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Review Article

Review on Food poisoning (Types, Causes, Symptoms, Diagnosis, Treatment)

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Abstract: Food poisoning is a common disease condition that usually results from eating food contaminated with infectious microorganisms (viral, bacterial, parasitic or fungal) or toxins secreted during the different stages of food processing, production or preservation. Most cases of food poisoning are considered moderate and their symptoms resolve spontaneously within several days without treatment, while severe and chronic cases require hospitalization. Food poisoning can usually be prevented by keeping hands clean and preparing food in proper, hygienic and clean ways. The majority of reported cases of foodborne illness are individual or sporadic. The origin of this sporadic infection often cannot be determined. For example, the majority of foodborne disease outbreaks (58%) in the USA originate in commercial food establishments (Foodnet 2004 data). An outbreak is defined as when two or more people are exposed to the same disease after eating food from a common food supply. There is often more than one reason for an outbreak or outbreak, for example, food may be left at room temperature for many hours, allowing the growth of bacteria that accumulate through inadequate cooking of the food, resulting in failure to eliminate or kill Bacteria levels are very dangerous.

Keywords: Poisoning, toxicity, diaries, pollution, diarrhea, bacteria, fungi, parasitic.

INTRODUCTION

Food poisoning is a set of symptoms resulting from eating food contaminated with bacteria, or toxins produced by these organisms, and food poisoning results from eating food contaminated with various types of viruses, germs, parasites and toxic chemicals such as poisoning caused by eating mushrooms, and it is said that food poisoning may An outbreak if it happened that symptoms of the disease appeared in more than two people, and laboratory studies have shown that the ingested food is the direct cause by planting the bacteria that cause poisoning, and food poisoning caused by bacteria is the main cause in more than 80% of food poisoning cases[1]. Trusted? Foodborne illness, or foodborne disease, colloquially referred to as food poisoning, represents every illness caused by eating contaminated food. There are two types of food poisoning cases: the case of botulism poisoning and the case of botulism poisoning [2]. Food infections indicate the presence of bacteria or other microbes that cause infection in the body after eating. The possibility of food contamination has increased in our contemporary times due to the accelerated globalization in food production and trade[3]. Some foodborne disease outbreaks that were once contained within a small community may now occur across larger communities or on global dimensions. This made food and food safety authorities around the world acknowledge that the

issue of food safety should not be dealt with at the local level, but also through the establishment of closer relationships and links between those authorities at the global level[4,5]. This is necessary to exchange regulatory information on food safety issues as well as facilitate access to data and information in the event of exposure to food safety emergencies." It is also difficult to estimate the global incidence of foodborne diseases, but it was reported that in 2000 About 2.1 million people died from diarrheal diseases, many of these diseases are attributed to the contamination of drinking water and food, in addition to that diarrhea is a major cause of malnutrition in children and young people.

It has been reported that about 30% of the total population in the industrialized countries themselves suffer from foodborne illness infection annually. The rate of infection with food-borne diseases is estimated at 76 million cases annually, of which about 325,000 cases are treated in hospitals, in addition to about 5,000 deaths [6]. However, developing countries in particular suffer worse from the risks of exposure to foodborne diseases due to the wide spread of diseases, including those caused by parasites. Here, we note that food-borne diseases cause serious and severe harm to society. In 1994, an outbreak of salmonella infection caused by contaminated ice cream occurred in the United States of America, resulting in the infection of 224,000 individuals. In 1998, an outbreak of hepatitis A occurred in China, which was caused by eating contaminated mollusks, resulting in an infection of 300,000 individuals. As a result, food contamination creates widespread social and economic pressure on communities exposed to outbreaks or disease outbreaks [7]. The medical cost and production losses of diseases caused by pathogens in the United States of America in 1997 were estimated at 35 billion US dollars. The outbreak of cholera in Peru in 1991 led to a loss of 500 million US dollars in losses in fish and fish product exports during that year. As for body toxicity, it refers to the ingestion and digestion of toxins in foods, including exotoxins, which express protein bio-toxins made by some organisms from plants and animals such as castor seed toxin. The toxin is no longer present or unable to cause infection. Despite that commonly used term, food poisoning, most cases are caused by a variety of pathogenic bacteria, viruses or parasites, all of which contaminate food, rather than chemical or natural toxins. Scientists have limited the main types of bacteria that cause food poisoning to twelve types [8]:

