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Toxic infections and intoxications caused by food

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Annotation: Food-borne toxic infections and intoxications are a group of acute diseases caused by consumption of food contaminated with pathogenic microorganisms or their toxins. Excludes food poisoning, which occurs when food, water, wet fruits, vegetables, and certain poisonous types of mushrooms are unknowingly eaten with various chemical substances, various fertilizers used in agriculture, defoliants in consumer products.

Key words: product, microbes, mucous, Diagnosis, temperature

In most cases, toxic-infections and intoxications caused by food. and i. it occurs when eating salads made from infected meat, fish, eggs, dairy products, and vegetables. Food-borne toxic-infections and intoxications are also caused by canned goods prepared without sufficient sterilization. and causes

Pathogenic microorganisms can enter food in different ways. Infected. preparing food from products, not washing dishes thoroughly, not following hygiene rules when preparing salad, improper storage of food or their raw materials Food-borne toxic-infections and intoxications. and i. allows it to happen. The main source of infection is a person, animal and bird carrying a diseased or pathogenic microbe, as well as mechanical carriers of infection (flies, mosquitoes, rodents, etc.).

FOOD INTOXICATIONS. Toxic infections and intoxications are epidemiologically little different from each other. In both types of disease outbreaks, the following three areas are common: product damage, creation of conditions for the growth of microbes; insufficient cooking of the product before consumption. However, according to the nature of intoxications in the pathogenesis of diseases, poisoning occurs as a result of the poison released by microbes during their growth in the product (staphylococcal intoxications, botulism even without microbes). Some authors believe that in botulism, besides the toxin, are there living microbes? they say that it is important and, accordingly, they find it necessary to consider botulism as a food toxicoinfection. Bacterial toxicosis is an acute disease that occurs in the special digestive secretions that are secreted during the life of microorganisms in the food product consumed. This includes botulism and staphylococcal poisoning.

STAFLOCOCCAL INTOXICATION. Food poisoning by staphylococci is a disease typical of poisoning by bacterial toxins. Food poisoning by staphylococcal intoxications accounts for about 1/3 of all food poisoning. In 1899, P. N. Leshchenkov was the first to discover food poisoning caused by staphylococcal intoxications. Poisoning was first reported in people who ate a cake with nuts and cream, and staphylococcal bacteria were found in it. Staphylococcal intoxication is characterized by the effect of enterotoxin on the mucous membrane of the digestive organs. There are signs of inflammation in the mucous membrane. Collapse-like changes observed during poisoning indicate a decrease in the work of the adrenal gland along with the overall effect of the poison on the body. 6 serological types of staphylococcal enterotoxin, i.e. A, V, C, D, E, G, have been identified. Not all of the mentioned strains can secrete enterotoxin, which has disease-causing properties. Some serological types have the ability to separate two or more types of poison.

So, food poisoning caused by staphylococci is an acute disease caused by eating food containing staphylococcal enterotoxin. Microbial strains that cause intoxication are called enterotoxin strains. Pathogenic staphylococci have plasma coagulation, hemolytic properties, but food poisoning is caused by enterotoxin-secreting staphylococci. Clinic. Symptoms of the disease appear after a latent period 2-4 hours after eating food products containing staphylococcal enterotoxin strains. The leading symptoms of staphylococcal infection are gastroenteritis. The disease begins violently: the

patient suddenly begins to vomit frequently, severe pain in the abdomen (in the area of the chest), diarrhea is observed, and in some cases there may be no diarrhea. Patients complain of weakness, headache, dizziness. The pulse beats fast, the fullness is slow. Body temperature usually does not change, cold sweats. In rare cases, cardiac activity slows down. Convulsions. The illness lasts for a short time: recovery usually begins on the 2nd day. There are no cases of ending with 0. Epidemiology. Staphylococcal intoxications can be related to various food products, but the accent appears after eating milk and dairy products (cottage cheese, yogurt, kefir, cheese), as well as cream confectionery. Enterotoxin develops in products at 18-20 C. In this case, the organoleptic properties of the product - color, smell, taste - do not change. Staphylococcus enterotoxin is extremely resistant to heat.

It withstands boiling for a long time, so if staphylococcus has fallen, intoxication can occur even after drinking boiled and pasteurized milk. Staphylococcus carriers are milkers with purulent diseases of the ears and eyes, and workers of dairy factories and confectionery shops, as well as cooks. Patients with angina and upper respiratory tract disease are also at risk, as food products can be contaminated with staphylococcus by an aerogenous way. Mastitis in cows and goats can also be affected.

Unsatisfactory sanitary conditions of food establishments also cause the spread of staphylococci. Prevention. 1. Control over the health of persons involved in working with food products. People with purulent diseases in the skin layers, ears, eyes, throat, and inflammation of the upper respiratory tract are not allowed to work with food products. 2. It is impossible to drink the milk of animals with mastitis. 3. Employees of food establishments must monitor hygiene, treat nasal and throat diseases and decayed teeth in a timely manner. 4. Milk, dairy products, cream confectionery, as well as other perishable products must be stored in refrigerators. 5. Since staphylococcal enterotoxin is very resistant to heat, the product should be boiled for 2-2.5 hours to neutralize it. Diagnosis. Conditions for diagnosis in staphylococcal intoxications:

1. Determination of enterotoxin production by coagulating staphylococcal with citrate plasma. 2. Amount of plasma-coagulating staphylococci in 1 g of product. 3. Separation of staphylococci isolated from secretions of a person infected with the suspected product, equipment of the enterprise and employees' hands, as well as throat and nasal cavity fluids into bacteriophage species. The presence of enterotoxin in food products can be quickly determined using the chain reaction of antitoxic staphylococcus with serum.

BOTULISM Botulism is derived from the Latin word BOTULUS, which means sausage. Because the disease often occurs as a result of eating sausages. The bacterium that causes botulism, - Cl. botulinum was discovered by E. Van Ermengem in 1896, when a severe form of the disease was widespread as a result of eating Dutch pork sausages. Botulism is a severe acute disease caused by eating food contaminated with CLASTRIDIUM BOTULINUM poison. Cl. seven types of botulinum A, V, C, D, E, F and Y are known. All of them can cause disease in people. However, most often, types A, V, E are the causative agents of the disease. Types C, D, F are rare, only found during one or two outbreaks. All six species of Clostridium are very similar in terms of their shape, characteristics, and toxicity. Diseases with the same symptoms cause and differ in the antigenic properties of the toxins they produce. It is said that the venom of each species is neutralized only by a serum developed against the same species.

C 1. botulinum toxin decomposes in a few minutes when boiled, after 30 minutes when heated to 80°C, after 3 hours at 58°C. The main property of botulinum toxin is high resistance to proteolytic enzymes (pepsin, trypsin), acids, and low temperature. At the same time, the toxin is inactivated by alkalis and differs in resistance to heating. Clostridium is less resistant to heat. Spores are very heat resistant. Decomposes after 5 hours at 100°C, 2 hours at 105°C, 10-20 minutes at 120°C. Spores are even more resistant to low temperatures: they do not die even at 253°C.

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