Background and importance Hyperammonaemia is known as a metabolic disturbance due to deficiency of some enzymes of the ‘urea cycle’, a biochemical process where nitrogenous products are purified from the organism and whose accumulation leads to neurological disorders, vomiting, seizures, coma and death.

Aim and objectives To evaluate the evolution and response after administration of corrective treatment in a 5-month-old paediatric patient diagnosed with epilepsy who developed hyperammonaemia secondary to high doses of valproic acid (VA).

Material and methods To reverse hyperammonaemia, the patient’s status epilepticus, the frequency of seizures, ammonium levels (µg/dL) and VA (µg/mL) were monitored.

Results Because of persistence of seizures, intravenous VA treatment was started, initially at a bolus dose of 400 mg and subsequent infusion of 20 mg/kg (rate 1 mg/kg/hour). The rate of infusion should increase 10 hours after the start of treatment at 1.5 mg/kg/hour, controlling the crisis and performing sequential therapy with oral VA at 40 mg/kg/8 hours. Later, cloning and disconnection episodes were again evident, forcing monitoring of VA levels and assessment of the general state. Hyperammonaemia was diagnosed, with levels of 140 µg/dL of blood ammonia (reference range 29–70 µg/dL). There was clinical and therapeutic agreement with VA levels of 113 µg/mL (range 50–100 µg/mL).

The paediatric critical care unit consulted the pharmacy unit to advise on detoxification treatment, suggesting arginine (0.15–0.4 g/kg/day), carnitine (20 mg/kg/day) and N-carbamyl glutamate (100 mg/kg/day), reserving phenylbutyrate as a corrective treatment. Toxic and analyte levels progressively improved (103 µg/dL of ammonia and 47.3 µg/mL of VA), allowing the use of phenylbutyrate to be postponed. After an approximate 20% reduction in ammonia (86.3 µg/mL), treatment was interrupted, except for carnitine and levetiracetam. Finally, stabilisation of the epileptic seizures was achieved, maintaining normal ammonia levels, and he was discharged from hospital with outpatient treatment based on oxcarbazepine and levetiracetam.

Conclusion and relevance Medication overdose to reverse a particular situation can trigger unexpected toxic conditions, which could cause organic or metabolic alterations. An adequate pharmacotherapeutic follow-up could avoid risk situations, especially in the paediatric population.

REFERENCES AND/OR ACKNOWLEDGEMENTS
1. Special thanks to the paediatric and emergency units.

Conflict of interest No conflict of interest