
Poster

[P26-4] P26-4: Central nervous system drugs (3)

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[P26-4-7] Efficacy of Levetiracetam and necessary of serum drug concentration measuring in epilepsy therapy: a preliminary study

Denpong Patanasethanont¹, Supinya Tuntapakul², Somsak Tiamkao³ (1.Khon Kaen University, 2.Khon Kaen University, 3.Khon Kaen University)

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Background

Levetiracetam (LEV), a broad-spectrum anti-epileptic drug (AED), was quickly widely use in partial and generalized epilepsy therapy. In clinical practice, the dose-response relationship is widely accepted for LEV and fixed-dose is usual for prescribing. Since the data from clinical observations reported that LEV has uncertain efficacy, and there were few studies about therapeutic range of LEV shown 12–46 and 20–40 mg/L which had been offered as the reference range, however, the relationship between concentration-efficacy was not established clearly. This study aimed to define the efficacy of LEV in usual dose and significance of concentration-efficacy relationship by using population pharmacokinetic parameters to predict LEV serum concentration in seizure control.

Methods

Clinical data of adult epileptic patients (18-60 year-old) who was prescribed LEV in epilepsy clinic were collected through the year of 2016. Serum trough concentration at steady state (C_{ss}) were estimated by using population pharmacokinetic parameters and one-compartment bolus model calculation.

Results

One hundred adult epileptic patients were included in this study. Dose range that used in these patients are mostly between 1,000-3,000 mg daily. Seizure could be controlled in 68 patients, the predicted trough C_{ss} >12 and 20 mg/L were presented in 27 and 9 patients, respectively. Among 33 uncontrolled seizure patients, there were 26 and 17 patients who has predicted trough C_{ss} <12 and 20 mg/L, respectively. The data revealed that the predicted trough C_{ss} >12 and even 20 mg/L were not related to efficacy (P= 0.318 and 0.498, respectively).

Conclusions

Sixty-eight percent of epileptic patients responded to fixed-dose of LEV 1,000-3,000 mg daily. Even though data from this preliminary study revealed that monitoring of serum LEV trough C_{ss} may not necessary for treatment of seizure in adult, further studies in larger number of patients, many seizure types, other age groups, and including effect of concomitant AEDs by using serum drug concentration measuring should be performed.