- Clostiridium perfringins.
- Staflo Aureus Staph. Aureus.
- Vibio Species: V. Cholorae: V. Parahaemolylicus.
- Bacillus Cereus.
- Salmonella.
- Clostridium Batulinum.
- Shigella.
- Toxigenic E.coli.
- Campylobacter.
- Yersinier.
- Listeria.
- Aeromonas.

Poisoning is the harmful effect that occurs when a toxic substance is swallowed or inhaled or upon contact with the skin, eyes, or mucous membranes, such as those in the mouth or nose. Possible toxicants include over-the-counter and prescription drugs, prohibited drugs, gases, chemicals, vitamins, food, mushrooms, plants, and animal poisons. Some toxins cause no harm, while others can cause severe damage or death. The diagnosis is based on symptoms, information from the poisoned person and those present, and sometimes from urine and blood tests. Therefore, medicines should always be kept in their original containers, out of reach of children. Treatment involves supporting the person and preventing more venom from being absorbed and, sometimes, an increased excretion of the venom. More than two million people suffer from some form of poisoning in the United States each year[9]. Prescription or over-the-counter and prohibited drugs are a common source of serious poisoning-related poisoning and death (see acetaminophen poisoning; see also aspirin poisoning). Other common toxins include gases (such as carbon monoxide), household products (see caustic poisoning), agricultural products, plants, heavy metals (such as iron and lead), vitamins, animal poison, and foods (particularly certain types of mushrooms and fish). However, ingesting almost any substance in very large quantities can be toxic[10].

Accidental poisoning

Poisoning is the most common cause of non-fatal accidents in the home. Young children are especially susceptible to accidental poisoning in the home because of curiosity and a tendency to explore, and the elderly, who are often confused about their medications. Since children often share discs and items they find, siblings and playmates may also have been poisoned. People at risk of accidental poisoning are hospitalized people (due to medication errors) and industrial workers (due to exposure to toxic chemicals). Countries cannot completely eliminate this problem by enacting laws, monitoring places where food is prepared, and periodically examining people involved in preparing food [11]. The size of the problem is also inversely proportional to the state's economic, cultural and technological status, as well as the degree of education of workers in food preparation shops, and

of the public consuming these foods. We see that cases of food poisoning in general are limited in developed countries, and widespread in poor countries [12]. Food preparation shops have the greatest responsibility towards the consumer by purchasing meat from approved and experienced food preservation places, and these stores must also provide the necessary equipment for preserving meat in particular and other types of food in general. In order to prevent the proliferation of bacteria, which often need moderate temperatures for growth, as well as paying attention to places of preparation in terms of sanitation, and general hygiene, as well as paying attention to workers in terms of education regarding food poisoning and physical hygiene, washing hands well after defecation, and keeping patients away from the preparation process, especially those Who complain of stomach flu. Not leaving foods exposed or exposed to insects or hot weather for long periods, using gloves when touching foods, getting rid of old foods on a daily basis, not mixing old foods with fresh ones, especially getting rid of foods that change their color, taste or smell, and a sense of responsibility towards consumers and not acting out of purely materialistic [13, 14].

