



FLORIDA DEPARTMENT OF HEALTH

CAUSATIVE AGENT: Neurotoxic Shellfish Poisoning (NSP) is caused by the consumption of molluscan shellfish (e.g. clams, oysters, coquinas, mussels and other filter feeders) contaminated with brevetoxins, which are produced by a marine dinoflagellate called *Karenia brevis*. *K. brevis* is principally distributed throughout the Gulf of Mexico and occasionally along the mid- and south-Atlantic Coast. Commonly referred to as “Florida red tides,” blooms of *K. brevis* most often occur during late summer and fall but can be present any time of the year.

SIGNS/SYMPTOMS: Initial complaints typically include abdominal pain, nausea, vomiting, and diarrhea accompanied by progressive paresthesia, which first affects the areas of the mouth and later the extremities. Other common symptoms include ataxia, myalgia, headache, and vertigo. Paradoxical temperature sensation (reversal of hot and cold sensations), as seen in Ciguatera Fish Poisoning, has also been reported in NSP. In more severe cases of NSP, dilation of the pupils and bradycardia may also be observed. There is poor understanding of chronic exposures and long term health impacts.

ONSET/DURATION: Onset of symptoms occurs within minutes to hours, definitely within 24 hours, of consuming brevetoxin-contaminated shellfish. Duration of the illness is generally short, lasting from a few hours to several days. Urine analysis by specialty laboratories (such as Fish and Wildlife Research Institute) can confirm exposure with positive tests for brevetoxin. Samples should be preserved at -20°C and shipped on dry ice with overnight delivery. Arrangements must be made with laboratory before submitting samples for analysis.

DIAGNOSIS: Diagnosis is generally based on a clinical evaluation of symptoms and recent food history. The use of an ELISA test for detecting brevetoxin in urine is experimental at this time. Mouse bioassay is the generally accepted technique for testing shellfish; however brevetoxin ELISA and HPLC may also be helpful.

TREATMENT: No specific antitoxin is available. In general, the illness is self-limiting and therapy is supportive and symptom-driven.

RISK GROUPS: All persons are susceptible to NSP. However, young children, the elderly and those individuals with underlying neurologic disease may be at increased risk. Effects on pregnancy and fetal health are unknown.

PREVENTIVE MEASURES: Contaminated shellfish are not detectable by taste or odor. It cannot be removed by cooking, freezing, or other storage or preparation methods. The Florida Department of Agriculture and Consumer Services closes shellfish harvesting areas when *K. brevis* cell counts exceed 5,000 cells per liter. In recent years, most NSP cases have been the result of illegal harvesting of shellfish from closed areas. See www.floridaaquaculture.com/seas/seas_statusmap.htm for shellfish harvesting area status.

REPORTING REQUIREMENTS: NSP cases must be immediately reported to the local county health department pursuant to Section 381.0031 (1), Florida Statutes.

ADDITIONAL INFORMATION

Poison Control Information Center Hotline (24/7 medical information): **1-800-222-1222**

Florida Department of Health: www.floridahealth.gov

AQUATIC TOXINS PROGRAM

Protecting Florida's citizens and visitors from Harmful Algal Blooms and related illnesses through

RESEARCH ♦ SURVEILLANCE ♦ EDUCATION

Neurotoxic Shellfish Poisoning

Reporting code = 98800

Case report form: *N/A*

NO CRF REQUIRED

Clinical case definition

Onset is within a few minutes to a few hours after consumption of epidemiologically implicated shellfish (typically clams, mussels, oysters, whelks, and certain gastropods). Symptoms include tingling and numbness of lips, mouth, fingers, and toes; muscular aches; ataxia, and dizziness and usually accompanied by diarrhea, vomiting and/or nausea. Symptoms sometimes include reversal of hot and cold sensations; pupil dilation; and respiratory distress. Illness is self-limited and generally milder than paralytic shellfish poisoning; some patients have required ICU support for respiratory distress. Duration is from a few hours to a few days.

Laboratory criteria for diagnosis

Detection of toxin (brevetoxin) in epidemiologically implicated shellfish.

Case classification

Confirmed: Clinically compatible illness that is associated with consumption of shellfish with a positive laboratory finding (brevetoxin) or with consumption of shellfish from areas where other toxic shellfish have been found or where red tide is documented (DACS shellfish beds closed in region).

Comment

Contact your regional environmental epidemiologist for information.

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Additional Information

Florida Department of Health: www.floridahealth.gov

Select "Diseases & Conditions" > "Disease Reporting and Surveillance", or
"Environmental Health" > "Water" > "Aquatic Toxins" > "Shellfish Poisonings"