

# Safe use of levetiracetam at doses higher than the maximum recommended



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## Objective

To describe the importance of therapeutic drug monitoring (TDM) of levetiracetam (LEV) for minimizing toxicity when it is used at doses higher than recommended (maximum 3000mg/ day according to the summary product).

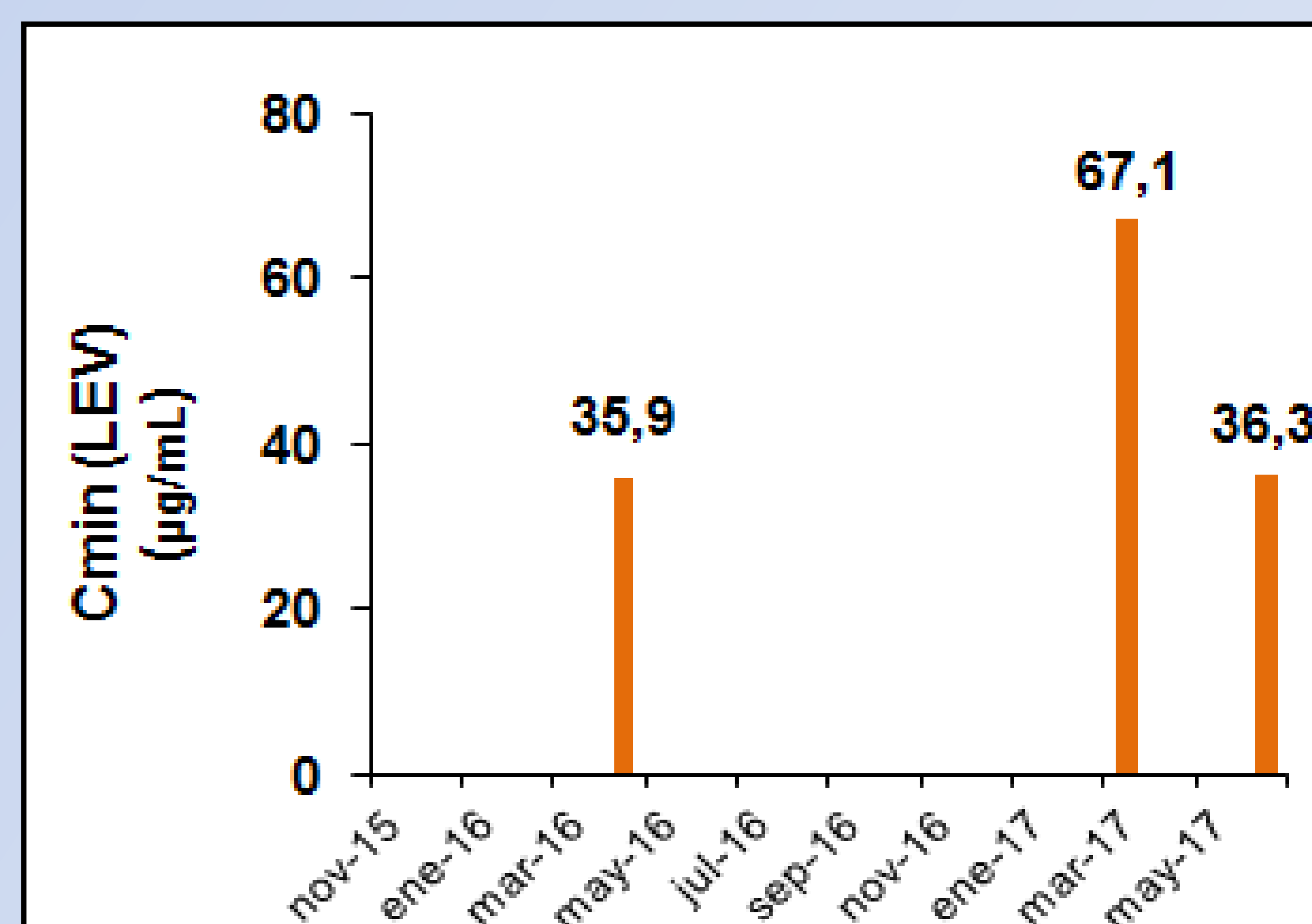
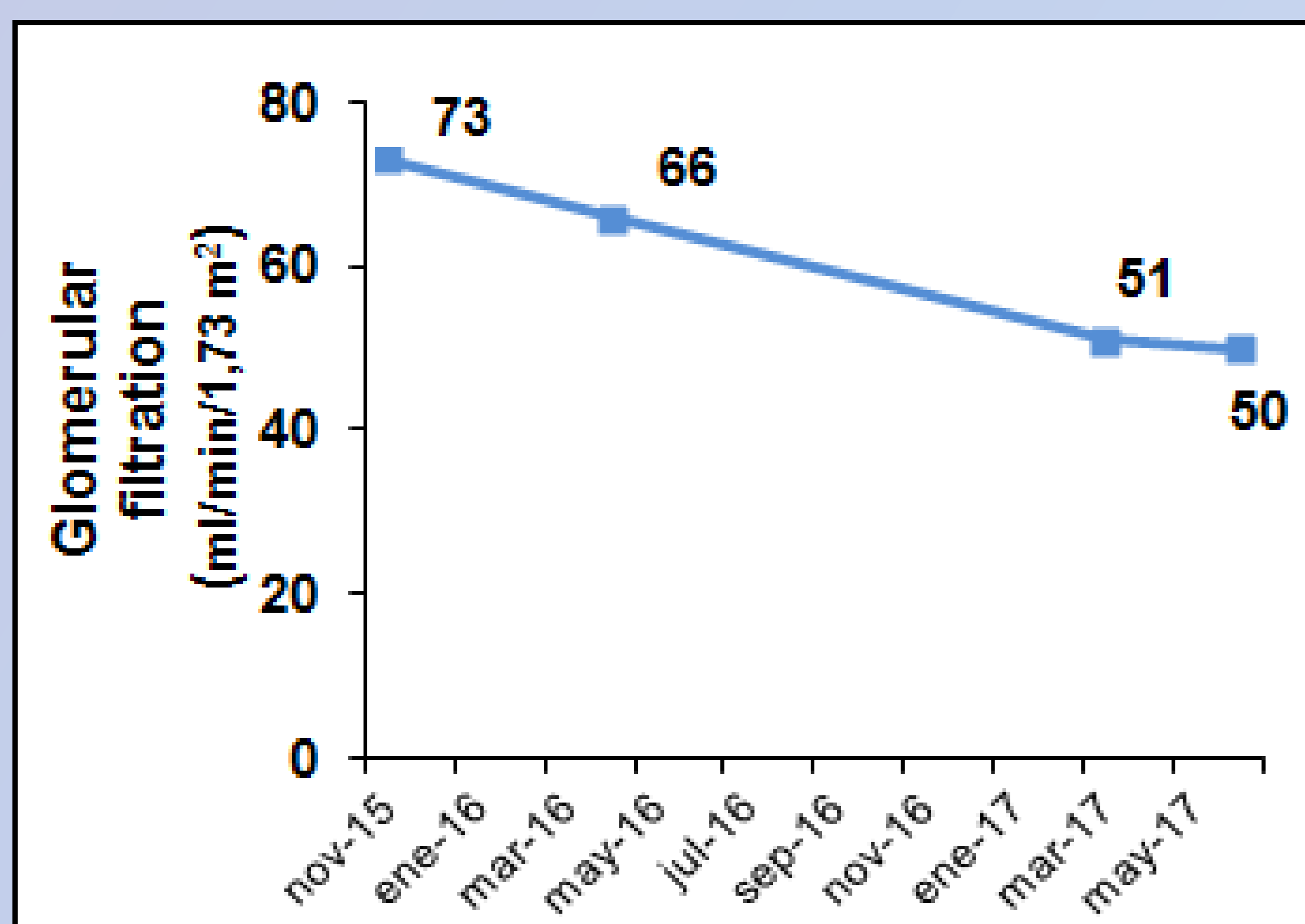
## Methods

