

The pharmacist's role in improving valproic acid prescriptions

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Background:

Valproic acid (VPA) is 90-95% protein bound to albumin; this binding is saturable so other parameters that can modify the free fraction of VPA should be taken into account.

Purpose:

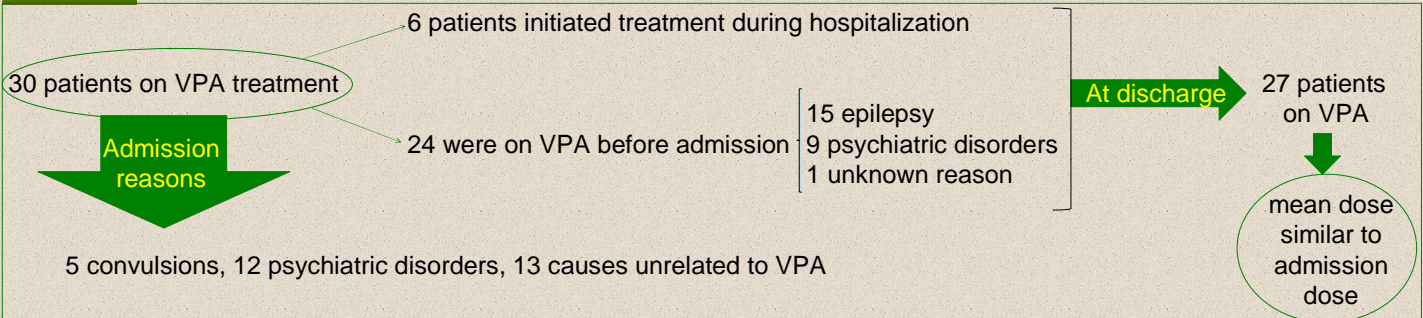
To identify improvement areas for VPA usage and monitorization in a tertiary hospital where Pharmacy Service does not routinely send pharmacokinetic dose adjustment recommendations.

Materials and methods:

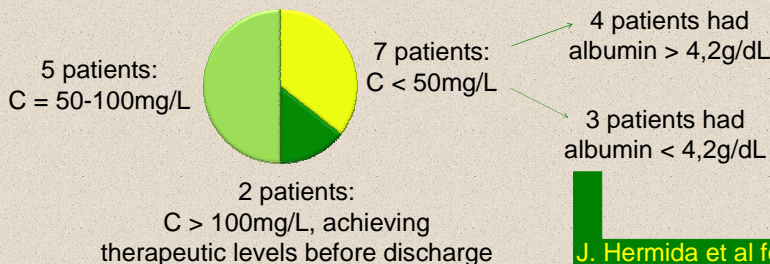
A retrospective study was conducted from February to April 2012. All patients treated with VPA were included.

Variables collected were: dosage, indication, total VPA serum concentration (C), drug-interactions classified as $\geq C$ by Lexi-Comp®, glomerular filtration rate (GFR), analytical Child-Pugh, albumin and bilirubin

Results:



- C was determined in 14 patients:



Theoretical method for normalizing C in hypoalbumemic patients:

$$C_N = \alpha_H C_H / 6.5$$

α_H = free fraction of VPA corresponding to patient's albuminemia
 C_H = total concentration of VPA
 C_N = total normalized concentration of VPA

None reached C>50mg/L after correcting it.

- GFR, analytical Child-Pugh and bilirubin were normal.

- Mean time between changes in dosage and C determinations was 1,5 days (0-5days).

-21 drug-interactions: in 15 patients, 10 drugs involved, 2 interactions reported: VPA-meropenem and VPA-lamotrigine.

Conclusion:

Changes in free fraction of VPA, due to hypoalbuminemia, liver or kidney disease and hyperbilirubinemia, must be detected. C should be measured once steady state has been achieved (3-5days). Drug-interactions affecting VPA should be added to Pharmacy Service's interaction notification program.