

Food Poisoning. Bacteria Associated with Food

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Food poisoning is any disease of an infectious or toxic nature caused or suspected to be caused by the consumption of food or water. Food poisoning can be divided into two groups: bacterial (food toxicity and food intoxication) and non-bacterial (chemicals, poisonous fungi and herbs, poisonous fish). Bacterial intoxications (foodborne toxicity) are the most common. Contamination of meat may also occur if slaughtering of animals and treatment of carcasses is carried out in violation of hygienic rules.

Foodborne intoxication an acute intestinal infection resulting from the consumption of food in which microorganisms have multiplied and accumulated their toxins, characterized by sudden onset, intoxication, gastroenteritis. The group nature of the disease is often noted.

Sources of infectious agents are people and animals, sick people or bacteria emitting a pathogen with faeces polluting the soil, environmental objects, food, water of open reservoirs. Pathogens are transmitted only through foodstuffs during preparation, transportation, storage and sale. Contamination of meat may occur during slaughter and treatment of sick animal carcasses. The disease is always associated with the consumption of contaminated products that have not been heat-treated, or finished food that has been contaminated after cooking, stored outside the refrigerator and not reheated.

Foodborne toxicity may be caused by the opportunistic bacteria of *Proteus*, *Klebsiella*, *Enterobacter*, *Vibrio*, *Pseudomonas*, *Clostridium*, and *St. aureus*, among others. A food product may be considered microbiologically dangerous due to the presence of microorganisms that may enter the human body (e.g. *Salmonella*, *Listeria monocytogenes*, *Escherichia coli* O157:H7) or form toxins that enter the body with food (e.g. *Clostridium botulinum*, *Staphylococcus aureus* and *Bacillus cereus*).

The last decades of the XX century were characterized by the expansion of the spectrum of pathogenic microorganisms associated with the development of diseases of the digestive tract. Along

with *Salmonella*, *Shigella*, *Rotavirus*, enterohemorrhagic strains of *Escherichia coli*, *Cyclospora*, *Cryptosporidium*, *Giardia*, *Campylobacter jejuni*, *Clostridium difficile*, caliciviruses and other enteropathogenic viruses are increasingly acting as etiological factors.

Many of these microorganisms are easily transmissible from person to person with food or through water. Some of them are extremely dangerous for persons with immunodeficiency and gastrointestinal pathology. With the advent of an era in which health care is increasingly focused on cost-effectiveness, a decisive factor in the development of cost-effective approaches to the management of patients with foodborne toxicity is the targeted selective application of diagnostic, treatment and prevention methods.

The growth of pathogenic microorganisms in a food product does not necessarily lead to its deterioration, and therefore the absence of undesirable organoleptic changes cannot be an indicator of microbiological safety of the product. In addition, some toxins are resistant to heat and may therefore remain in food once viable microorganisms have been removed. An effective food safety programme should therefore be implemented at all stages from production to consumption, including processing, storage and marketing.

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