**BOTULISM**

### Epidemiology

**Source:** Soil, food

**Mechanism**
- Ingestion of toxin
- Inhalation of toxin
- Local production of toxin by *C. botulinum* organisms in GI tract
- Local production at site of wound

**Infectious dose:** 0.001 mcg/kg (very low)

**Incubation**
- **Foodborne:** 12-48 hrs (6 hr- 8 d)
- **Infant:** 3-30 d
- **Wound:** 4-14 d

**Clinical:** Acute, afebrile symmetric, descending flaccid paralysis; fatigue, dizziness, dysphagia, dysarthria, diplopia, dry mouth, dyspnea, ptosis, ophthalmoparesis, tongue weakness, facial muscle paresis. No areflexia until affected muscle completely paralyzed.

**Clinical Infant:** <6 mos.; poor feeding, droopy eyelids, constipation, lethargy, bulbar palsies, hypotonia, weakness and loss of head control.

**Complications:** paralysis, breathing failure, death

**Differential:**
- *Myasthenia gravis & LEMS* = Edrophonium test
- *Tick paralysis*
- Acute inflammatory demyelinating polyneuropathy (AIPN) = sensory complaints, rapidly areflexic, rarely begins with cranial nerve dysfunction
- *Magnesium intoxication*

**1 or 2 cases/yr**

### Diagnosis

**Clostridium botulinum** bacillus: toxin types A, B, E, F infect humans; type A= West US; B= East US; E= fish; C & D= birds & mammals; A & B= infants

**Lab Diagnosis**
- Demonstrate *C. Botulinum* organisms (for infant, wound)
- Demonstrate presence of toxin in feces, wound exudate or tissue samples; toxin assay- mouse protection bioassay (MPB); neutralization test
- PCR detect gene for botulinum toxin, not the toxin itself, type specific. Cannot measure if toxin expressed.
- Serology not very useful for diagnosis (small amounts of toxin, rarely antibodies). Immunoprecipitation assay (IPA) compares favorably with MPB

### Treatment

**Adults**
- Equine-derived heptavalent botulinum antitoxin (HBAT) - all toxins (A-F)
- Immediate administration- Do not wait for lab results if botulism is suspected
- 9% of patients treated demonstrate hypersensitivity to equine serum. Severe reactions are rare
- Antitoxin distributed by CDC

**Infants**
- Human-derived antitoxin
- Botulism Immune Globulin Intravenous (BIGIV or BabyBIG)
- Immediate administration- Do not wait for lab results if botulism is suspected
- Regular immunizations (mmr, varicella) should be delayed 5 mos. after treatment with BabyBIG

**Antimicrobial agents** not recommended, esp. for infant botulism

### Control

**Safe practices in food preparation:**
- Avoid food in bulging food containers- gas produced by *C. botulinum*
- Avoid spoiled food
- Proper home-canning methods
- Use of pressure cooker at 240ºF will kill spores
- Boiling for 10 minutes will destroy toxin

**Honey should NOT be given to infants <12 mos.**

**Local & state health dept. should be notified immediately of suspected cases**

**Immunization**
- Available for high-risk laboratory workers

**Eliminate recently ingested toxin via induced vomiting, high enemas, gastric lavage (NOT in infants)**

### http://www.infectiousdisease.dhh.louisiana.gov

(800)256-2748