

Botulism (C. Botulinum)

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Botulism is poisoning by a thermolabile botulinum toxin produced by a Gram-positive bacterium *Clostridium botulinum*. The essence of poisoning is a reduced amount of acetylcholine released from a neuron on the neuromuscular disc. Botulinum toxin is also sometimes referred to as "sausage poison" (lat. *botulus* - sausage).^[1]^[2]

Etiology a pathogenesis

Clostridium botulinum is a G+, anaerobic, sporulating rod that produces the **neurotoxic botulinum toxin** (sausage poison^[1]), which is thermolabile and is formed in anaerobic conditions, often in cans^[2]. The source of the toxin for children tends to be honey bee^[3].

Clinical presentation

The **incubation time** is on average 24 hours (sometimes 6 to 72 hours).^[2]

The classic triad of symptoms should lead to suspicion of botulism:

- 1. Acute, symmetrical, descending flaccid paresis with distinct bulbar palsy.**
- 2. Normal temperature**
- 3. Normal sensitivity**^[4]

- Initially, **GIT symptoms** (nausea, vomiting, diarrhoea, but also constipation), mucosal dryness and profuse sweating appear.^[2]
- Gradually, **nervous disorders** (diplopia, convergence disorder, mydriasis, swallowing disorder and aphonia) appear. The paresis gradually descends to the neck and limb muscles. The course of the infection is temperature-free, fluid is normal, consciousness is not altered.^[2]

When the respiratory and cardiac centres are affected, the patient's life is in immediate danger.^[1]

Diagnostics

- Klinický obraz (triáda).^[4]
- EMG.^[4]
- Detection of toxin in serum and food residues.^[1] It is performed by neutralization experiment on mice. The type of antitoxin is used to infer the type of toxin.^[3]
- Symptoms are similar in people who have ingested the same food.^[1]
- Cultivation of *Cl. botulinum* on anaerobic soils (7-10 days).
- An ELISA of a nasal mucosal sample to detect aerosolized botulinum toxin was developed for military use.^[4]

Differential diagnosis

- In encephalitis, unlike botulism, the finding in the liquor is abnormal.
- Thrombosis of the a. basilaris is excluded by angiography.
- In acute myasthenia gravis, antibodies against the acetylcholine receptor of the neuromuscular disc are present in the plasma.^[1]

Treatment and prognosis

- There are monovalent **sera** for 6 types of *Cl. botulinum* if the antigenic type is known (i.m. application 3-5 days).^[2] If the type is unknown, polyvalent serum is applied at a dose of 10 000 IU. The possibility of treating paresis with strychnine is mentioned.^[2]
- Supportive therapy** is also important. The patient should lie in the reverse Trendelenburg position (i.e. bed raised 20-25% on the head side, patient on the back) for better ventilation. Respiratory support is needed in approximately 20% of adult and 60% of pediatric patients. Fluid and nutrient levels are monitored or supplemented.^[4]
- Lethality** is up to 20% in botulism. The prognosis for survival is favourable, the correction of paresis takes months.^[1]

Links

Related articles

- Bioterrorism
- Botulotoxin
- Clostridium botulinum
- Clostridium difficile
- Clostridium tetani

External links

- Botulismus (czech wikipedia)
- Botulism (english wikipedia)

References

- ws:Botulismus

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