Deliberate poisoning

Poisoning may be a deliberate attempt to kill or commit suicide. Most adults who attempt suicide by poisoning use more than one drug and also drink alcohol. Poisoning can be used to weaken a person (for example, to rape or rob a person). In rare cases, parents with a mental disorder poison their children to make them ill, thereby gaining medical attention (a disorder called Factitious Disorder). Foodborne diseases often result from poor handling, improper preparation and processing, and poor food storage. Noting that good hygiene practices before, during and after food processing reduce the chances of exposure to foodborne diseases. A common awareness trend among the public health community is that regular hand washing is one of the most effective defenses against the spread of foodborne diseases. This movement to control and control food to ensure that it does not cause exposure to foodborne diseases is known as food safety. This makes the underlying cause of exposure to foodborne diseases a wide variety of toxins affecting the environment. For more information on chemical-borne diseases, see Food contamination. Foodborne diseases can also be caused by pesticides or medicines in foods, in addition to natural toxic substances, including poisonous mushrooms or reef fish [15-18].

Symptoms

Symptoms of poisoning vary depending on the poison, the amount used, the age, and the health of the person using it. Some poisons are not very strong and only cause problems with prolonged exposure or frequent use of large amounts of the poison. Others are so potent that a drop on the skin can cause severe symptoms. Some toxins cause symptoms within seconds, while others cause symptoms only hours, days, or even years later. Some toxins cause such obvious symptoms that vital organs, such as the kidneys or liver, are sometimes permanently damaged. Ingested (ingested) and absorbed toxins cause symptoms throughout the body because they often deprive the body's cells of oxygen or activate or block the action of enzymes and receptors. Symptoms may include changes in consciousness, body temperature, heart rate and breathing, and a number of other symptoms, depending on which organs are affected. Caustic or irritating substances Injury to the mucous membranes of the mouth, throat, digestive tract, and lungs causes pain, coughing, vomiting and shortness of breath [19, 20]. Skin exposure to toxins can cause various symptoms, such as rashes, pain, and blisters. Also, prolonged exposure to toxins can cause skin inflammation. Eye exposure to toxins can damage the eye, causing eye pain, redness, and decreased vision [21].

Bacteria

Bacteria is one of the main underlying causes of foodborne diseases. Where the bacteria involved in the infection of such diseases in the United Kingdom in 2000 were examples: Campylobacter jejuni by 77.3%, Salmonella by 20.9%, and E. coli O157:H7 by 1.4%, while other types of bacteria represented no more than 0.1 % of the underlying causes of foodborne diseases. It used to be that bacterial infection was more common because only a few places were able to test for norovirus, and passive surveillance for that agent was done. Noting that the symptoms of a bacterial infection are delayed because the bacteria need a period of time to multiply. It is often hidden and not seen until 12-72 hours or more after eating the contaminated food among the most common bacterial pathogens are:

Campylobacter jejuni, which leads to a secondary form of Guillain-Barré syndrome and periodontitis. Clostridium perfringens, which is called the "cafeteria germ".

Salmonella - Eating eggs that have not been cooked enough causes typhimurium infection, or other pathogens that are transmitted between humans and animals [22-25].

Salmonella

Escherichia coli O157:H7enterohemorrhagic causes hemolytic-

uremic syndrome. Other bacterial pathogens that transmit disease through food include:

Bisilis Ceres

Escherichia coli, which are of the most important classes according to their malignant characteristics (strains): enteroinvasive strains, enteropathogenic strains, enterotoxigenic strains, and E coli strains clustered in The intestines (enteroaggregative).

- Listeria monocytogenes.
- Shigella
- Staphylococcus aureus
- streptococcus bacteria
- Vibrio cholerae bacteria, including O1 and non-O1 species.
- Staphylococcus aureus (Vibrio parahaemolyticus)
- Yersinia enterocolitica, Yersinia pseudotuberculosis
- The least common bacterial species are:

Brucella

- Corynebacteriumulcerans
- Coxiellaburnetii, or question fever.
- Plesiomonasshigelloides
- exotoxins

In addition to some diseases caused directly by bacterial infection, there are also some foodborne diseases caused by exotoxins that are secreted by a specific cell during the growth of bacteria. Hence, exotoxins have the potential to cause disease even when the microbes that produce those toxins die or are killed. Symptoms appear immediately after 1-6 hours, depending on the amount of toxin that was ingested and digested. From here, the outbreak can be identified by the infected individuals getting to know each other. However, more outbreaks or outbreaks are identified by the public health team's interview with increasing reports of laboratory test results for some strains of bacteria. Noting that the detection and investigation of disease outbreaks is the responsibility of the local health jurisdictions of the states, making them incompatible from one province to another. It has also been estimated that only about 1-2% of outbreaks are detected [26-29].

