



# EPILEPSY and ANTIPILEPTIC DRUGS (AEDs)

## Top tips for MURs

- Find out whether people are still experiencing seizures by enquiring about the last time they had a seizure
- Establish whether the person is seeing a specialist for their epilepsy and if so when they are next being seen
- Find out what people know about their epilepsy and its management
- Explain that AEDs act on the brain, trying to reduce seizures or stop seizures from happening and that many people with epilepsy find that when they take their AEDs regularly, they have fewer or no seizures.
- Advise that it is important to take AEDs regularly even when unwell or unable to eat
- Discuss with the person the best times to take their individual medicines
- Check that adult patients taking enzyme-inducing drugs have full blood count, electrolyte, liver enzymes, vitamin D levels, and other tests of bone metabolism every 2-5 years
- Routine monitoring of AEDs is not required if the dose stable and seizure control good with no side effects
- Counsel patient on signs and symptoms of complications that need referral (see below) and common side effects (see overleaf)
- Counsel women of child bearing age on contraception. Ask if they could be pregnant or are planning a pregnancy
- Check that patients on vigabatrin have had visual field testing before treatment and at 6 month intervals
- Discuss with patients taking carbamazepine, phenytoin, primidone or sodium valproate the importance of vitamin D supplementation due to their use being associated with decreased mineral bone density
- Advise a patient who is considering starting a family to seek preconception counselling
- Know and discuss the epilepsy driving standards with the patient (see DVLA for more information)
- Advise patient not to drive during medication changes or withdrawal of AEDs and for 6 months afterwards
- Be aware of the MHRA advice regarding switching between different manufacturers' products. Patients taking phenytoin, carbamazepine, phenobarbital or primidone should be maintained on a specific brand. Other patients may benefit from consistent supply and individual responses vary
- Report any relevant adverse drug reactions to the Yellow Card Scheme

## Pathophysiology of epilepsy

Epilepsy is the most common serious neurological condition<sup>1</sup>. People with epilepsy have a tendency to have recurrent seizures as a result of a sudden burst of intense electrical activity in the brain. Epilepsy is a symptom of an underlying neurological disorder. The nature of a person's epilepsy is dictated by: the area of the brain in which there is a problem, the pattern of the spread of electrical discharge during the seizure and the underlying cause. Causes of epilepsy include brain damage at birth, infection, vascular disease or tumour but for 6 out of 10 people the cause isn't known. Seizures can be focal (previously called partial) where only a small part of the brain is involved or generalised, where the whole brain is involved. Generalised seizure types include, tonic-clonic seizures, absence seizures and myoclonic jerks.

## Lifestyle issues

- Advise patient that drinking more than two units of alcohol in 24 hours can increase the risk of having seizures. For most people, the risk is highest between 6 and 48 hours after stopping drinking. Alcohol can interact with some AEDs. Counsel patient on reducing alcohol intake to within safe limits (up to 14 units a week, spread evenly over 3 more days, with several alcohol free days)
- Advise patient on healthy eating, exercise & weight loss (if BMI > 25kg/m<sup>2</sup>). Some AEDs can promote weight gain and some people with epilepsy may experience a seizure if they go without food. Most people with epilepsy can undertake most forms of physical activity without any problems, although some forms of exercise may not be suitable or require additional precautions if the person is still having seizures
- Advise patients who smoke of the benefits of stopping smoking and refer to Stop Smoking Wales or Pharmacy Stop Smoking services if willing to stop. However quitting smoking can be stressful and it would seem sensible to do this when seizures are under control. Anecdotally some people with epilepsy report loss of seizure control when stopping smoking suddenly and there is a suggestion that a controlled reduction over time is beneficial
- Advise patient to reduce saturated fat and salt intake, avoid salt substitutes, increase oily fish intake, complete 30 minutes of aerobic exercise three to five times a week, reduce caffeine intake to no more than 5 cups a day and recommend 5 portions of fruit and vegetables a day

## Red flags that need referral

- Regular, recent or worsening seizure(s) where patient not under current review by a specialist medical practitioner
- Patient pregnant or planning a pregnancy
- ADRs including any signs or symptoms shown in the table below

## Potential serious drug interactions?

- Some drugs have the potential to precipitate seizures by lowering the seizure threshold: analgesics (eg tramadol), quinolones, antimalarials (mefloquine, chloroquine) antidepressants, antipsychotics, lithium, theophylline, antihistamines, metoclopramide, orlistat, bupropion, baclofen, lidocaine, ciclosporin.
- The combined oral contraceptive (COC) can lower plasma lamotrigine levels
- Enzyme-inducing AEDs can accelerate the metabolism and hence reduce plasma concentration of many medications, including oral contraceptives (reduced effect)

