


BOTULISM


Background:

Botulinum toxin is a neurotoxin produced by *Clostridium botulinum*, an anaerobic gram-positive bacillus, and is the most potent toxin known to humans with an estimated lethal dose of one ng/kg. The toxin inhibits release of acetylcholine and can produce a profound flaccid paralysis. Death usually results from hypoxia secondary to respiratory muscle paralysis. In 1999, infant botulism was the most common form reported to the CDC, followed by wound botulism; food-borne botulism was the least commonly reported. Inhalational exposure to botulinum toxin also is possible, but was not reported to the CDC during that time period. A bioterrorist incident may involve food-borne exposure, but inhalational exposure is the most likely form of exposure in a malicious attack. Botulism cannot be transmitted from person to person.

Incubation Period:



-  1) Infant botulism: The incubation period is 2 to 4 weeks.
- 2) Food-borne exposure: GI tract symptoms usually occur first, beginning 18 to 36 hours after ingestion (range 2 hours to 8 days). Neurologic symptoms may develop 12 to 36 hours after ingestion, with the cranial nerves usually affected first.
- 3) Wound botulism: The incubation period is 4 to 14 days. Neurologic symptoms may occur hours after exposure.
- 4) Inhalational exposure: Neurologic symptoms may occur 24 to 72 hours after aerosol exposure.

Signs/Symptoms:

-  1) Infant: Onset ranges from insidious to abrupt. First signs of the illness are in the cranial nerves. The weakness increases over 1 to 4 days. Generalized hypotonia, listlessness, lethargy and poor feeding soon ensue. Descending paralysis is symmetrical. The typical patient has an expressionless face, feeble cry and poor head control. The gag, suck and swallow reflexes are impaired, as well as the corneal reflex, if tested repetitively.
- 2) Food borne: Nausea and vomiting seen early in the course of the disease followed by symmetrical cranial neuropathies (e.g., ptosis, diplopia, blurred vision, mydriasis, sore throat, dysphagia, dysphonia) and descending weakness and paralysis, including involvement of respiratory muscles with respiratory distress leading to respiratory failure. Patients typically are afebrile and do not have an altered level of consciousness.
- 3) Wound: Same as food-borne but without the GI symptoms.
- 4) Inhalational: Same as food-borne but without the GI symptoms.

Laboratory and Diagnostic Testing:

Call the local department of public health and IDPH immediately to inform the state of a possible botulism exposure and to obtain additional instructions before testing. Routine laboratory tests are of limited value.

- 1) Testing available at CDC, and state and municipal public health laboratories
- 2) Draw 5 ml ( 2 ml for pediatrics) in red top tube, also send samples of stool, gastric aspirate and vomitus
-  3) Obtain samples before antitoxin is administered

(continued, next page)

4) *Monitor vital capacity and maintain > 12 ml/kg for pediatrics*

Treatment:

Supportive care, including respiratory support and botulinum antitoxin, are the basics of therapy for poisoned individuals.

Your local department of public health and IDPH must be informed immediately as soon as the diagnosis is suspected. The antitoxin is available only from the CDC; IDPH can help coordinate delivery of the antitoxin. **The CDC recommends that only one 10 ml vial of the trivalent antitoxin be administered to poisoned patients.**