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Food Poisoning & Its Prevention - Ayurveda & Applied View**Dr.Sangeeta S. Deshmukh**

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Abstract-

Because of fast Life use of canned foods, drinking chlorinated water food poisoning is increasing day by day. Food adulteration is also one of the major cause. Food poison can be correlated with Aamvisha. Due to use of incompatible food (Gara visha) many diseases occurs in the body. In Ayurveda virrudha Aahar can be Considered under food allergy & it is of 18 types (C.S. 26)

The Public health challenges of food borne diseases are changing rapidly as a result of newly identified pathogens, changes of food production & decline in food safety awareness. Increased demand of ready meal in Hotels. More use of canned foods, minimally processed food contribute to food borne illnesses. As food poisoning is of two types bacterial & nonbacterial. Death due to bacterial poisoning is more in last decade. Prevention of food borne diseases by simple precautions like self sanitation, washing of fruits, Vegetables under running water etc before use.

In the unfortunate incidents when some links in food production, processing, and distribution scheme fails & such food consumed, leads to adverse toxic responses that vary in severity from insignificant to fatal death.

We will throw light on food poisoning, its types, hazards, preventions, management as per ayurveda & modern Sciences.

Food is potential source of infection & is liable to contamination by microorganism at any point during its journey from producer to consumer. Food allergy & food poisoning are very common now days. These two things are mentioned in ancient time by our aacharya like Charaka (C.S.26) as they describe aahar visha in terms of Viruddha aahar. Any thing that causes aggravation & dislodge dosha but unable to expel it out of body i.e. Viruddha. Charak explains that fish should not be taken with milk as both having madhur rasa, madhur vipaka, maha abhishyandi & contradictory in their potency, so it impure the blood (Raktadooshti) it leads to so many skin disorders. Due to maha abhishyandi guna it obstruct the channel of dosha, dhatu & mala^[1]. Aacharya Vagbhat says the substances which causes utklesha of the doshas but do not expel them out of body & which also possesses contradictory qualities of the bodily dhatus^[2]. Viruddha aahar is of 18 types^[3]. Intake of viruddha aahar (incompatible food) lead to sterility, blindness, visarpa, ascitis, eruption, insanity, fistula, fainting, intoxication, constricting throat, anaemia, poisoning due to aam, skin diseases like kilas & leprosy, sprue, edema, acid peptic disorders, fever, rhinitis, fatal diseases & even death^[4].

Role of doctor in poisoning – Vaagbhata says vaidya should identify the symptoms of poisonous food by smell, swarupa, rasa by anumana, sparsha. Animal experiment was also done that ancient period. poisonous rice may some what wet & it should not be cooked properly, steam may look like bluish coloured like peacock neck.

Identification of poisonous food by specific symptoms - Bluish line in broth (maans rasa), red line in milk, black line in curd, yellow or white line in curd water, grayish line in mastu, black line in wine & water, green line in honey, pink line in oil.

Poisonous food identification by animal – there is animal behaviour by seeing poisonous food, It was described by Vagbhata, i.e. flies died, sound of crow become weak, some birds likes sarika, watercock etc, swan imbalancing , vertigo in Jivjivak, chakors eyes become red, kronch behaves like drunken. In the unfortunate incidents when some link in food production, processing, distribution scheme fails – when such food consumed leads to adverse toxic responses that vary in severity from significant to fatal. In USA between 6.1 million to 81 million cases of food borne illness occur every year & 10000 deaths per year^[5].

Food safety / food hygiene – (WHO) is defined as all conditions & measures that are necessary during the production, processing, storage, distribution & preparation of food to ensure that it is safe, sound, wholesome & fit for human consumption.

Food safety however does not refer to food itself, but also to the people consuming it, the stomach is the first part of g.i.t., where substantial absorption & translocation to other parts of body may take place.

Food safety is a scientific discipline describing handling, preparation, and storage of food in ways that prevent food borne illness. This includes a number of routines that should be followed to avoid potentially severe health hazards. Food can transmit disease from person to person as well as serve as a growth medium for bacteria that can cause food poisoning.

The five key principles of food hygiene, according to **WHO** –

1. Prevent contaminating food with pathogens spreading from people, pets, and pests.
2. Separate raw and cooked foods to prevent contaminating the cooked foods.
3. Cook foods for the appropriate length of time and at the appropriate temperature to kill pathogens.
4. Store food at the proper temperature.
5. Do use safe water and cooked materials.

Food irradiation –New hope for food safety

Food safety by radiation. Radiation with the help of isotopes ^{60}Co & ^{137}Cs , as per toxicological consideration food irradiation does not induce any measurable radioactivity in the food. Food irradiation involves treatment of food with ionizing radiation for variety of purposes i.e.

