

Epilepsy: problems of diagnosis and recommended treatment

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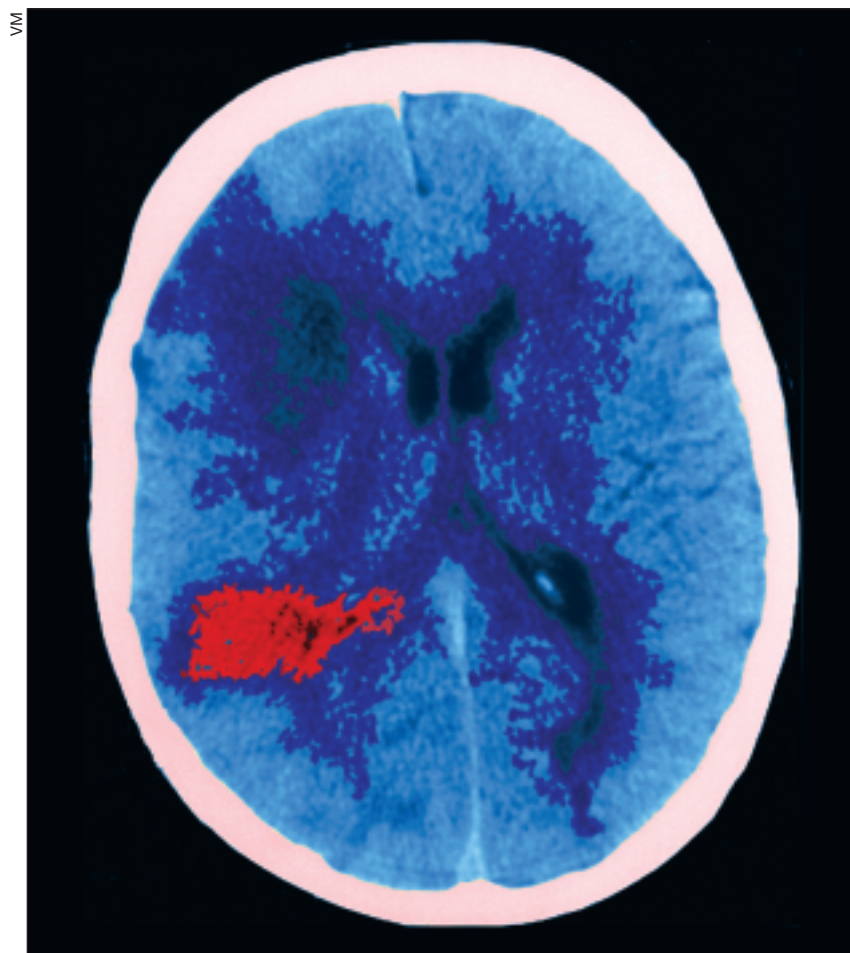


Figure 1. A CT scan of the brain can support the diagnosis of epilepsy in older people, often demonstrating, as here (false colour), evidence of cerebrovascular disease

Our series Prescribing in older people gives practical advice for successful management of the special problems experienced by this patient group. Here, the authors describe the problems associated with diagnosing epilepsy and discuss recommended treatment.

Epilepsy is a tendency to have recurring, unprovoked seizures and is a common serious, chronic, neurological condition. It comes as a surprise to many people to realise that the incidence of epilepsy is highest in older people, as shown in Figure 2.¹ More than 11 million older people currently live in the UK, and at least 1 per cent of these will have epilepsy.² More than 10 per cent of nursing home residents

in the USA are on antiepileptic medication.³

Most epilepsy in older people is a consequence of cerebrovascular disease.⁴ Advanced dementia is another common cause, with 20 per cent of such patients developing epilepsy.⁵ About one-third of older people with new-onset epilepsy have no obvious underlying cause.

Epilepsy in older people can be difficult to diagnose and is often

under-recognised. Many older people live alone and so there are no eye-witnesses to attacks. Tonic-clonic seizures in older people tend to occur in bed at night, and partial seizures are easily mislabelled as transient ischaemic attacks (TIAs).

This review covers the main issues relating to the diagnosis and management of epilepsy in older people.

Diagnosis of epilepsy in older people

Epilepsy in older people is diagnosed *mainly on the eye-witness account* and presents in the following main ways:

- recurrent stereotyped attacks, often mistaken for TIAs
- collapses (which may be misdiagnosed as syncope or falls)
- recurrent confusional states or episodes of altered consciousness of abrupt onset
- unexplained falls out of bed at night.

New-onset epilepsy in an older person is usually 'localisation-related', *ie* focal onset, and therefore 70 per cent of cases present with partial seizures with or without tonic-clonic seizures.⁶ The classic features of aura or automatisms are often absent and seizures arising from the frontal lobe are more common than in younger people.⁷

Partial seizures present as recurrent stereotyped attacks that can easily be mistaken for TIAs in this age group. For example, a relative described attacks during which her mother would lose the ability to speak properly. These were preceded by glazed, staring episodes and followed by headache and mild confusion. Every attack was the same and lasted about five minutes. The patient was right handed (speech was therefore the left carotid territory) and had a previous normal carotid Doppler ultrasound scan and a CT scan of the brain demonstrated a small infarct in the left parietal area.

