

toxtidbits

THE MARYLAND POISON CENTER'S MONTHLY UPDATE.
NEWS. ADVANCES. INFORMATION.

L-Carnitine Use in Valproic Acid Toxicity

L-Carnitine, a water soluble amino acid, is indicated in the management of patients that develop hyperammonemia (serum ammonia concentrations >80 µg/dL) and hepatic toxicity associated with both therapeutic dosing and acute overdose of valproic acid. Valproic acid is commonly used in the management of seizure and psychiatric mood disorders. Deficiencies in dietary intake and endogenous production of L-carnitine increase the risk of developing hyperammonemia following valproic acid exposure. High ammonia concentrations may produce encephalopathy characterized by altered mental status or seizures and possibly death if not recognized.

INDICATIONS

Supplementation with L-carnitine is recommended in patients with a history of chronic or acute exposure to valproic acid and:

- Ammonia concentrations > 100 µg/dL and no symptoms
- Ammonia concentrations >80 µg/dL and altered mental status
- Pediatric patients presenting with valproic overdose

AVAILABLE DOSAGE FORMS

- L-carnitine injection 200 mg/mL (Carnitor®)
- L-carnitine oral solution 1 g/10mL (Carnitor®)
- L-carnitine oral tablet 330mg (Carnitor®)

DOSING FOR HYPERAMMONEMIA

For symptomatic patients with hyperammonemia:

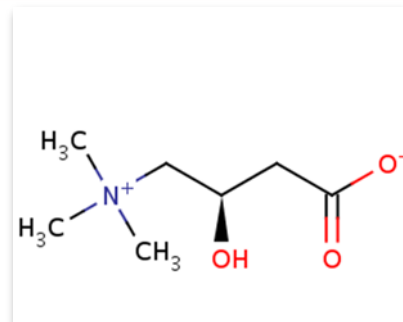
Loading dose of 100 mg/kg intravenously (6 g maximum) over 30 minutes followed by maintenance doses of 15 mg/kg every 4 hours over 10-30 minutes.

For asymptomatic patients with hyperammonemia:

Oral doses of 100 mg/kg/day divided every 6 hours (3 g/day maximum).

Adverse effects are rare and usually gastrointestinal in nature. **Call the Maryland Poison Center for help with the management of all exposures to valproic acid.**

Paul Starr, PharmD, DABAT
Maryland Poison Center



Did you know?

L-carnitine is also used as a dietary supplement.

Its function as a facilitator in the conversion of fatty acids to energy has spurred the use of L-carnitine in body building and weight loss. It has also been taken with HIV medications for its anti-oxidant properties. It is thought to be helpful in angina patients and has been used to control symptoms of asthma and decreased pulmonary function. Some use L-carnitine to treat hyperthyroidism.

Most of the L-carnitine body load comes from diet, predominately red meat, dairy products and avocados. Nearly fifty per cent is biosynthesized in the liver and kidneys.

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