**DEBATE: SHOULD ENZYME INDUCING ANTIEPILEPTIC DRUGS BE AVOIDED?**
**NO**

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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, tolerable and affordable. The putative disadvantages of enzyme-inducing AEDs include a wide range of drug interactions, a variety of endocrine side effects, and potential adverse effects on lipid metabolism. However, many non-EI AEDs have serious side effects; more may emerge with increased experience. For example, some studies suggest that LVT may have adverse effects on bone mineral density (Beniczky et al 2012). Drug Interaction may affect AEDs such as VPA and LTG. Moreover, even if available in generic versions are usually more expense than older AEDs. In the developing world, cost may preclude the use of almost any other drug besides phenobarbital and carbamazepine.

Long-term treatment retention is limited with many non-EI AEDs. At 3 years, 30% were still taking TPM, 29% LTG and fewer than 10% GBP. Adverse events led to therapy withdrawal in 40% on TPM, 37% on GBP and 22% on LTG. Perceived lack of efficacy led to withdrawal in 39% on GBP, 34% on LTG and 19% on TPM (Lhatoo et al 2000). Large prospective series have not shown significant increases in seizure control despite introduction of many new AEDs (Brodie et al 2012). Current data do not suggest that recently introduced AEDs (usually non-EI) have better efficacy than older EI drugs (Stephen et al 2012).

Experience with Phenobarbital in the Global Campaign Against Epilepsy showed that withdrawal rates for cognitive side effects reported in the developed world were not found. In a comparison of 144 adult patients on PB with 144 healthy controls matched for age, gender, and education level, in the same Chinese villages, there were no differences in cognitive test scores at one year (Brodie and Kwan 2012).

Several recent reviews and general practice studies have compared evidence for AED efficacy. The US Agency for Health Care Research and Quality concluded that „Patients treated with carbamazepine were more likely to achieve 24-month seizure remission compared to those treated with newer antiepileptic medications, and had fewer withdrawals due to lack of efficacy, but experienced more side effects (Antiepileptic Medication Comparative Effectiveness 2010). The SANAD study found that CBZ, though less well tolerated than LTG, was both better tolerated and more effective than TPM or GBP (Marson 2007).

Optimal epilepsy care should always include attention to other co-existing medical conditions and epilepsy co-morbidities. It is possible that some of the risks associated with EI AEDs could be obviated by simple dietary and life-style measures such as increased calcium and vitamin D and reduced fat intake, and exercise. Proper AED choice should be based on overall evaluation of each patient, and the advantages and disadvantages of the available drugs. Some studies suggest that increased fracture risk, although clearly related to EI AEDs, may be more closely linked to CNS than bone effects, suggesting that avoiding cognitive impairment is important, and that although PB might be a less attractive choice, CBZ might be better than TPM (Tsiropoulos et al 2008). Thus, given the known limitations of all AEDs, it seems premature to systematically avoid an entire AED class.

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