



CASE DEFINITION

Brevetoxin

Clinical description

After oral ingestion, brevetoxin poisoning is characterized by a combination of gastrointestinal and neurologic signs and symptoms. The incubation period ranges from 15 minutes to 18 hours. Gastrointestinal symptoms include abdominal pain, vomiting, and diarrhea. Neurologic symptoms include paresthesias, reversal of hot and cold temperature sensation, vertigo, and ataxia. Inhalational exposure to brevetoxin results in cough, dyspnea, and bronchospasm (1-5).

Laboratory criteria for diagnosis

- *Biologic*: Brevetoxin can be detected by an enzyme-linked immunosorbent assay (ELISA) method in biologic samples; however, ELISA of biologic samples is not a certified method for detection of brevetoxin.
- *Environmental*: Any concentration of brevetoxin in environmental samples (5), as detected by a commercial laboratory.

Case classification

- *Suspected*: A case in which a potentially exposed person is being evaluated by health-care workers or public health officials for poisoning by a particular chemical agent, but no specific credible threat exists.
- *Probable*: A clinically compatible case in which a high index of suspicion (credible threat or patient history regarding location and time) exists for brevetoxin exposure, or an epidemiologic link exists between this case and a laboratory-confirmed case.
- *Confirmed*: A clinically compatible case in which laboratory tests on environmental samples are confirmatory.

The case can be confirmed if laboratory testing was not performed because either a predominant amount of clinical and nonspecific laboratory evidence of a particular chemical was present or a 100% certainty of the etiology of the agent is known.

Additional resources

1. Morris PD, Campbell DS, Taylor TJ, Freeman JI. Clinical and epidemiological features of neurotoxic shellfish poisoning in North Carolina. *Am J Public Health* 1991;81:471-4.

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2. Trainer VL, Edwards RA, Szmant AM, Stuart AM, Mende TJ, Baden DG. Brevetoxins: unique activators of voltage-sensitive sodium channels. In: Hall S, Strichartz G, eds. Marine toxins. Washington, DC: American Chemical Society; 1990:166-75.
3. Poli MA, Musser SM, Dickey RW, Eilers PP, Hall S. Neurotoxic shellfish poisoning and brevetoxin metabolites: a case study from Florida. *Toxicon* 2000;38:981-93.
4. Tunik MG, Goldfrank LR. Food poisoning. In: Goldfrank LR, Flomenbaum NE, Lewin NA, Howland MA, Hoffman RS, Nelson LS, eds. *Goldfrank's toxicologic emergencies*. 7th ed. New York, NY: McGraw-Hill; 2002:1085-99.
5. Backer LC, Fleming LE, Rowan A, et al. Recreational exposure to aerosolized brevetoxins during Florida red tide events. *Harmful Algae* 2003;2:19-28.

This document is based on CDC's best current information. It may be updated as new information becomes available. For more information, visit www.bt.cdc.gov/chemical, or call CDC at 800-CDC-INFO (English and Spanish) or 888-232-6348 (TTY).

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