1. Delay ripening & preventing of sprouting
2. Control of insects, parasite, helminth, pathogenic spoilage & bacteria.
3. Sterilisation
4. Extension of storage life of potatoes, onions, ginger etc
5. Improved shelf life of green vegetables /foods.
6. Preventing food poisoning i.e. by destructing bacteria like salmonella, shigella.

Food poisoning

Food poisoning is of two type - A) bacterial food poisoning B) non bacterial food poisoning
A) Bacterial food poisoning - Poisoning is due to bacterial products only including bacteria & toxin. It is again of three types

a) Infection type – results due to ingestion of viable microorganisms that multiply in g.i.t. & produces infection.

Bacterial Infection is mainly Salmonella group, Staphylococcus, Vibrio etc.

Common viruses – Hepatitis A , Norwalk agent , Rota virus

Common parasites – Trichenella spiralis, Girdia lambia, Toxiplasma Gondii

Common Helminths – Ascaris lumbricoides, Trichanila Spiralis

Factors contributing to Food borne Diseases -

- 1) poor general hygiene
- 2) Consumption of raw ingredients
- 3) Contamination by infected person
- 4) Use of contaminated equipments
- 5) Preparation too early in advance
- 6) Inadequate health
- 7) Excessive storage time

Acute symptoms include diarrhoea, vomiting & abdominal cramps.

Chronic complications also noted with food borne pathogens – i.e. Reactive arthritis, Haemolytic Uremic Syndrome, Meningitis, Septicaemia, Abortions, Autoimmune disorders & Death may be noted .

Guillain barre syndrome has been reported with *campylobacter* infection & Creutzfeldt- jakob disease observed with contaminated beef in U.K.

b) Toxin type – product due to toxins produced by micro organism that have gained access to prepared food e.g. enterotoxin. About 50 toxins are currently implicated in food borne diseases. Enterotoxin resist boiling for 30 min & the action of intestinal enzymes so poisoning is common. Materials affected are meat, fish, milk etc.

c) Botulism – results from ingestion of preformed botulinum toxin in preserved food. Toxin produced by clostridium botulinum. Botulinum is potent neurotoxin. There is no features of gastro enteritis. Visual deficiency, diplopia, dysphonia, sixth & third cranial nerve palsy. Respiratory insufficiency & death occur.

Treatment –Artificial respiration ,Trivalent botulinum antitoxin (type A,B&E) contains 50,000 units.

Plant poison – food poisoning through plant i.e.

- 1) Mushroom (fungi)- Amanita Muscaria, Amanita pantherina & Amanita phalloids. Death is due to respiratory failure.
- 2) Lathyrus sativus (khesari dal)- neurotoxic poison causes sclerosis, spastic paraplegia.
- 3) Soyabean – heavy consumption causes hypoproteinemia.
- 4) Wheat, Barley, rye – badly stored causes Ergot poisoning due to growth of fungus (Claviceps purpurea).
- 5) Ground nuts (badly stored) causes hepatotoxicity.

Treatment through herbal medicine -

- 1) Neem (Azadiracta indica)
- 2)Haridra (curcuma longa)
- 3)Bhringraj(Eclipta alba)

- 4)Guggulu (commifera mukul)
- 5)Sariva (cryptolepis buchanani)
- 6)khadira (Acacia catechu)
- 7)Aargwadha (Cassia fistula)
- 8)Kutaj (Holarrhena antidysentrica)
- 9)Triphala
- 10)Bakuchi (Psoralia corlyfolia)

Diseases caused by incompatible food may be treated with emesis, purgation, administration of antidote, antitoxic drugs may be beneficial.

Prevention –

- Wash your hands, cutting boards, and knives with antibacterial soap and warm to hot water after handling raw meat, poultry, sea food, or eggs.
- Avoid unpasteurized milk or foods made from unpasteurized milk.
- Do not leave eggs, meats, poultry, seafood, or milk for extended periods of time at room temperature. Promptly refrigerate it.
- Wash raw vegetables and fruits thoroughly before eating.
- If you are ill with diarrhoea or vomiting, do not prepare food for others, especially infants, the elderly, and those with weakened immune systems since they are more vulnerable to infection.
- Wash hands with soap before meal & after handling pets, reptiles.
- Breastfeed your baby if possible. Mother's milk is the safest food for young infants. Breastfeeding may prevent many food borne illnesses and other health problems.
- Carefully wash your hands before preparing or serving food.
- Cook eggs until they are solid, not runny.
- Do not eat raw ground beef, chicken, eggs, or fish.
- If possible use a thermometer when cooking poultry (to at least 180 degrees Fahrenheit), or fish (to at least 140 degrees Fahrenheit.)
- Do not use foods that have an unusual odour or spoiled taste.
- Never give honey to children under 1 year of age.
- Wash all raw fruits, vegetables, and herbs with cold, running water.

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