

Unintentional overdose with over-the-counter salicylate products in an elderly patient.

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Abstract

Introduction: There are several different forms of salicylate-containing substances on the market today. There is increasing concern regarding the risk of consumers unintentionally misusing over the counter (OTC) medications containing salicylates. Salicylates are used to relieve pain and inflammation, to reduce fever, and to prevent blood clotting. The most well known is aspirin, or acetyl salicylic acid. One of the most popular forms is Anacin, containing aspirin and caffeine. An old medication, it has been popular since the 1930s. Salicylates can also be found in bismuth salicylate (Pepto Bismol) and oil of wintergreen. It is imperative that emergency medicine clinicians recognize the wide array of over-the-counter substances containing salicylate, and signs and symptoms of acute ingestion to quickly prescribe the appropriate treatment. Additionally, many of the signs and symptoms are not initially evident, especially in the elderly, and may be mistaken for dementia or delirium. The purpose of this article is to discuss common OTC medications containing salicylates, the signs and symptoms patients may display, and current trends in the treatment of this toxic syndrome.

Case Presentation: A 79-year-old woman presented to a community hospital in Corinth, Miss., with altered mental status and hallucinations with a fall at home. She had a history of dementia and chronic arthritis. The patient's son mentioned that his mother takes Anacin excessively. She does not remember how many pills she takes most of the time for her chronic knee pain, likely due to her chronic dementia. She had been warned repeatedly about this medication, but has a friend to get it for her from a local drug store. Her physical exam demonstrated tachypnea and tachycardia, altered mental status, and visual hallucinations. In an elderly patient with altered mental status, the differential diagnosis includes, but is not limited to, hypoxia, encephalopathy, stroke, intracranial hemorrhage, infection, nutritional deficiencies, pain, myocardial ischemia, electrolyte abnormalities, medication interactions, seizure and trauma.

The patient's workup included a complete blood count (CBC), complete metabolic panel (CMP), urinalysis with drug screen (UA and UDS), point of care blood glucose, electrocardiogram (EKG), troponin, portable chest x-ray, arterial blood gas, and computed tomography (CT) scan of head. Patient's test results revealed an unremarkable CBC, CT scan of head, and chest x-ray. Her CMP revealed a normal blood sugar of 94 mg/dL, but a decreased bicarbonate of 9, and mild acute kidney injury, with a BUN 26 and creatinine of 1.3. The troponin level was increased at 0.435. Her ABG revealed a metabolic acidosis with a compensating respiratory alkalosis, with a pH of 7.376, pCO₂ of 11 and bicarbonate of 6.7. Patient's urinalysis revealed a pH of 5.0, large ketones, and moderate blood. She was also positive for a urinary tract infection. Her initial serum salicylate level was significantly increased at 61.5 mg/dL (upper therapeutic limit, 30mg/dL), consistent with a chronic ingestion. In an acute ingestion, salicylate levels may be as high as 90-100 mg/dL.

Final/Working Diagnosis: Chronic Salicylate Toxicity

Management/Outcome/Follow-up: In the emergency department, poison control was consulted, and the patient was started initially on intravenous sodium bicarbonate 1-2 mEq bolus, followed by 150 mEq of bicarbonate mixed with of one liter of D5W. This was run at 250mL/hr. Since this was not an acute ingestion, activated charcoal was not

indicated. In the medical intensive care unit, she had potassium replacement and acute hemodialysis, with the bicarb drip continuing at declining rates over the next several hours. Her serum salicylate level continued to trend down to 4.1 mg/dL upon discharge.

Learning Objectives

Upon completion, attendees should be better prepared to:

- 1) Recognize over-the-counter substances containing salicylate.
- 2) Summarize the chronic symptoms of salicylate toxicity.
- 3) Identify the medications or treatment to reverse salicylate toxicity.

Tables and/or Figures

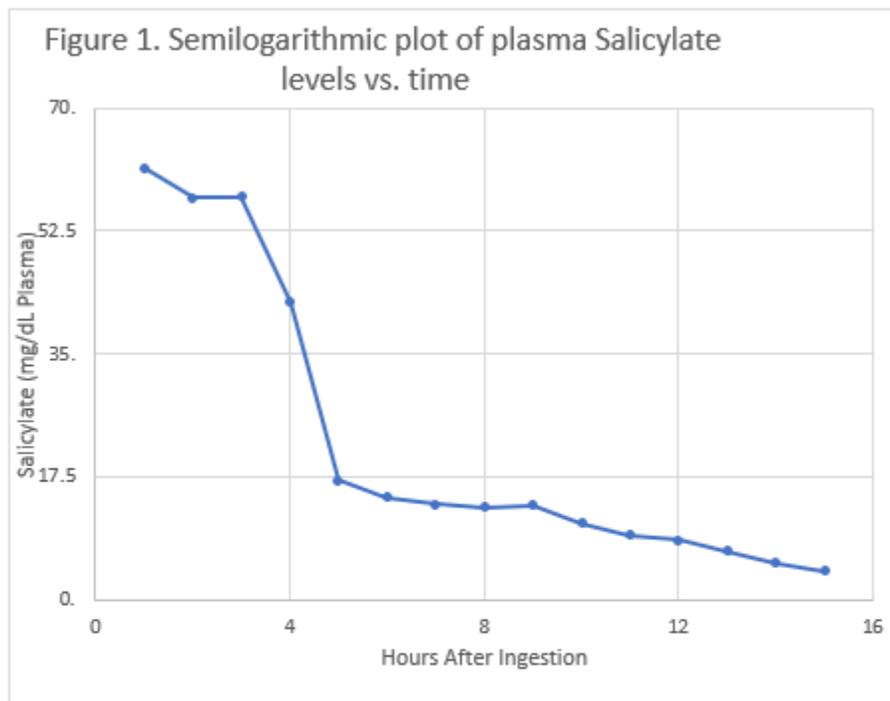


Figure 1. Salicylate levels were measured at 15 points over 16 hours of a 79-year-old-female with a history of dementia and acute neurologic symptoms due to salicylate toxicity. The initial salicylate level was significantly increased at 61.5 mg/dL (upper therapeutic level is 30 mg/dL), indicating chronic salicylate toxicity. Serum salicylate levels decreased following treatment that included intravenous sodium bicarbonate, which began at hour of presentation to the emergency department, and hemodialysis in the MICU.