Salicylate Intoxication in the Elderly
Recognition and Recommendations on How to Prevent It

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Summary

Aspirin (acetylsalicylic acid) and its salicylate derivatives are effective antipyretic, analgesic, and anti-inflammatory agents that are still very widely used by the elderly despite the advent of newer, potentially safer nonsteroidal anti-inflammatory drugs (NSAIDs). However, none of the new NSAIDs have been proven to be more effective than aspirin or salicylic acid. Chronic salicylate intoxication which is most common in the elderly, may occur with therapeutic doses. Increased toxicity in older patients often appears due to inadvertent overdose. Dual prescribing or additional use of nonprescription salicylates are some causes of unwitting long term toxicity.

According to some studies, systemic clearance of salicylate (mainly by hepatic metabolism) is reduced with age, as is renal elimination. These changes are of increased importance in the elderly using high therapeutic doses of salicylates when metabolism is saturated and more unchanged drug is available for renal excretion. In the face of renal impairment, the risk of toxicity is increased.

The diagnosis of acute salicylate intoxication generally does not pose diagnostic problems. Patients often present with a history of intentional overdose, with hyperventilation, fever, and nausea. The diagnosis can be confirmed by measuring serum salicylate concentrations. Chronic intoxication often poses a diagnostic dilemma with atypical presentations mimicking other disease states such as diabetic ketoacidosis, delirium, cerebrovascular accident, myocardial infarction or cardiac failure. The diagnosis of salicylate intoxication should be borne in mind when an older patient presents with recent deterioration in activities of daily living with no known cause. Plasma salicylate concentrations should be measured if salicylate intoxication is suspected, even if there is no documented history of salicylate ingestion. The risk of salicylate nephrotoxicity is also increased with age, and upper gastrointestinal haemorrhage is associated with increased mortality in older age groups.

Treatment of acute toxicity consists of prompt recognition of salicylate intoxication, use of activated charcoal, correction of acid-base abnormalities, general supportive measures, and if concentrations are extremely high, dialysis can be effectively used. Chronic toxicity, which can occur even with marginally high salicylate concentrations, is treated with drug withdrawal and supportive therapy.

Chronic salicylate toxicity can be averted by prescription of conservative doses of drug, avoidance of concomitant use of different salicylate preparations, and therapeutic monitoring to guide dosage. Renal function should be monitored to detect nephrotoxicity from chronic salicylate therapy. Patients should be regularly screened for evidence of gastrointestinal bleeding. Use of aspirin and other NSAIDs should be avoided, if possible, in older patients with a history of upper gastrointestinal haemorrhage. If aspirin therapy is required, misoprostol prophylaxis can be employed.

1. Salicylates

Aspirin (acetylsalicylic acid) and the nonacetylated salicylates are used primarily for their anti-inflammatory and analgesic activities in the treatment of chronic arthritic conditions, in certain soft tissue disorders associated with pain and inflammation, and as analgesics in relief of headaches and other painful conditions. Thus, they are widely used in the elderly population in whom many of these conditions are common (Bjelle 1989). Aspirin and other salicylates are widely available with and without prescription in a variety of preparations including buffered, buffered suspension, enterico-coated and sustained release aspirin; as sodium salicylate, choline salicylate, and salsalate (salicylic salicylate), along with newer derivatives, such as alovepin, benorilate and diflunisal.

Acute and chronic intoxication from aspirin and salicylate preparations are common, with the acute form occurring most often in children. By contrast, in older patients the most common form is chronic intoxication. The presentation of salicylate intoxication in the elderly patient often mimics other disease states, resulting in delay in making the correct diagnosis which can lead to increased mortality in this age group (Chapman & Proudfoot 1989 1989; Litovitz et al. 1990; McGuigan 1986, 1987).