In such cases, the original episode may have been a small stroke, labelled a TIA, but subsequent attacks are seizures and an infarct (the epileptogenic focus) is visible on a CT scan. Both seizures and TIAs cause loss of focal neurology, *eg* dysphasia or limb par-

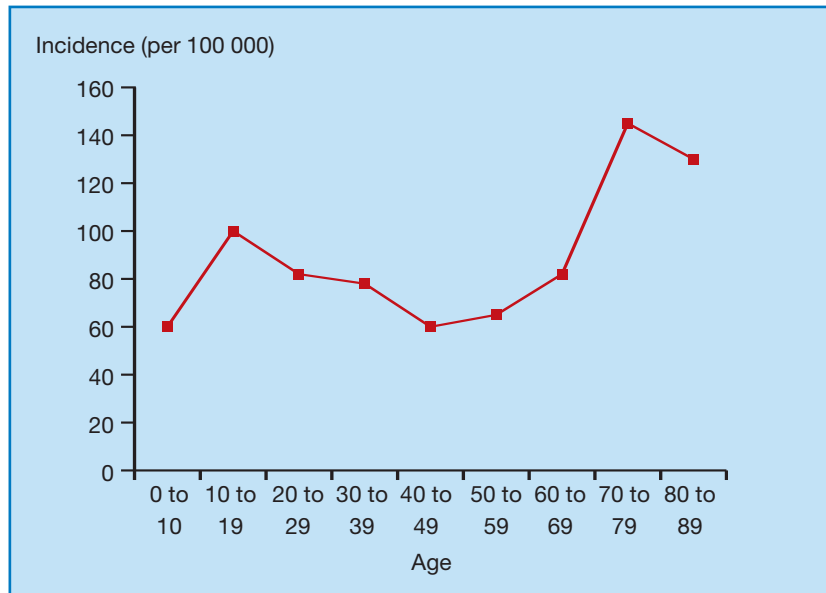


Figure 2. The incidence of treated epilepsy in the UK by age

asthesia, but seizures cause unresponsiveness and global disturbances in cognitive function, *ie* confusion, whereas TIAs do not. If a patient is taking diabetic medication, hypoglycaemia should be considered. Otherwise, this is a very common presentation of seizures in older people.

A large proportion of patients presenting with their first tonic-clonic seizure have evidence of previously unrecognised epilepsy on questioning (a history of

'funny do's' consistent with partial seizures).

Finally, recurrent confusional states or episodes of altered consciousness of abrupt onset should raise suspicions of epilepsy. Postictal confusion can last many days in older people, and may be the only witnessed abnormality.

The key to the diagnosis of epilepsy in older people is awareness and pattern recognition.

CT imaging of the brain is the most useful test that supports the

Case history: **Syncope AND seizures**

A 70-year-old man had been observed to collapse by relatives on several occasions. These all occurred while upright and were usually preceded by feeling warm and light headed. He was taking several cardiac and psychiatric medications and had a low blood pressure. He admitted that he did not take all of his medications at home because they made him feel dizzy and weak. However, his son had also witnessed staring episodes, during which the patient would become glazed and unresponsive for a few minutes. These attacks occurred in any posture and were often followed by mild confusion.

The patient told us that he had been investigated for epilepsy several years ago. A previous MRI showed an area of sclerosis in the left temporal lobe and there was a corresponding abnormality on a previous EEG. Several of his regular medications ~~to treat syncope~~ were reduced, he was started on lamotrigine for epilepsy and he had no further attacks.

diagnosis of epilepsy in older people. The standard EEG is neither sensitive nor specific in the diagnosis of epilepsy in older people.⁸ With a good eye-witness account and an underlying cause demonstrated on the CT scan, an EEG is unnecessary. In difficult cases, a prolonged EEG recording is more likely to be useful in older patients.

Sometimes, response to treatment is useful as a 'diagnostic test'.

Management of epilepsy in older people

In young people antiepileptic drugs (AEDs) are not started until two or more unprovoked seizures have occurred. Older patients have a greater than 90 per cent risk of further seizures because there is usually an identified underlying cause, *eg* previous stroke,⁷ therefore many specialists would offer older patients treatment with AEDs after a first seizure. Treatment is continued indefinitely.

As older patients with new-onset epilepsy have localisation-related epilepsy, the established AEDs (phenytoin, valproate and carbamazepine) are all effective.

Management of epilepsy in older people comes under the following headings:

- antiepileptic drugs
- treatment for cerebrovascular disease
- treatment for osteoporosis
- nondrug management.

