

## SECURITY PROFILE OF PATIENTS TREATED WITH PHENYTOIN IN A HOSPITAL

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### Background

The determination of the plasma concentration of free phenytoin (C<sub>p</sub>FL) could improve the seizure control and prevention of adverse effects.

### Purpose

To evaluate security profile of patients treated with phenytoin using C<sub>p</sub>FL.

### Material and methods

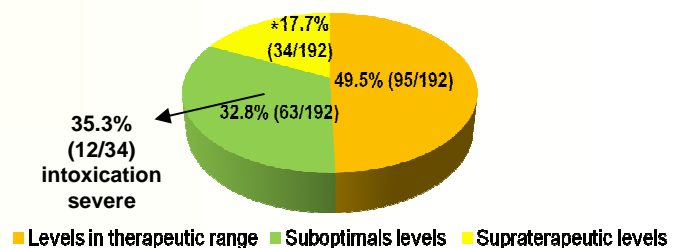
Prospective study (2013-2014) in a hospital. Phenytoin therapeutic range, C<sub>p</sub>FL: 1-2.5 mcg/mL. Moderate intoxication, C<sub>p</sub>FL: 2.5-3.0 mcg/mL and severe, C<sub>p</sub>FL > 3.0 mcg/mL. To determine the renal clearance was used CKD-EPI. It was defined moderate renal impairment as Cl<sub>cr</sub>: 20-50 mL/min. Polymedicated patients: > 5 drugs. Statistical analysis: Spearman correlation and  $\chi^2$  test.

### Results

Table 1. Patients treated with phenytoin (2013-2014)

	<b>Monitored patients:</b> 93 (192 cases) (range of cases/patient: 1-6)
<b>Men / Age (years)</b>	48/93 (51.6%) / 58 (range: 27-84)
<b>Daily dose (mg)</b>	299
<b>C<sub>p</sub>FL (mcg/mL)</b>	1.1 (range: 0.5-5.7)
<b>Cl<sub>cr</sub> (mL/min)</b>	51.7
<b>Serum albumin (g/dL)</b>	3.6

### Intoxicated patients treated with phenytoin (2013-2014)



\*Plasma concentration of free phenytoin : 3.8 mcg/mL; range: 2.6-5.7 mcg/mL. Age: 71 years, creatinine clearance : 38.9 mL/min , serum albumin 3.4 g/dL.

C<sub>p</sub>FL: plasma concentration of free phenytoin; Cl<sub>cr</sub>: creatinine clearance.

Three patients were hospitalised. Polymedicated patients: 71% vs. 50% the rest. Patients with drugs that bind over 70% to plasma proteins: 48%. Patients > 70 years had a higher risk of intoxication (p=0.033). We observed an inverse correlation between C<sub>p</sub>FL and Cl<sub>cr</sub> (Spearman rho: -0.562; p=0.04) or with albumin (Spearman rho: -0.623; p<0.01). In relation to moderate intoxication, concentration of phenytoin plasmatic presented a value 23% higher than C<sub>p</sub>FL.

### Conclusion

Elderly patients, polymedicated and with moderate renal insufficiency and hypoalbuminemia presented a higher risk of phenytoin toxicity. It would be advisable to be careful with these patients because in our study efficacy / toxicity is correlated better with C<sub>p</sub>FL.

**Keywords:** phenytoin, safety, pharmacokinetics.