson's disease.

The iSilo platform itself allows format modification to adjust the size and presentation of text so topics are generally quite readable. However, the small size of most PDA screens can be limiting when viewing tables and figures in miniTG. Certainly higher resolution colour PDA screens significantly improve the miniTG display. Furthermore, some PDAs have screens that can convert from portrait to landscape display, rendering the wider tables and figures viewable without the annoyance of constantly having to scroll across the screen.

I tried the Palm PDA version of miniTG on a Palm Tungsten T3 with 64Mb internal memory, a 128Mb memory card, a landscape screen option and with the full registered version of iSilo (US$20) loaded. Running either in the internal memory or from the card, miniTG was fast and reliable and movement between topics via hyperlinks was seamless. I used miniTG for a two-week period and accessed it over 30 times. Surprisingly, I found myself using it not only at the bedside, but also while in clinic as it was faster to access than the eTG complete on our hospital computer system. On one occasion I was able to use the PDA screen at the bedside to show a patient a diagram of the Epley's manoeuvre I planned to conduct.

Overall, miniTG is a useful clinical tool for the roving clinician. The cost of purchasing the eTG complete ($250/year) and miniTG separately does seem high given the technical ease of conversion between the two formats. Given that clinic-based doctors who already use eTG complete would probably require miniTG only infrequently, a cheaper bundled price for both products would be welcome.

Minimum system requirements

- Palm or Pocket PC with 10Mb of free storage and 320x240 minimum screen resolution
- the iSilo Document Browser from http://www.isilo.com (your iSilo User ID is needed to order miniTG)
- a desktop computer (Mac or PC) to transfer files to your PDA, software for Palm or Pocket PC devices, and USB port to connect to PDA
- a valid email address to receive registration information