

ASPIRIN INTOXICATION

(Last updated 05/02/2019; Reviewers: Naresh Veerabattini, MBBS; Rudy Tedja, DO)

PRESENTING COMPLAINT: Drug Overdose history, seizures, vomiting

FINDINGS

- A Check airway
- B ↑RR, ↑depth of respiratory effort
- C ↓BP, ↑HR
- D Variable altered (V,P,U,D)*
- E Fever (hyperthermia), Tinnitus.
- Lpc 1) Serum salicylate on admission(>40mg/dl- mostly intoxication) and repeat every 2 hours until two continued levels show a ↓ trend
2) ABG- Early phase - ↓Pco₂, ↑PH(primary respiratory alkalosis)
Delayed phase - mixed primary respiratory alkalosis-primary metabolic acidosis.
3) Others- creatinine, electrolytes, coagulation studies, lactate.
- Upc Hyperechoic focus consistent with ingested pills within the stomach.

*V (verbal), P (pain), U (unconsciousness), D (delirious)

PC (point-of-care)

OTHER HISTORY

- Predisposing conditions: Patients with a history of drug abuse, suicidal
- Symptoms:
 - Mild toxicity: lethargy, nausea, vomiting, tinnitus, dizziness
 - Moderate toxicity: mild toxicity symptoms + fever, ↑RR, dehydration, sweating, loss of coordination, restlessness
 - Severe toxicity: ↓BP, acute kidney injury, metabolic acidosis, pulmonary edema and CNS features (coma, seizures)

DIFFERENTIAL DIAGNOSIS

Overdose of another substance such as tricyclic antidepressant

OTHER INVESTIGATIONS

- Severity Score of plasma salicylate concentration
 - Mild toxicity: 300-500 mg/L or 30-50 mg/dL

- Moderate toxicity: 500-700 mg/L or 50-70 mg/dL
- Severe toxicity: >750 mg/L or >75 mg/dL
- Therapeutic salicylate level: 100-300 mg/L or 10-30 mg/dL
- Labs:
 - Serum salicylates on admission and repeat levels
 - Caveat: may not be accurate if measured less than 6 hours of ingestion because of pylorospasm, bezoar formation, or the use of enteric-coated tablets
 - Salicylate levels may not peak until more than 12 hours after ingestion of enteric coated tablets, may peak as late as 35 hours after ingestion
- Monitoring:
 - Serum salicylate levels every 2 hours until peak level is reached.
 - Acidemia: ABG every 4 hours
 - Urine pH every 4 hours
- Imaging: CT head without contrast to rule out cerebral edema

THERAPEUTIC INTERVENTIONS

- Prevention of further absorption
 - If taken within 2 hours, 50 gr oral activated charcoal.
 - In patients who have ingested enteric-coated or sustained release preparation, repeated doses of activated charcoal are recommended to reduce the ongoing reabsorption.
 - Protect patient's airway
- Increase the elimination of the drug
 - Urine alkalinization with the administration of sodium bicarbonate infusion
 - The goal is urine pH >7.5
 - Hypokalemia must be corrected or prevented for alkalinization to be effective
- Hemodialysis is indicated if:
 - Altered mental status
 - Cerebral edema or seizures
 - Acute kidney injury with oliguria or anuria
 - Non-cardiogenic pulmonary edema
 - Severe anion-gap metabolic acidosis
 - Plasma concentration of >1000 mg/L or >100mg/dL
 - Clinical deterioration despite aggressive and appropriate supportive care
- Contact/consult:
 - American Association of Poison Control at (800)222-1222, 24 hours, 7 days a week
 - Nephrology consultation

ONGOING TREATMENT

- Follow up:
 - Monitor serum salicylates level to ensure the level is not increasing because of continued absorption, particularly with ingestion of extended-release/enteric coat formulation
 - Monitor urine pH to reach goal pH >7.5

- Monitor presence of hypokalemia
- Monitor blood pH to keep blood pH <7.55
- Monitor serum glucose
- Further diagnostics:
 - Serial serum salicylates
 - Serial urine pH every 4 hours
 - Serial arterial blood gases every 4 hours
 - Serial serum glucose every 4 hours
- Further treatment:
 - Continue sodium bicarbonate infusion until salicylate levels are undetectable
 - Maintain normokalemia
 - Maintain normoglycemia
- Prophylaxis: none

CAUTION

- Be careful to preserve minute ventilation requirements during intubation/mechanical ventilation
- Acetazolamide is contraindicated in the standard management of salicylate poisoning because bicarbonate loss in urine promotes metabolic acidosis which promotes salicylates movement to the brain.
- Complications: Cardiac arrest, seizures, coma

REFERENCES & ACKNOWLEDGMENTS

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