Long-term effect of levetiracetam monotherapy on serum lipid profile in children with epilepsy: A prospective study

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Objectives: Antiepileptic drugs, such as carbamazepine and phenytoin, often increase the serum concentrations of lipids. Studies evaluating the effect of levetiracetam (LEV), a newer broad spectrum antiepileptic agent, on serum lipid levels are very limited. The aim of this study was to investigate prospectively the long-term effect of LEV monotherapy on serum lipid profile in children with epilepsy.

Materials and Methods: The study population consisted of 20 children (8 males, 12 females, aged 2 to 15 years old, mean age 6,5±4,16 years) with epilepsy treated with LEV monotherapy. None of the children were receiving any form of AED medication prior to LEV initiation. Serum total cholesterol (TC), low-density lipoprotein cholesterol (LDL-C), triglycerides (TGs), high-density lipoprotein cholesterol (HDL-C), apolipoprotein A-I (apo A-I), apolipoprotein B (apo B) and lipoprotein (a) [Lp(a)] were evaluated in all children, before and at 12 months of LEV monotherapy.

Results: TGs were significantly decreased at 12 months of LEV treatment (p=0.001). Furthermore LDL/HDL ratio significantly decreased at 12 months of LEV treatment (p=0.025). There were no significant alterations in TC, LDL-C, HDL-C, apo A-I, apo B and Lp(a) levels during the study.

	Baseline	12 th month of treatment	p
TC	162.4±28.0	159.7±30.8	0.985
HDL-C	55.7±13.1	57.0±12.3	0.420
LDL-C	99.0±24.4	92.3±28.5	0.164
LDL/HDL	1.91±0.77	1.72±0.71	0.025
TGs	74.6±38.2	52.5±20.6	0.001
Apo A-I	144.1±24.1	138.6±23.2	0.177
Apo B	73.5±17.3	70.9±22.2	0.776
Lp(a)	15.2±14.7	10.4±6.7	0.213

Conclusions: In contrast with enzyme inducer antiepileptic drugs, long-term LEV monotherapy in children with epilepsy does not cause significant increase on serum lipids and, therefore, LEV may be considered as a safer alternative drug for the prevention of antiepileptic drug-induced cardiovascular complications in later life.