A food poisoning outbreak in St. Louis, MO, has officials there scratching their heads. At least 10 patrons of 2 area restaurants have fallen ill with an unusual fish-borne illness called ciguatera. The Food & Drug Administration (FDA) is investigating the outbreak, which is unusually large, as only about 30 cases of ciguatera are reported in the US each year. All of the people involved in the St. Louis ciguatera outbreak ate amberjack, a tropical fish, at either the Blue Water Grill in Kirkwood or Frazer's Restaurant and Lounge in St. Louis.

Ciguatera presents primarily as an acute neurologic disease manifested by a constellation of gastrointestinal (diarrhea, abdominal cramps and vomiting), neurologic (paresthesias, pain in the teeth, pain on urination, blurred vision, temperature reversal) and cardiovascular (arrhythmias, heart block) signs and symptoms within a few hours of contaminated fish ingestion. The pathneumonic symptom of Ciguatera intoxication is hot/cold temperature reversal, although not all patients report this. Ciguatoxin usually causes symptoms within a few minutes to 30 hours after eating contaminated fish.

The attack rate has been reported to be 73%-100% with ingestion of contaminated fish, without any apparent age-related susceptibility. Acute fatality, usually due to respiratory failure, circulatory collapse or arrhythmias, ranges from 0.1% to 12% of reported cases; presently in the Pacific, the mortality is less than 1%. Lethality is usually seen with ingestion of the most toxic parts of fish (i.e., the liver, viscera, roe and other organs).

The clinical picture may be variable among individuals, even with the same food source, different ethnic groups, and possibly with different types of fish and/or geographic location. It appears that ciguatera from consumption of carnivore species may be more toxic than that from consumption of herbivores due to exposure to more than one toxin and/or transformation of the toxin(s) and/or an increased dose response. In Polynesia, Ciguatera is dominated and initiated by neurologic symptoms (90% of patients report paresthesias and dysesthesia), while reports from the Caribbean suggest that Ciguatera initially presents acutely as a gastroenteritis often with associated cardiovascular symptoms, with the gradual onset and dominance of neurologic symptoms over the first 24 hours. This may be due to different toxins mixtures elaborated by Caribbean and Polynesian G. toxicus. A single-celled marine algae called Gambierdiscus living on seaweeds is the cause. They produce a substance that is transformed into a toxin when reef fish graze on seaweed and consume the Gambierdiscus cells; larger fish eat the grazing fish, passing the accumulated toxin up the food chain, eventually to people. The symptoms of...
Ciguatera poisoning, especially the paresthesias and weakness, can persist in varying severity for weeks to months after the acute illness. Prolonged itching due to chronic Ciguatera can present as a dermatologic disease when it is really due to ciguatera paresthesias. Chronic ciguatera can also present as a psychiatric disorder of general malaise, depression, headaches, muscular aches, and peculiar feelings in extremities for several weeks. It is reported that those with chronic symptoms seem to have recurrences of their symptoms with the ingestion of fish (regardless of type), ethanol, caffeine, and nuts 3 to 6 months from initial ingestion.

Diagnosis of marine toxin poisoning is generally based on symptoms and a history of recently eating a particular kind of seafood. Laboratory testing for the specific toxin in patient samples is generally not necessary because this requires special techniques and equipment available in only specialized laboratories. If suspect, leftover fish or shellfish are available, they can be tested for the presence of the toxin more easily. Identification of the specific toxin is not usually necessary for treating patients because there is no specific treatment.

Medical treatment has been to a large extent symptomatic; a variety of agents, including vitamins, antihistamines, anticholinesterases, steroids and tricyclic antidepressants, have been tried with limited results. Gut emptying and decontamination with charcoal is recommended acutely although often the severe ongoing vomiting and diarrhea prevents this. Atropine is indicated for bradycardia, and dopamine or calcium gluconate for shock. It is recommend that opiates and barbiturates be avoided since they may cause hypotension, and opiates may interact with maitotoxin. With apparent considerable success, at least acutely, mannitol infusions have been used. Mannitol appears to be most effective in completely relieving symptoms when given within the first 48-72 hours from ingestion.

There appears to be a sensitivity to certain foods (ie. ingestion of fish (regardless of type), ethanol, caffeine, and nuts) after ciguatera poisoning and these should be avoided for 3 to 6 months after the illnesses. In addition, there is no immunity to this illness and recurrences of actual ciguatera in the same individual appear to be worse than the initial illness.

If you have any questions call Poison Control Marine Hotline: 1-888-232-8635