



Poison HOTLINE

1-800-222-1222

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Did you know

The IPCC is occasionally contacted by health care providers to “medically clear” a patient and/or provide a letter stating the patient can be dismissed or transfer to inpatient behavioral health treatment.

The IPCC provides treatment recommendations and risk assessment for a poisoned patient, along with appropriate observation times. Since IPCC staff are not physically present at the patient’s bedside, do not have access to all the patient’s clinical reports and cannot directly assess the patient, “medical clearance” is best left to the discretion of one of the patient’s bedside providers with consultative input from the IPCC staff.

Levocarnitine for Valproic Acid Toxicity

Valproic Acid (VPA) is an anticonvulsant that is used to treat a variety of seizure disorders, bipolar affective disorder, chronic pain and in migraine headaches prophylaxis. Patients who overdose on VPA often present with CNS depression, vomiting and tachycardia. With severe toxicity, however, patients may have significant CNS depression, tachycardia, hypotension, QT_c prolongation and respiratory depression. Seizures and cerebral edema are not common.

An effect that can be seen a VPA overdose, and occasionally in therapeutic dosing, is hyperammonemia. VPA depletes hepatic carnitine stores, resulting in inhibition of fatty acid metabolism. This can then result in chronic fatty liver. VPA also depletes CoA stores in the liver. Depletion of CoA affects the function of the enzyme carbamyl phosphate synthetase I, which is needed to incorporate ammonia into the urea cycle. The combination of carnitine deficiency and enzyme inhibition leads to hyperammonemia.

When patients present following a VPA overdose, IPCC recommends checking a VPA level and an ammonia level, in addition to the “standard overdose” labs (APAP, ASA, EtOH, etc.). The VPA and ammonia levels should be drawn every 4 to 6 hours until a downward trend is established. Those patients with hyperammonemia, hepatotoxicity, a [VPA] ≥ 450 mg/L, or who are at high risk (children and those with large ingestions), the IPCC will recommend treatment with levocarnitine (L-carnitine).

Patients who are not acutely ill (no symptoms, normal LFTs, and normal ammonia level) can be treated with oral L-carnitine. The dose is 50-100 mg/kg/day, to a maximum of 3 grams/day, divided every 8 hours.

Patients who are acutely ill (symptoms described above) require treatment with IV L-carnitine. The loading dose is 100 mg/kg (max 6 grams) infused over 30 minutes. Followed by maintenance infusion of 15 mg/kg every 4 hours, infused over 10-30 minutes. If the IV formulation of L-carnitine is not available, larger oral doses have been given until the IV formulation can be obtained. The oral dosing is NOT a substitute for IV dosing due to the poor bioavailability of the oral formulation.

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