

**Food Poisoning:** diseases, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food.

### **Causes:**

1] Poisoning due to bacteria & toxins

Salmonella  
Staphylococcus aureus  
Clostridium perfringens  
Bacillus cereus  
E. coli

2] Poisons of vegetable origin (natural food poisons)

i) Lathyrus sativus

ii) Poisonous mushrooms

iii) Lolium temulentum

iv) Argemone mexicana

v) Cotton seeds

vi) Ground nut

vii) Vicia faba

viii) Cabbage

ix) Soyabean

x) Sweet clover.

3] Poisons of Animal Origin:

i) Poisonous fish

ii) Muesel.

S. 272, IPC: Adulteration of food/drink intended for sale.

S. 273, IPC: Sale of noxious food/drink

S. 274, IPC: Adulteration of drugs

S. 275, IPC: Sale of adulterated drugs

S. 276, IPC: Sale of a drug as a different drug/preparation

} imprisonment  
upto 6 months  
±  
fine.

Botulism: no/very slight symptoms of gastroenteritis

ISHITA  
KANODIA

→ poisoning occurs from absorption of a specific toxin from the alimentary canal.

→ 8 strains (A to G) of Clostridium botulinum <sup>potent neurotoxin from Clostridium botulinum</sup>

- food contaminated by types A & B: appears putrefied due to action of proteolytic enzymes
- food contaminated by type E: may look & taste normal.

Action: Botulinum toxin selectively binds to cholinergic fibres of autonomic nervous system  $\Rightarrow$  affects peripheral cholinergic nerve endings including neuromuscular junction, postganglionic parasympathetic nerve endings & peripheral ganglia.

→ No action of CNS.

→ fatal dose of Botulinum toxin:  $\leq 0.01$  mg (adults).

→ Toxin  $\longrightarrow$  prevents binding of Acetylcholine to its receptors on post-synaptic membrane  $\longrightarrow$  blockade of nerve impulses  $\longrightarrow$  paralysis of nerve endings.

## Signs & Symptoms:

→ incubation period: 12-72 hours.

→ Initial GI symptoms: • nausea, vomiting • abdominal distension, pain

→ Late symptoms: • dry/sore mouth & throat • dysarthria • blurring of vision

|                                                                                          |                     |                                   |             |
|------------------------------------------------------------------------------------------|---------------------|-----------------------------------|-------------|
| • difficult with visual accommodation                                                    | • dysphonia         | • diplopia                        | • ptosis    |
| • muscle weakness                                                                        | • constipation      | • respiratory insufficiency       | • dysphagia |
| • bilaterally symmetrical motor paralysis initiated by abducent (VI) or oculomotor (III) |                     |                                   |             |
| neuro palsy                                                                              | • urinary retention | • death preceded by coma/delirium |             |
| • death due to respiratory or cardiac failure.                                           |                     |                                   |             |

→ Botulinum toxin ⇒ used for treatment of — blepharospasm — strabismus  
— risus sardonius

## Diagnosis:

- 1] History
- 2] Clinical features
- 3] Demonstration of toxin in suspected food.
- 4] Isolation of the bacillus from the food.
- 5] Isolation of the toxin in blood & tissues.
- 6] Isolation of bacillus from the patient's faeces or vomit, intestinal contents & viscera.

## Treatment:

- 1] Gastric lavage or emesis.
- 2] Activated charcoal.
- 3] Purgative (sorbitol).
- 4] Whole bowel irrigation.
- 5] Botulinum antitoxin (types A, B, E) ⇒ one vial (5,00,000 to 10,00,000 units) by slow i.v. in normal saline & 1 vial i.m. & repeated at 2-4 hour intervals i.v.
- 6] Botulism immune globulin (BIG) [Pentavalent - types A, B, C, D, E] 50 ml i.v. daily (till patient recovers).
- 7] Guanidine 15-40 mg/kg/day orally.
- 8] Adequate respiration.
- 9] Alcohol precipitates toxin ⇒ frequent small doses of brandy.