

available. Mild hypotension and bradycardia sometimes accompany the syndrome, but frequently no clinical signs of catecholamine depletion are evident. There is no known antidote.

The hallmark of the syndrome is marked somnolence. Our patient underwent many painful procedures, including oral tracheal intubation, without any response whatsoever.

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Use of Bromelain for Mild Ulcerative Colitis

To the Editor: Ulcerative colitis is a chronic condition characterized by inflammation of the mucosal layer of the colon. Despite multiple treatments, some patients continue to be symptomatic and seek alternative therapy. We describe two patients who achieved clinical and endoscopic remission after initiation of bromelain supplementation.

A 67-year-old woman with a history of ulcerative proctitis continued to have three to four bloody bowel movements per day despite adequate doses of sulfasalazine, mesalamine, and topical steroids. She discovered bromelain at a nutrition/herbal store after researching "digestive aids" and anti-inflammatory drugs. Within a week of taking two tablets of bromelain at each meal, she was having one formed bowel movement per day without blood or urgency. Endoscopy performed at that time revealed healed mucosa.

The second patient is a 60-year-old woman with a history of left-sided disease; her symptoms continued despite azathioprine, 2 mg/kg of body weight, and topical mesalamine. She had heard about bromelain from a friend who used it for "colonic health." After she took several doses, her diarrhea improved. Endoscopy revealed quiescent disease affecting the splenic flexure.

Bromelain is a proteolytic enzyme isolated from the pineapple stem. Anecdotal use of bromelain alone includes the successful treatment of inflamed joints, dental pain, and postsurgical pain and inflammation, presumably through an anti-inflammatory mechanism, inhibition of platelet aggregation, or fibrinolytic activity. Published reports on bromelain use refer to experimental animal models of inflammation (1) and one double-blinded study in humans revealing efficacy in healing noninfectious cystitis (2).

Bromelain in the treatment of infectious colitis with enterotoxigenic *Escherichia coli* has recently been described (3). This therapy had a proteolytic effect on the specific receptors of K88⁺ enterotoxigenic *E. coli* in the small intestines of piglets, thereby preventing bacterial attachment and subsequent infection. In ulcerative colitis, bromelain may act by way of fibrinolysis, a mechanism not unlike that reported in previous trials with heparin (4, 5).

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Acute Pancreatitis Associated with Celecoxib

To the Editor: We report a case of possible acute pancreatitis associated with the cyclooxygenase-2 inhibitor celecoxib. An 81-year-old man presented with a 2-day history of right upper quadrant pain that began 48 hours after initiation of therapy with celecoxib, 200 mg/d.

The patient's medical history included nephrostomy tubes, chronic renal insufficiency, peripheral neuropathy, hypothyroidism, Paget disease, anemia, gastrointestinal bleeding due to arteriovenous malformations, and osteoarthritis. The patient had undergone cholecystectomy. Long-term medical therapy included carbamazepine, double-strength trimethoprim-sulfamethoxazole DS, enteric coated aspirin, 1,25 dihydroxycholecalciferol, and L-thyroxine.

On admission, vital signs were normal. Laboratory values showed a leukocyte count of $12.6 \times 10^9/L$ with 32% bands. The serum amylase and lipase levels were 6960 U/L (normal, 30 to 115 U/L) and 15 100 U/L (normal, 0 to 200 U/L), respectively. The serum calcium level was 7.7 mg/dL (normal, 8.5 to 10.5 mg/dL), and the serum creatinine level was 4.7 mg/dL (normal, 0.7 to 1.4 mg/dL). Five days later, repeated measurements of serum amylase and lipase levels were 447 U/L and 199 U/L, respectively. The serum calcium level was 8.9 mg/dL. Abdominal computed tomography without contrast showed a diffusely enlarged pancreas with marked peripancreatic edema and inflammatory changes.

The patient was treated with bowel rest, fluid replacement, and hydromorphone. His symptoms subsided within 3 days. Seven days after admission, however, the patient died of gastrointestinal hemorrhage that compromised marginal kidney function.

The literature contains reports of pancreatitis due to various nonsteroidal anti-inflammatory drugs, especially sulindac (1-4). Celecoxib's package insert lists pancreatitis as an adverse reaction, with an incidence less than 0.1% (5).

Drug-induced pancreatitis due to carbamazepine or sulfonamides has been described in the literature (4). Our patient had tolerated these medications during long-term therapy. He had no history of alcohol abuse, biliary tract disease, hyperlipidemia, or hypercalcemia.

In addition to being a nonsteroidal anti-inflammatory drug, celecoxib contains a sulfa moiety. The coadministration of trimethoprim-sulfamethoxazole or carbamazepine may have contributed to the pancreatitis associated with celecoxib.

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