Effects of Eslicarbazepine acetate on lipid metabolism profile and sodium values: preliminary outcomes of a prospective study in our patients

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Objective To characterize the association among eslicarbazepine acetate (ESL), plasma lipid levels and sodium values and to compare it with previous effects of traditional dibenzazepine drugs.

Materials and methods This report describes a prospective cohort study currently in progress. We considered 36 adult patients suffered from focal onset epilepsy with and without secondary generalization, in add-on treatment with ESL (800-1200 mg/die). In 8/36 patients, ESL was begun by switching from carbamazepine (CBZ) or oxcarbazepine (OXC). The average time of treatment was 10.5 months (range 6-18). 7 patients (19.4%) were already affected by dyslipidemia, nobody by hyponatremia. The lab values assessed prior and after 6 and 12 months of treatment were natreemia, total cholesterol, low and high density lipoproteins (LDL and HDL), triglycerides (TG).

Results After 6 months of treatment with ESL, we compared the mean total cholesterol and LDL values before and during ESL therapy (total cholesterol values 191.3 ± 29.6 vs 179.7 ± 29.2 mg/dl, p<0.0001; LDL 114.58 ± 22.7 vs 103.11 ± 19.46 mg/dl, p<0.0001). Furthermore, we evaluated HDL values before and during ESL (57.5± 9.1 vs 63.9 ± 8.3 mg/dl; p<0.0001). No statistically significant changes were detected in TGC values. ESL was interrupted in 2 patients, after 6 months, because of serious hyponatremia (sodium values < 126 mEq/l) whereas in the other patients, we didn’t observe significant changes of sodium values.

Discussion and Conclusions Severe hyponatremia occurred in 6% of patients and no significant changes of sodium values were found in the other patients. The mean total cholesterol and LDL values of the entire group of patients decreased significantly and HDL increased during treatment with ESL: this suggests that ESL is possibly a safe drug that doesn’t affect negatively the lipid metabolism profile in our patients. This represents a difference from CBZ and OXC maybe because ESL binds plasmatic proteins with lower affinity and it is a weaker inducer of liver metabolism especially for CYP3A4.

Recombinant CYP3A4 was shown to convert cholesterol to 4-hydroxycholesterol, whereas no conversion was observed with CYP1A2, CYP2C9, or CYP2B6. However, a greater number of cases and a more prolonged period of observation are necessary to confirm the results and a further step should be to assess biochemical mechanism by which antiepileptic drugs affect the lipid metabolism. Anyhow, a better understanding of the prevalence of dyslipidemia, related to the use of antiepileptic drugs in patients with epilepsy, would facilitate the appropriate management to reduce the risk of vascular diseases in adults, especially if we consider the higher incidence of cardiovascular and cerebrovascular disease in epileptic patients compared with general population.

Main references