

# LEVETIRACETAM THERAPEUTIC MONITORING IN PATIENTS WITH EPILEPSY: EFFECT OF CONCOMITANT ANTIPILEPTIC DRUGS

Alzueta N, Aldaz A, Egüés A.

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Clínica Universidad de Navarra. Pharmacy Service (Pamplona, Spain)

## BACKGROUND

Levetiracetam (LEV) is one of the newer antiepileptic drugs (AEDs). Data on LEV pharmacokinetics and interactions are limited and partly contradictory. Theoretically, LEV can be expected to have a very low potential for drug interaction since it is neither protein bound in blood nor metabolized in the liver.

## PURPOSE

To evaluate the effect of concomitant AED therapy on the oral apparent clearance of LEV ( $Cl_{LEV}$ ) in a population of patients with epilepsy.

## METHODS

Retrospective study from 2009 to 2013, in patients with epilepsy treated with LEV in a tertiary hospital.

Variables collected were LEV dose, serum concentration, age, sex, body weight and anticonvulsant comedication prescribed. They were obtained from the therapeutic drug monitoring register and the medical records.

Serum concentrations of LEV were measured by high-performance liquid chromatography with spectrophotometric detection. Statistica v.6.0 Stat Soft® was used for statistical analysis.

<b>SEX</b>	104 Men (61,17%)
	66 Women (38,83%)
<b>AGE</b> (years)	41,1±12,2
<b>WEIGHT</b> (PA/PI)(Kg)	NORMAL(0,7-1,2): 138 patients (81,17%)
	OBESE (<1,2): 32 patients (18,82%)
<b>C<sub>LEV</sub></b> (mcg/mL)	44,3± 12,75
<b>CL<sub>LEV</sub></b> (mL/h/Kg)	90,3±49,1

