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.

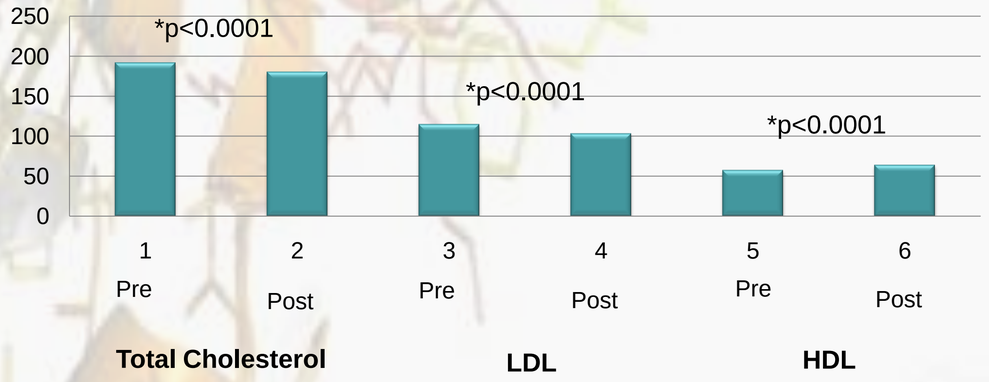
Materials and methods This report describes a prospective cohort study currently in progress. We considered 36 adult patients suffered from focal onset epilepsy with and without secondary generalization, in add-on treatment with ESL (800-1200 mg/die). In 8/36 patients, ESL was begun by switching from 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 natremia, total cholesterol, low and high density lipoproteins (LDL and HDL), triglycerides (TGC).

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<.0001; LDL 114.58 ± 22.7 vs 103.11 ± 19.46 mg/dl , p<.0001). Furthermore, we evaluated HDL values before and during ESL (57.5± 9.1 vs 63.9 ± 8.3 mg/dl; p.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.

pt	sex	age	Cholest pre (mg/dl)	Cholest post (mg/dl)	LDL pre (mg/dl)	LDL post (mg/dl)	HDL pre (mg/dl)	HDL post (mg/dl)
1	M	45	180	175	130	125	55	55
2	M	53	175	170	120	120	60	65
3	F	38	258	210	169	130	45	65
4	M	25	182	180	130	120	55	60
5	F	40	190	180	125	125	53	60
6	M	32	175	165	98	85	50	55
7	M	40	200	200	130	125	65	70
8	F	70	210	195	96	90	45	55
9	M	23	165	160	67	65	55	58
10	M	46	200	195	130	110	55	70
11	F	20	180	178	125	96	55	65
12	F	50	240	200	160	130	45	55
13	M	41	180	175	120	110	55	60
14	M	38	165	163	110	100	55	55
15	F	78	248	200	161	130	50	55
16	M	31	155	155	98	98	55	60
17	M	65	200	190	160	130	47	55
18	M	71	190	186	110	110	57	57
19	M	30	160	160	120	110	55	55
20	F	20	175	172	110	110	65	75
21	F	37	175	170	110	100	65	65
22	F	62	190	185	100	99	65	70
23	M	45	198	180	130	120	45	55
24	F	20	150	145	95	90	65	70
25	M	22	177	165	99	95	55	62
26	M	53	180	180	97	93	58	60
27	F	47	150	150	95	88	60	65
28	M	29	140	135	87	76	65	70
29	F	69	245	200	125	100	45	60
30	M	63	240	220	120	105	55	65
31	M	39	222	200	153	150	53	63
32	F	23	171	160	71	70	87	90
33	F	43	189	180	90	85	75	81
34	F	40	200	190	95	90	65	75
35	M	35	210	200	110	95	70	75
36	M	40	220	200	120	100	65	72

Follow up ≥ 1 y

Follow up ≥ 6m



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

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