Case report of 57 year-old man diagnosed with symptomatic focal epilepsy and human immunodeficiency virus.

- Antiepileptic treatment: LEV 4000 mg/ day, topiramate 300 mg/ day and clonazepam 4 mg/ day since 2010 plus lacosamide 200 mg/ day added in 2015. In September 2016 dosage of LEV was increased to 4500mg/ day because he had a new neurological crisis.
- Antiretroviral medication (AM): was changed in 2013 from tenofovir/efavirenz/emtricitabine to abacavir/ lamivudine plus efavirenz. In January 2017 AM medication was simplified to dolutegravir/abacavir/ lamivudine.

## Results and discussion

Date	Dose (mg/day)	GFR (ml/min/1.73 m <sup>2</sup> )	Cmin LEV (µg/ mL)	Toxicity signs	Comments
November 2015	4000	>60	---	No	---
April 2016	4000	>60	35.9	No	This was the situation after six years with LEV 4000mg/ day and glomerular filtration rate (GFR) >60 ml/min/1.73 m <sup>2</sup> . The LEV therapeutic range is [10-40 µg/ mL].
March 2017	4500	51	67.1	Yes tired and sleepy	Three months after increasing the dose of LEV, there were high levels of LEV and a slight deterioration of renal function. Concomitant medication seemed not interact with LEV.
June 2017	3500	50	36.3	No	After reducing the dose of LEV, values returned to the normality and clinical signs of toxicity disappeared.



## Conclusions

LEV at doses higher than recommended could be used safely if there is a close TDM program to assure treatment effectiveness and minimize adverse effects.