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Severe valproate poisoning managed with multi dose activated charcoal, haemodialysis and L- carnitine – A case report

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Objective: We describe a case of severe valproate toxicity treated with multi dose activated charcoal and haemodialysis resulting in falling serum valproate levels but persisting encephalopathy and hyperammonemia, treated with L-carnitine and supportive care.

Case Report: A 42 year-old female presented approximately 90 minutes following an intentional overdose of 115 g of enteric-coated sodium valproate (1.1 g/kg). On arrival to the emergency department she was drowsy needing intubation and ventilation within 2 hours, for reduced level of consciousness. Following this 50 g of activated charcoal was given through a nasogastric tube and further 2 doses of 25 g each were given 2 hours apart. Her initial bloods showed pH 7.42, anion gap (AG) 14 mmol/L, serum sodium 145 mmol/L, serum calcium 2.40 mmol/L, serum valproate level 896 mg/L (therapeutic range 50 – 100 mg/L) with normal kidney and liver functions. Haemodialysis was started 8 hours post presentation due to worsening metabolic acidosis (pH 7.28, AG 21 mmol/L) and rising valproate level (2032 mg/L) and continued for 6 hours.¹ Serum ammonia level was 101 umol/L at the start of dialysis dropping to 58 umol/L at the end of dialysis together with a valproate level of 438 mg/L. The valproate level continued to decline but at 22 hours the ammonia level rose to 129 umol/L with the patient remaining delirious. She was kept intubated and given L-carnitine, loading dose of 3 g intravenously and then 1.5 g Q4H for 1 day, then 1.5 g Q12H 2 more days and ceased when the ammonia level was 36 mmol/L and no longer delirious.^{2,3} She was extubated on day 5 but had to be re-intubated due to stridor caused by vocal cords oedema and then extubated 4 days later and remained stable.

Conclusion: In acute severe valproate poisoning with persisting encephalopathy and hyperammonemia despite falling valproate levels, treatment with L-carnitine may be of benefit but did not reduce the length of stay in the intensive care unit.