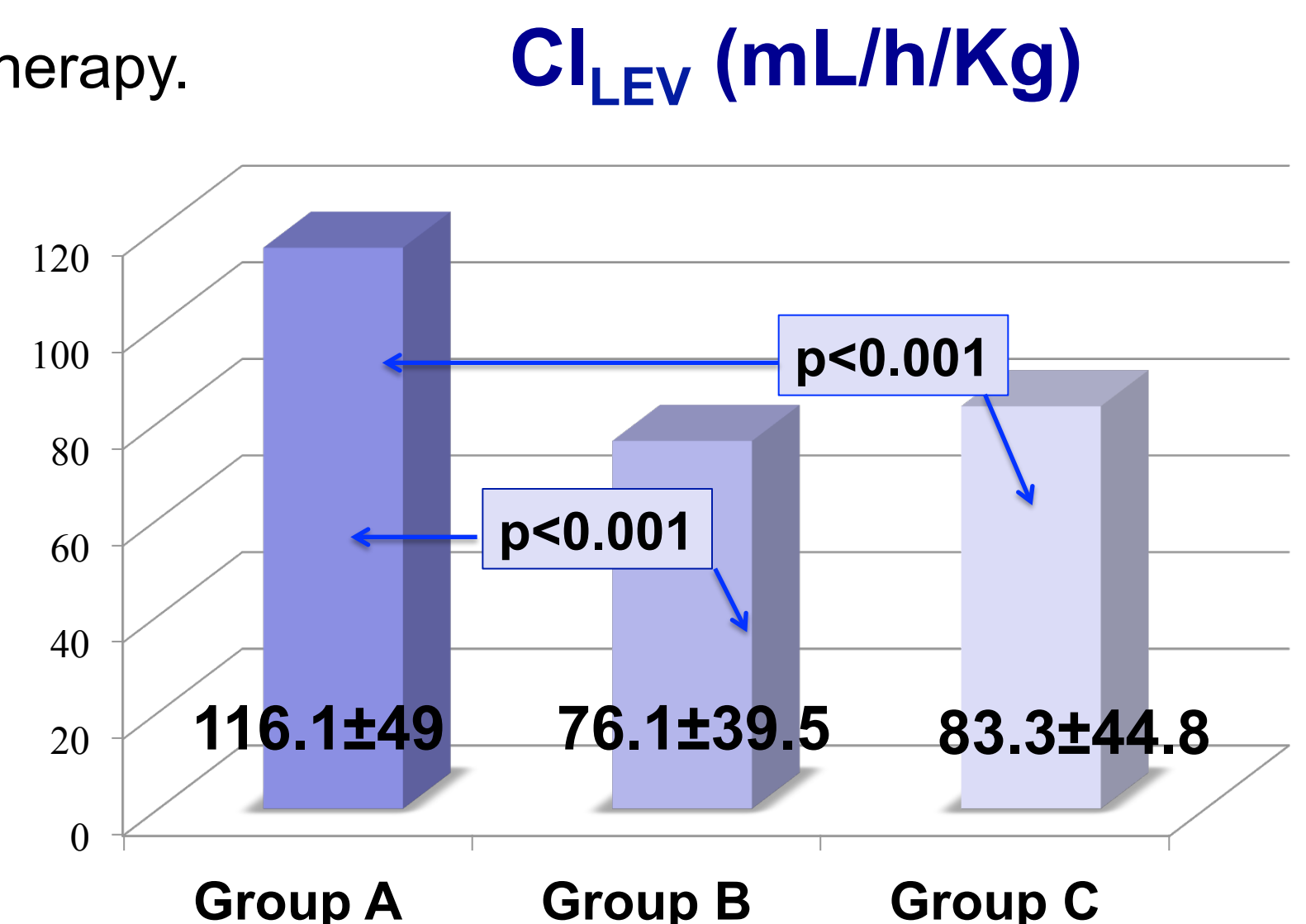
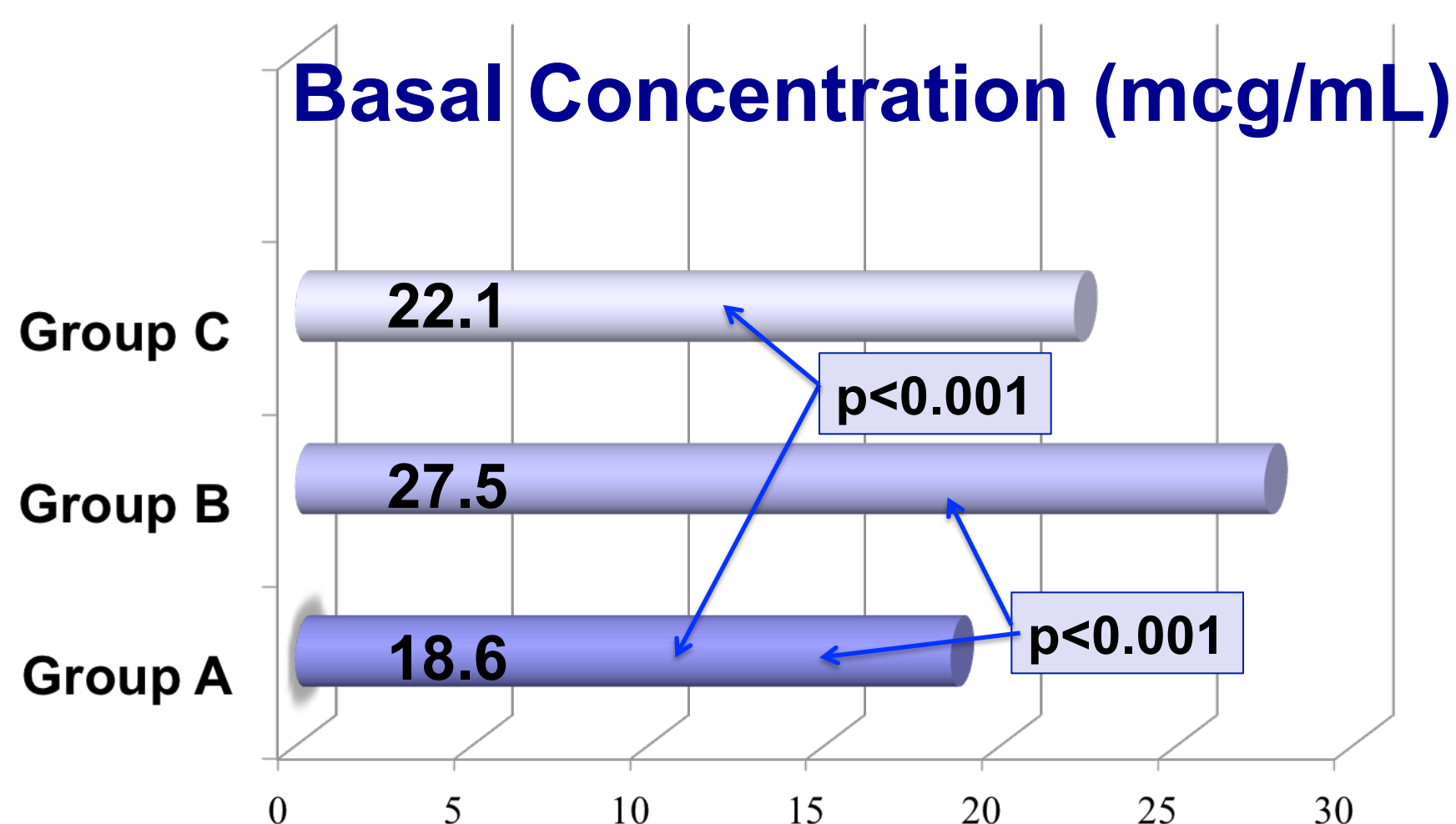
Table I. Characteristics of the study population

<b>Group A</b> (n=54)	LEV + AED inducers of CYP P450	PHENOBARBITAL
		PHENYTOIN
		CARBAMACEPINE
		OXCARBACEPINE
<b>Group B</b> (n=15)	LEV + AED inhibitors of CYP P450	VALPROIC ACID
<b>Group C</b> (n=101)	LEV in Monotherapy LEV + AED without properties to modify CYP P450	-----
		LAMOTRIGINE
		TOPIRAMATE
		LACOSAMIDE GABAPENTINE

Table II. Distribution of patients.

## RESULTS

170 patients were included. 60% of patients were prescribed polytherapy.



## CONCLUSIONS

- Concomitant AED can contribute to variability in LEV disposition in patients with epilepsy.
- This study showed that comedication with an enzyme-inducing AED was associated with a 52.6% higher clearance compared to group B and 39.4% higher clearance compared to group C.
- These findings emphasize the need to monitor LEV, especially when other anticonvulsant comedications are prescribed or discontinued in the treatment regimen.