

EM Basic- Aspirin (ASA) Overdose

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Background

Aspirin aka acetylsalicylic acid → hydrolyzed to salicylate in intestinal wall, liver, and RBCs

Other preparations containing salicylate – salicylic acid (acne and warts), bismuth subsalicylate (Pepto-Bismol-antidiarrheal), methyl salicylate (oil of wintergreen-cream for MSK pain)

History

Ask for ALL poisonings:

What did you take?

Dosage – dose per tablet and how many tablets?

Time?

Suicide attempt?

Single ingestion or repeated ones?

Any coingestants?

Any comorbid conditions?

Associated signs and symptoms

Nausea/vomiting, tinnitus, hearing loss, AMS, SOB, hyperpnea, diaphoresis

Medical history/Medications

Any conditions requiring chronic aspirin use?

Exam

General – A & O x 3? Confused? Agitated? Restless?

Vital Signs – Tachypnea, hyperthermia, hypotension, or tachycardia?

Lungs – Hyperpnea? Crackles or signs of pulmonary edema?

GU – oliguria?

Labs

Serum salicylate level (10-30 mg/dL = therapeutic; >40 = toxicity)

BMP (anion gap, kidney function, hypoglycemia, hypokalemia)

ABG (most patients have primary respiratory alkalosis and primary metabolic acidosis)

EKG (occult ingestion-TCAs cause widening of QRS, QTc prolongation, R wave in aVR)

Serum acetaminophen level (occult ingestion- common coingestion in suicide, part of combo preparations with ASA such as Excedrin)

PEARL – an EKG and serum acetaminophen level should be ordered in ALL intentional poisonings to r/o occult ingestions

Imaging

CT Head – if patient has AMS not clearly d/t a non-cerebral cause such as hypoglycemia

CXR – if patient c/o SOB or there are any + findings on lung exam

Management

ABCs

O₂ as necessary

Replace insensible fluids losses: NS at 10-15 ml/kg/hr first 2-3 then titrate to urine output of 1-2 ml/kg/hr

PEARL – only intubate if pt has rising CO₂ (intubation can worsen acid and cause ↑ CNS toxicity)

Activated Charcoal (AC) – 1 g/kg up to 50 g PO (only in acute cases)

Dextrose – add 50-100 g dextrose to each liter of maintenance fluid

PEARL – dextrose given regardless of serum glucose concentration bc can still have decreased cerebral glucose (neuroglycopenia)

Bicarbonate - 1-2 mEq/kg IV bolus, then infusion of 100-150 mEq in 1 sterile water with 5% dextrose; titrate until pH is 7.5-8

Potassium – bicarb ↓ K⁺ level, so add K⁺ to fluids if in low normal range

PEARL – an alkalyotic pH is NOT a contraindication to bicarb therapy

Hemodialysis

Indications

- Serum salicylate level > 100 mg/dL in acute; > 50 in chronic
- Endotracheal intubation other than for coingestants
- Oliguric renal failure
- Pulmonary or cerebral edema
- AMS
- Clinical deterioration despite appropriate supportive care

Patient Monitoring

- Continuous respiratory and cardiac monitoring
- Serial serum salicylate levels q 1-2 hours until these criteria met:
 - Decrease from peak measurement
 - Most recent measurement < 40 mg/dL
 - Pt asymptomatic with normal rate and depth of breathing
- Serial BMPs, ABGs, and urine pH levels q 1-2 hours

PEARL: Do not stop monitoring ASA levels until they are downtrending.
Classic mistake is to admit patient to a psych floor with one
“therapeutic” ASA level when it is still rising.

Disposition

Acute intoxication – admit for pulmonary edema, CNS symptoms other than tinnitus, acidosis and electrolyte disorders, dehydration, renal failure, or increasing serum salicylate levels

Chronic intoxication – high mortality rate, most admitted

Infant intoxication – all admitted

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