بسم الله الرحمن الرحيم
Food Poisoning
by
Dr. Afaf Mahmoud Attia
Lecturer in Forensic Medicine and Clinical Toxicology
Definition

Acute illness due to eating food or drinking water that is contaminated with a virus, bacterium, parasite, or chemical (gastroenteritis).

It may affect one person or a group of people who ate the same thing (outbreak).
Causes

1- **Endogenous**: The food itself is poisonous as:

- Some types of fish e.g., Fakha fish, toxic shellfish.
- Poisonous mushrooms which contain muscarine.
2- Chemical: Contamination of food with any chemical toxic substances.

• Agriculturally chemicals: Fungicides, insecticides, herbicides, fungicides, antacids, food preservatives and antimony.

• Food additives: Food colorants, flavors and other substances used in food. Examples include: Cadmium, Zinc, Copper, Antimony, and excessive use of Na nitrite in meat preservatives in place of salt.
3- **Food allergy and idiosyncrasy:**

Acute hypersensitivity reactions may occur after eating some foods as egg, milk, chocolate, banana, etc.

4- **Parasitic:** Trichinosis, *E. histolytica* and *Giardia Lamblia*
5- Bacterial:
- Bacillus cereus (I.P 0.5- 15h).
- Staphylococcus aureus (I.P 1- 12 h).
- Clostridium botulinum (I.P 18- 36 h).
- Salmonella (I.P 12- 72 h).
- Clostridium perfringens (I.P 8- 24 h).
- E. coli (I.P 12- 72 h).
- Shigella (I.P 12- 48 h).
- Vibrio cholera (I.P 12- 48 h).
6- Fungal:
Aspergillus species
- Aflatoxins occur in nuts, cereals and rice.
- Ochratoxins found on cereals, coffee and bread.
Clinical picture

Symptoms of food poisoning usually develop anywhere within 1-48 hours after eating. Symptoms of chemical food poisoning often appear very quickly. The type of symptoms and their severity depend on the cause of the food poisoning, the health of the individual, and the amount of contaminated food eaten.
Common symptoms of food poisoning include:

- Nausea followed by forceful vomiting.
- Frequent diarrhea. Stools can be watery and may or may not bloody.
- Painful stomach cramps, fever, headache, dizziness.
- Blurred vision, difficulty breathing, tingling in hands and feet (chemical food poisoning).
Diagnosis

• Food poisoning should be suspected:

When groups of people are stricken with the same illness after a common meal, history reveals a brief interval between eating incriminated food and onset of symptoms.
Investigations

• The stomach may be pumped and the contents tested.
• Urine and stool analysis and culture in case of outbreak.
• Complete blood picture, blood urea nitrogen, creatinine.
• Arterial blood gases and chest X-ray.
• Mouse bioassay in case of shellfish and fish poisoning (extract from 150 g of shellfish tissue are injected into mice. If the mouse dies, toxins are present).
Treatment

- The first step in treating food poisoning is prevention. This includes not eating wild or unknown mushrooms, not giving honey to infants, and not drinking untreated water.

- Preventing food poisoning also includes throwing out expired food.
a- Emergency and supportive measures:
  - Mild cases of food poisoning can usually be treated at home, especially if they are not accompanied by a fever.
  - Dehydration in infants and children can be prevented or treated by giving them oral rehydration solutions.
  - In the severe case: Hospitalized and fluids IV.
  - Assess ventilation in case of respiratory failure.
b- Decontamination:
- Evacuation to the stomach contents by syrup ipecac, gastric lavage, or manual stimulation.
- Administration of cathartic.
c- Symptomatic treatment: e.g., anti-allergies.

d- Treat the cause in case of chemical food poisoning.
**Definition**

Is a disease caused by *Clostridium botulinum*, which produces life-threatening muscle paralysis.

- **Types:**
  - **Food borne botulism:** in which toxin is formed before consumption.
  - **Infant botulism:** is produced by organism in immature GIT.
  - **Wound botulism:** due to traumatic wounds which is contaminated.
  - **Inadvertent botulism.**
Incubation period

I. P. in food borne botulism is 18–36 hs up to 8 days.

I. P. in wound botulism is 4–14 days.

Mechanism of action

How Botox Works

Botox blocks acetylcholine release, muscle contraction, and wrinkles.

Acetylcholine released, muscle contracts, frown lines form.
A) Food borne botulism

- Cranial nerve affection (6 & 3).
- Cardiac arrest.
- Dry mouth, difficulty in swallowing, bulbar muscle weakness.
- Descending symmetrical paralysis.
- Deep tendon reflexes are diminished.
- GIT symptoms.
- Resp. m weakness.
- Respiratory failure & death.

B) Infant botulism

- Constipation.
- Difficult feeding.
- Decrease gag reflex.
- Persistent hypotonia.
- Tachycardia.

C) Wound botulism

- Similar to food borne botulism except for lack of GIT symptoms.
- It commonly occurs in patients with surgical wounds after IP 4–14 days.

Investigations

1. Serum analysis.
2. Stool analysis.
3. Vomitus.
4. Gastric content.
5. Wound.
6. Suspected food.

Treatment

- Supportive
- Decontamination
- Neutralization
- Human botulism IG
Thanks