Mycotoxins and the effect of mycotoxins in food:

The term alimentary mycotoxicoses refers to the effect of mycotoxins through food intake. Sometimes mycotoxins have important effects on the health of both humans and animals. For example, a stranded species caused the death of about 100,000 turkeys in 1960 in the UK after they all ate peanut meal contaminated with aflatoxin. And 5,000 people died in the Soviet Union during World War II due to a dearth of toxic dietary white blood cells. Diseases caused by fungal and foodborne toxins include:

Aflatoxin is a product of the parasitic Aspergillus parasiticus and Aspergillus flavus. Which is often found in liqueur trees, peanuts, corn, and sorghum, in addition to the seeds of other oils such as corn and cotton seeds. The obvious forms of aflatoxin are B1, B2, G1, and G2, noting that aflatoxin B! It often targets the liver specifically, which often results in necrosis, cirrhosis and liver cancer, and carcinoma. This led the United States of America to set acceptable levels of total aflatoxin in food to be less than 20 μg/kg. The official document can be obtained on the US Food and Drug Administration's website.

Alternaria Fungi Poisoning – Caused by Alternariol fungi including Alternariol (AOH), Alternariol methyl ether (AME), Altenuene (ALT), Altertoxin-1 (ATX-1), Tenuazonic acid (TeA) and Radicinin (RAD). Some of these toxins may be found in sorghum plants, finger millet (Eleusine coracana), wheat, and tomato fruit. Noting that some experimental studies have demonstrated the ease of transfer of these toxins between grain commodities, and indicated that the manufacture and storage of grain commodities is a vital practice in this process [30-33].

- *Citrinin*
- *Citreoviridin*
- *Cyclopiazonic acid*
- *Cytochalasins*
- *Ergot alkaloids / ergotamine alkaloids.*

Fumonisins - Corn grains may be easily contaminated with Fusariummoniliforme. Fumonisin B1 causes leukoencephalomalacia in horses, edema of pigs with pulmonary edema syndrome, liver cancer in mice, and esophageal cancer in humans. To respect and preserve the health of both humans and animals, the US Food and Drug Administration and the European Commission regulate the toxin content of food and animal feed as well.

Coco toxin – The limit of reporting level for fumonisin A analyzes in the Australian Total Diet Survey in the 20th century was 1 μg/kg, while the European Commission limits the content of fumonisin A A to 5 μg/kg in cereal commodities food, up to 3 μg/kg in processed products and 10 μg/kg in dried vine fruits.

Oosporeine

Patulin - notes that this trait is currently well regulated in food products. The European Commission and the US Food and Drug Administration have limited its use to less than 50 μg/kg in fruit juice and fruit flavors, while the European Commission has limited its use to 25

μg/kg in solid fruit products and 10 μg/kg in baby food.

- *phomopsin*
- *sporidismin A*
- *stigmatocystin*

Tremorgenicmycotoxins - Five types of tremorgenicmycotoxins have been reported to be found in fermented meat. They are: Fumitremorgen B, Paxilline, Penitrem A, Verrucosidin, and Verruculogen Trichothecenes - Its sources are Cephalosporium, Fusarium, Myrothecium, Stucky botris and Trichoderma. The toxins are usually found in rotting corn, wheat, peanuts, and rice, as well as animal feed straw and hay. Both humans and animals suffer from four common types of Trichothecenes toxins: T-2 toxin, HT-2 toxin, diacetoxyscirpenol (DAS) and deoxynivalenol (DON). Oral administration of these toxins subsequently results in toxic and foodborne leukopenia, as well as hematological disorders, aplastic anemia, thrombocytopenia and/or irritation. Skin. This prompted the US Food and Drug Administration to issue a document in 1993 that limits the content of deoxynivalenol in human foods and animal feeds as an indicative. The United States of America has also published a promising patent for farmers to produce trichothecene-control crops.