Most older patients with epilepsy remain seizure free on one drug, and at modest doses. The goal of treatment is seizure freedom without side-effects. The older drugs are most commonly used,³ but side-effects can be a problem: toxicity, osteoporosis, impaired cognition, gait disturbance and falls. There are

Drug	Typical starting – effective dose in older people	Common side-effects (dose related except **)
<i>Valproate MR*</i>	200mg <i>bd</i> – 400mg <i>bd</i>	cognitive impairment/slowness hair thinning/loss weight gain osteoporosis tremor/parkinsonism liver dysfunction rarely bone marrow depression
<i>Carbamazepine MR*</i>	100mg <i>nocte</i> – 200mg <i>bd</i>	cognitive impairment/slowness dizziness hyponatraemia enzyme induction falls osteoporosis toxicity leading to neurological symptoms and signs **allergic reaction (rash) common
<i>Oxcarbazepine</i>		as for carbamazepine; possibly better tolerated but more likely to cause hyponatraemia
<i>Lamotrigine</i>	25mg alternate days – 100mg <i>od</i>	has to be titrated slowly dizziness insomnia **allergic reaction (rash)
<i>Phenytoin</i>	initially 3mg per kg <i>od</i> , then titrated to plasma levels	narrow therapeutic index blood levels have to be monitored cognitive impairment/slowness dizziness enzyme induction osteoporosis toxicity leading to neurological symptoms and signs gingival hypertrophy and hirsutism rarely bone marrow depression
<i>Gabapentin</i>	100mg <i>nocte</i> – 300mg <i>bd</i> and higher	cognitive impairment/slowness dizziness weight gain
<i>Clobazam</i>	5-10mg <i>nocte</i>	sedation falls
*the MR preparation is used to minimise side-effects.		

Table 1. Drugs used to treat epilepsy in older people. Doses of antiepileptic drugs are always titrated to efficacy and side-effects. The typical effective doses shown here are only to illustrate that older people are often seizure free on lower doses of AEDs

important differences in pharmacokinetics and pharmacodynamics in older people, and they are more likely to be taking other medications that have complex interactions with AEDs.

There are very little data to tell us which AED is more suitable for older people. Therefore current practice is to use the established drugs, but of crucial importance is to *start low and go slow*. However, there is some evidence to suggest that newer AEDs – lamotrigine, oxcarbazepine – may be better tolerated by older people and are just as effective.^{9,10} This is relevant for frail older patients who have problems with cognitive impairment or falls.

Only two randomised, controlled trials have looked at drug treatment of epilepsy in older people.^{11,12} These showed that lamotrigine and gabapentin were better tolerated than carbamazepine. However, standard rather than modified-release carbamazepine was used, and in dosing schedules that some argue would not be used in older people. Pooled data from 13 trials of lamotrigine that involved older patients show it is well tolerated.¹³ Valproate has not been compared with newer AEDs.

The recent National Institute for Health and Clinical Excellence (NICE) guidelines on the epilepsies do not consider older people as a separate group. Newer AEDs are only recommended as add-on therapy, although lamotrigine is licensed for monotherapy and is used commonly in women of child-bearing age.

A survey of geriatricians in Yorkshire conducted by one of the authors showed that valproate was the most commonly used AED, in over 80 per cent of cases. The authors' practice is to use valproate (modified release) in

Further resources

- Manford M. *Practical guide to epilepsy*. Butterworth Heinemann, 2003.
- NICE. The epilepsies. The diagnosis and management of the epilepsies in adults and children in primary and secondary care. Clinical guideline 20, October 2004. www.nice.org.uk.
- SIGN. Clinical guideline 70 – Diagnosis and management of epilepsy in adults, 2005. www.sign.ac.uk.
- Epilepsy Action (British Epilepsy Association). www.epilepsy.org.uk.
- The National Society for Epilepsy. www.epilepsynse.org.uk.
- International League Against Epilepsy. www.epilepsy.org.
- European Epilepsy Academy. www.epilepsy-academy.org.
- American Epilepsy Society. www.aesnet.org.
- American Academy of Neurology. www.aan.com.

older patients with epilepsy, or lamotrigine if the patient is old and frail.

Table 1 shows the drugs used to treat epilepsy in older people. Phenytoin is now rarely used in new-onset epilepsy.

Finally, as many older patients with epilepsy have evidence of cerebrovascular disease, this also requires treatment. Many older patients with epilepsy will already have sustained a fracture and many AEDs cause osteoporosis, so bone health is also a consideration.

An important aspect of management is information and education for patients and carers, and a point of contact to call for advice when needed. Epilepsy specialist nurses play a vital role in this area.

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Key points

- the incidence of epilepsy is highest in older people
- epilepsy can be difficult to diagnose in this age group
- there is little evidence on AED treatment in older people
- established AEDs are effective and tolerated if started at low doses and increased slowly
- there is some evidence that newer AEDs, eg lamotrigine, are better tolerated in older people and are useful in frail older patients
- an important aspect of management is information and education for patients and carers.

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8. Van Cott AC. Epilepsy and EEG in the elderly. *Epilepsia* 2002;43(Suppl 3):S94-102.
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