

## **IT IS IMPORTANT AND USEFUL TO ESTABLISH A DIAGNOSIS OF EITHER FOCAL OR GENERALIZED EPILEPSY WHEN EPILEPSY IS FIRST DIAGNOSED: YES**

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It is important to establish the epilepsy syndrome as clearly as possible at initial presentation in order to give patients good prognostic advice, discuss possible co-morbidities, and plan appropriate therapy. The epilepsy syndrome diagnosis has implications not only for antiepileptic drug (AED) therapy, but also for other approaches such as surgery, brain stimulation, and diet. Moreover, it is important to ensure that seizures are not the result of an underlying systemic disease that could have implications for treatment choices.

Proper choice of antiepileptic drugs depends on weighing a wide variety of factors including etiology, epilepsy syndrome, age, sex, epilepsy co-morbidities, and other medical conditions. For patients to continue to take them over long periods of time, AEDs must be effective and tolerable.

The recent revised classification of seizures and epilepsies has not affected significantly the older relation of some AEDs to efficacy or inefficacy in specific syndromes (Berg et al 2010). The main seizure syndromes to consider in drug choice remain primary generalized absence, myoclonic epilepsies and their subdivisions such as Dravet's Syndrome, and focal epilepsies. It is clearly important to make a correct diagnosis of the myoclonic epilepsies as sodium channel active AEDs may exacerbate seizures in these syndromes (Striano and Belcastro 2012).

The most important differential diagnosis is between focal epilepsy and idiopathic generalized epilepsy (IGE). Among 58 patients with EEG-confirmed IGE, 29% were on appropriate AEDs, 48% only on an inappropriate AED, and 22% on a combination of both. Of the 41 patients who were receiving inappropriate therapy, only 9 were seizure-free. After AED changes, an additional 25 became seizure-free (Benbadis et al 2003). Absence and myoclonic status epilepticus have been provoked by sodium-channel agents in patients with IGE misdiagnosed as having cryptogenic partial or generalized epilepsy (Thomas et al 2006).

Some AEDs may have activity against a variety of electroclinical epilepsy syndromes. However, a recent comparison of valproic acid (VPA), ethosuximide and lamotrigine (LTG) in childhood absence did find that the first two drugs had better efficacy than LTG but did not differ from each other (Glauser et al 2010). However, attentional dysfunction was significantly more common with VPA than with ethosuximide. This study showed that a 'broad-spectrum' AED is inferior to more specific therapy, reinforcing the need for a specific diagnosis. Another 'broad spectrum AED, levetiracetam, was shown in a randomized trial to have only moderate effectiveness in absence (Fattore et al 2012). In this syndrome, the choice of AED will also be influenced by the greater potential side effects of VPA.

Misdiagnosis of focal epilepsy as part of a generalized syndrome may lead to prolonged and repetitive AED trials, delaying appropriate imaging and surgical evaluation.

AED therapy, and epilepsy therapy in general, must be affordable, by society as well as the individual patient. Inappropriate therapy can be very expensive, due to increased medical, economic and social costs related to uncontrolled seizures. Full evaluation with EEG, imaging, and appropriate ancillary studies to evaluate the contribution of systemic disease should be performed for patients with new-onset epilepsy.

### References

*Berg A, Berkovic SF, Brodie MJ et al (2010). Revised terminology and concepts for organization of seizures and epilepsies: Report of the ILAE Commission on Classification and Terminology, 2005–2009. Epilepsia, 51(4):676–685, 2010*

*Benbadis SR, Tatum WO 4th, Gieron M (2003). Idiopathic generalized epilepsy and choice of antiepileptic drugs. Neurology 61:1793-5.*

*Fattore C, Boniver C, Capovilla G, et al (2011). A multicenter, randomized, placebo-controlled trial of levetiracetam in children and adolescents with newly diagnosed absence epilepsy. Epilepsia. 2:802-809.*

*Glauser TA, Cnaan A, Shinnar S et al (2010). Ethosuximide, valproic acid, and lamotrigine in childhood absence epilepsy. N Engl J Med. 362:790-9*

*Thomas P, Valton L, Genton P (2006). Absence and myoclonic status epilepticus precipitated by antiepileptic drugs in idiopathic generalized epilepsy Brain 129: 1281–1292*