

The bacterium *Clostridium botulinum* and *Clostridium perfringens* and toxins produced

A - Botulinum toxin (botulinum) product from the bacteria *Clostridium botulinum* toxin is the most dangerous in the world.

Characteristics: -

1. Bacteria positive for the dye gram G + ve.
2. obligate anaerobic.
3. Contain (Terminal spore) and the drop is greater than the diameter of the bacterial cell.
4. Bacteria are motile and analyzed for protein (proteolytic) .
5. Produce exotoxin cause serious disease botulism (food poisoning).
6. These bacteria produce spore clearly in culture media Contains free sugars.
7. spore present in soil and dust and in foods and foodstuffs, which encourages germination of spores in the gut and turn into vegetative cells produce toxin that is absorbed through the intestinal walls into the circulation, causing the disease.
8. Considered a neurotoxin which affects the nervous system and is resistant to the acidity of the stomach and secrete enzymes.

Mechanism (mode of action) :-

Associated poison contract nerve (Acetylcholin) in nerve endings and thus prevents muscle contraction, and is the secretion toxin of these bacteria of the most dangerous toxins known global yet, and this poison crash (destroy) degree 80 ° C for a period of 30-40 minutes, and is extracted this poison is pure crystals as 15 g of it be enough to cause poisoning and killing every living organism exists on the surface of the globe, this poison is absorbed in the intestine.

Pathogenicity: -

Get cases of poisoning as a result of the absorption of the poison by the small intestine and be poison Sorted by bacteria within the food products stored in anaerobic conditions.

Toxin of these bacteria could happen to him absorption by the mucous membranes lining the course of respiratory addition to absorbed by the intestine, where the toxin to areas connect nerves to muscles and works on the incidence of death by paralyzing the muscles and respiratory symptoms appear on the rights during the 12-36 hours after eating food contaminated the name of this bacteria, this toxin is different from other kinds of other toxins that there is no reluctance gastrointestinal cause of death and return to the paralysis of respiratory muscles in addition to the paralysis of the muscles of the heart.

B - the poison produced from bacteria *Clostridium perfringens*

Characteristics: -

1. Anaerobic.
2. Composed of central spore sized cell central location (central spore).
3. Bacteria are motile.
4. Bacteria positive for the dye gram G + ve.
5. Has several labels Cl. welchi, Cl. Perfringens, Frankels bacillus.
6. Producing Exotoxin Lecithinase is an enzyme which have effect as (enterotoxin, cytotoxin, neurotoxin) and have several types are:
 1. A: Alpha.
 2. β : Beta.
 3. γ : Epsilon. γ : secreted by all types of *Cl. Perfringens*, it is either the most dangerous species α .

Mechanism (mode of action) : -

Disassembles material Lecithin which is a waxy substance found in cytoplasmic membranes of living cells and the enzyme (Lecithinase) is dismantled, which is one of the main components of the cell membrane.

Pathogenicity: -

This toxin causes serious diseases, including: -

1. Gas gangrene that occurs due to collect large amounts of gases in the infected tissue reactions due to get a result and the effect of the toxin causes muscle necrosis myonecrosis.
2. Food poisoning.
3. Inflammatory cells anaerobic(Anaerobic cellulites), a rare disease where the infected cells in the body surface anaerobic bacteria, which leads to cell death.
4. Disease puerperal fever puerperal sepsis which is an inflammation of the uterus and usually get operations after birth when using unsterilized instruments for the birth process causing the entry of these bacteria into the uterus is called uterine Kankeraa (gangrene uterus).

Detection Lecithinase Alpha toxin or by conducting a test (Naigler test)

Grown bacteria in a straight line in a dish Hawi at the center of Egg-yolk agar center of egg yolk containing material Lecithin is planting after the division of the dish into two sections where the first section contains Antibody for Alpha toxin (Antialphatoxin) and the second section will be free of antibodies after 21 hours of cuddling bacterial colonies begin to grow and appear surrounded by a dark area in the half containing egg yolk only because the egg yolk as a medium is transparent and reason in the dark back to the ability of bacteria to produce the toxin.