



Poison HOTLINE

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

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Did you know

Poison centers help people of all ages in all kinds of poisoning situations. The service is also used by health care providers; over 25% of calls to the ISPCC each year are placed from health care facilities. Learn more about poison centers and how they can assist pharmacists, nurses, and physicians in their professional roles by visiting the website below and viewing the Poison Centers 101 module.

CE credit is available for physicians, pharmacists and nurses until 09/28/12.

The Poison Centers 101 module is available at <http://pssc.aphanet.org/resources2/pssc-presentations/#elearning>

Urine and Serum Alkalinization in Toxicology

Salicylates (acetylsalicylic acid, etc) are weakly acidic chemicals and alkalinization of the urine will hasten their elimination through the kidney. Alkalinization also treats the metabolic acidosis caused by salicylates and helps decrease the movement of salicylates into the CNS. Indications for alkalinization are tinnitus, agitation, confusion, lethargy, seizures, serum salicylate levels of 50 mg/dL or above, and patients requiring dialysis. Respiratory alkalosis is not a contraindication to alkalinization. The goal of urinary alkalinization for salicylates is a urine pH of 7.5 to 8.

Tricyclic Antidepressants (amitriptyline, nortriptyline, etc) in overdose block cardiac sodium channels causing cardiac conduction abnormalities, manifest primarily by a prolonged QRS interval. With a QRS wider than 100 mSec, seizures are seen in 33% of the patients and ventricular arrhythmias occur in 14%. When the QRS is 160 mSec or more, the rate of ventricular arrhythmias increases to 50%. These sodium channel blockade effects are why the ISPCC's nurse specialists ask for the QRS measurements on patients with TCA overdoses. Alkalinization decreases the amount of free TCA in the serum and helps reverse the sodium channel blockade effect, leading to a narrowing of the widened QRS and decreasing the chance of complications. Goal of alkalinization in a TCA overdose is a serum pH of 7.50 to 7.55.

Other Uses of Alkalinization Ethylene glycol, methanol and metformin can cause a serious metabolic acidosis and alkalinization is used to treat the acidosis. **NOTE:** Urinary alkalinization is not a "cure-all" for overdoses and there are only a very small number of drugs whose elimination can be affected by increasing urinary pH.

Recommended Alkalinization Procedure Sodium bicarbonate is given as 1-2 mEq / kg IV push and then an IV infusion of NaHCO₃ is started. For the infusion, mix 2-3 amps of NaHCO₃ in 1 liter of D₅W with 40 mEq of potassium and begin the infusion at 1.5 to 2 times the normal maintenance rate for the patient's size. NaHCO₃ should be mixed in D₅W for the infusion, not 0.9% nor 0.45% normal saline since adding the NaHCO₃ to saline will result in an IV solution with a very high sodium content. Titrate the infusion (with or without repeat boluses) to achieve a serum pH of 7.50 to 7.55 and / or a urine pH of 7.5 to 8. Potassium needs to be followed and replaced to prevent hypokalemia.

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**POISON
Help**
1-800-222-1222

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