IOWA STATEWIDE POISON CONTROL CENTER

Poison HOTLINE

Partnership between Iowa Health System and University of Iowa Hospitals and Clinics

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Did you know ……

Antidotes can play a crucial part in the management of critically poisoned patients. However, antidotes are only available for a small number of drugs and chemicals.

No universally accepted list of mandatory antidotes and stocking doses has been developed.

If you have a patient that you suspect requires the use of an antidote, expert advice is available 24/7 from the ISPCC by calling **1-800-222-1222**. Download an antidote poster from the ISPCC website at: http://www.iowapoison.org/iapoison/pdfs/IA_Antidote%20Poster.pdf

Keep Your Cool: Treating Ethylene Glycol (Antifreeze) Ingestions

Ethylene glycol (EG) is found in antifreeze & deicing solutions. Metabolic acidosis, renal failure and hypocalcemia are caused by the metabolism of EG to several organic acids and eventually to calcium oxalate. Blocking the metabolism of EG is tremendously important in the treatment of EG ingestions.

Symptoms

EG intoxication is divided into three stages. Stage 1 symptoms are similar to that of ethanol intoxication: confusion, ataxia, hallucinations and slurred speech. Stage 2 (6-12 hours post-ingestion) is characterized by severe metabolic acidosis, CNS depression or coma, tachycardia, tachypnea and hypocalcemia. Most deaths occur during this stage. In Stage 3, renal failure (with an increased creatinine) becomes apparent, usually within 24 to 72 hours after ingestion. An elevated measured serum osmolality combined with an elevated anion gap strongly suggestes EG poisoning. However, the absence of an elevated measured serum osmolality DOES NOT rule out a significant ingestion. Calcium oxalate crystals may be present in the urine.

Treatment

EG is rapidly absorbed from the stomach and gastric lavage is usually ineffective. EG is not absorbed by activated charcoal, thus AC is not indicated for EG ingestions. An alcohol dehydrogenase inhibitor (ADHI), either ethanol or fomepizole, will prevent EG from being metabolized. One of the ADHI's should be given if there is an EG level >20 mg/dL, the patient's history is consistent with ingesting toxic amounts of EG, or there is a strong clinical suspicion of EG ingestion with either acidosis or elevated serum osmolality or urinary oxalate crystals. ADHI treatment must be continued until the EG level is < 20 mg/dl, and the patient is without symptoms or acidosis. Indications for dialysis include severe or persistent acidosis, renal failure or an EG level > 50 mg/dl. Dosing of both ethanol and fomepizole must be adjusted during dialysis. Following dialysis there can be a rebound increase in the EG level and dialysis may need to be repeated. Sodium bicarbonate, pyridoxine and thiamine are additional therapies which are used in the treatment of EG ingestions.

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POISON Help 1-800-222-1222

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