See BNF Appendix 1: Interactions for more details



## What are the common side effects to look out for?

Common side effects	Recommendation
Drowsiness – possible with any AED but often most noticeable on initiation and also with benzodiazepines	Advise that this may affect the performance of skilled tasks (eg. Driving), the effect of alcohol is enhanced. Refer to prescriber if symptoms not tolerated. Can sometimes settle down after a few weeks.
Gastrointestinal disturbances (nausea, vomiting, diarrhoea, dyspepsia)	Advise newly prescribed patient that side effects usually only last a few weeks, if not tolerated refer to prescriber. Can be reduced by starting dosing regimen slowly with dose being built up over a period of weeks.
Increased appetite & weight gain – <b>seen with valproate, gabapentin, pregabalin, levetiracetam, retigabine</b>	Give lifestyle advice and refer to prescriber if not tolerated.
Weight loss – <b>seen with topiramate, zonisamide</b>	Give dietary advice and refer to prescriber if weight loss becomes a problem.
Blood disorders (unexplained bleeding, bruising, infection, mouth ulcers or fever) or rash & signs of hypersensitivity - <b>seen with carbamazepine, lamotrigine, phenytoin, rufinamide and valproate</b>	Urgent referral to prescriber.
Skin rash – immediate referral if rash occurs within 8 weeks of starting lamotrigine	All AEDs can cause rashes, however in some this can indicate serious hypersensitivity.
Irritation, or aggression – <b>seen most commonly with levetiracetam, lamotrigine, also lacosamide, perampanel</b>	Often it is the patient's partner or family that notice this. Dose related effect, but in many patients will require drug withdrawal.
Eye disorders (blurred vision, glaucoma, nystagmus, visual field disturbance & double vision) <b>particular issue on initiation of vigabatrin, topiramate</b>	Advise patient that vision can be affected and to see an optician if a problem.
Headaches, dizziness, ataxia, vertigo, tremor, gait disturbances, impaired coordination, paresthesia, flushing or overheating (zonisamide), depression oedema, fatigue or neuropsychiatric effects	Refer to prescriber if not tolerated.
Insomnia – <b>seen most commonly with lamotrigine, but other AEDs can disturb sleep</b>	Advise patient on good sleep hygiene techniques. Sometimes once daily or asymmetrical dosing regimens with less drug given at night can be helpful.
Renal and kidney stones – <b>more commonly seen with topiramate &amp; zonisamide</b>	Advise increase fluid intake to reduce risk of kidney stones on initiation.
Impaired cognition, & amnesia - <b>more commonly seen with lacosamide, valproate, topiramate</b>	Refer to prescriber if not tolerated.
Alopecia ( <b>valproate</b> )	Inform patient that loss is transient, but regrowth may be curly.

## Memory Problems in Patients with epilepsy

Memory problems are common in people with epilepsy at all ages, this affects remembering to take tablets and order medication. The pharmacist can do a lot to help ensure that the patient has a consistent supply and can also help in an emergency if the patient has run out. Someone who goes without their AED is at risk from seizures.

## Women of child bearing age

Those not planning a pregnancy need a contraceptive that does not interact with their AEDs. Enzyme inducing drugs have been shown to reduce the effectiveness of the pill (COC can lower plasma lamotrigine levels). Depo-Provera injection is recommended repeated every 12 weeks. The IUD or IUS is also effective for people taking AEDs. Women taking enzyme inducing AEDs (or women who have taken enzyme inducing AEDs within in the last 4 weeks), need to have higher doses of levonorgestrel emergency hormonal contraception (2 stat), ulipristal is not recommended.

## Where can you find more information?

- BNF71 subsection 4.2 Epilepsy and other seizure disorders
- Evidence based Management of Neurological Disease distance learning pack found on the WCPPE website ([www.wcppe.org.uk](http://www.wcppe.org.uk))
- NICE guidance The diagnosis and management of the epilepsies in adults and children in primary and secondary care, can be found on NICE website ([www.nice.org.uk/CG137](http://www.nice.org.uk/CG137))
- SIGN guidance. Diagnosis and Management of Epilepsy in Adults [www.sign.ac.uk](http://www.sign.ac.uk)
- Clinical Knowledge Summary epilepsy can be found on CKS website ([www.cks.nice.org.uk](http://www.cks.nice.org.uk))
- The Joint Epilepsy Council of the UK and Ireland ([www.jointepilepsycouncil.org.uk](http://www.jointepilepsycouncil.org.uk))
- Epilepsy Society ([www.epilepsysociety.org.uk](http://www.epilepsysociety.org.uk)) where there is a section specifically for pharmacists <http://www.epilepsysociety.org.uk/epilepsy-pharmacists#.VfALLNJvHw>
- Epilepsy Action ([www.epilepsy.org.uk](http://www.epilepsy.org.uk))
- Driving advice and restrictions ([www.dft.gov.uk/dvla/](http://www.dft.gov.uk/dvla/))

## References

1. Evidence-based management of Neurological Disease. NI centre for Pharmacy Learning & Development, 2007.