- Zearalenone
- Zearalenols

Diagnosis

Determining the poison, sometimes urine and blood tests, x-rays of the abdomen In rare cases, knowledge of the poison is useful for treatment. The labels on the bottles and other information from the person, family members, or co-workers make it easier for the doctor or poison center to identify poisons. However, if labels are not available, the drugs can often be identified by the markings and colors on the tablets or capsules. It is highly unlikely that laboratory tests can identify the toxin, since many drugs and toxins cannot be easily identified or their levels measured in the hospital. However, blood and urine tests can sometimes help identify the toxin. Sometimes blood tests can reveal the severity of the poisoning, but these tests are limited to a few toxins [34-36]. Doctors examine people for signs of a particular type of substance. For example, doctor's check for needle marks or track for signs that these people have injected drugs (see Using Injectable Drugs). They also test people who have symptoms characteristic of certain types of poisoning. Doctors look to see if people have traces of a drug or substance on their skin, or whether drug labels for drugs absorbed through the skin are hidden in skin folds, on the roof of the mouth, or under the tongue. In some cases of poisoning, an abdominal x-ray may show the presence and location of the ingested substances. Toxins that may be visible on x-rays include iron, lead, arsenic, and other metals, and large packets of cocaine or other prohibited drugs swallowed through so-called body pounders or drug carriers (see Body Filling and Body Filling). Batteries and magnets can also be distinguished on x-rays, as well as canines, teeth, cartilaginous spines, and other animal parts that may disintegrate and remain as an integral part of the body after an animal attack or exposure to insect venom[37].

Natural toxins

Many foods naturally contain toxins, most of which are not caused by bacteria. Plants in particular can be poisonous; While animals are rarely naturally poisonous. Evolutionarily speaking, animals have the ability to escape if they are preyed upon or eaten; However, plants use only negative defense techniques, including toxins and revolting substances that taste bad, such as capsaicin in chili peppers and pungent sulfur compounds in garlic and onions. Noting that the majority of animal toxins are not made by animals themselves, but they acquire them by eating poisonous plants to which these animals are immune to their toxicity, or by the action of bacteria. The harmful activity of these bacteria in the digestive system is due to enterotoxins, which are divided into two groups, exotoxins (toxins secreted from microorganisms into the surrounding environment) and endotoxins (which remain inside the cells of microorganisms and are released when cells are destroyed). Exotoxins are released mainly by Gram-positive bacteria during their growth. They are made up mostly of very toxic and antigenic proteins that become active after a quiescent period. This group includes toxins released by Clostridium botulinum (botulin toxin, a neurotoxic globular protein), C. perfringens and Staphylococcus aureus. Poisoning with St. aureus is the most common food poisoning, and its symptoms include vomiting, diarrhea, stomach pain, and its main cause is food of animal origin, meat and its products, poultry, cheese, potato salad, and pastries). The basis of endotoxins from Gram-negative bacteria, they act as antigens and bind tightly to the cell wall of bacteria and are complex in nature, consisting of protein, polysaccharides, and lipids. Endotoxins are relatively stable thermally, and are generally active without requiring an incubation period. The toxins that cause typhoid and paratyphoid, salmonellosis and bacterial dysentery are of this group. Salmonellosis is very dangerous and is an infection with toxins numbering about 300 species: but they are closely related organisms. The infection is characterized by internal fever, gastroenteritis, and salmonellosis septicemia: the sources of infection are different, but they are closely related organisms.

The infection is characterized by endogenous fever, gastroenteritis and salmonellosis septicemia: egg products, frozen poultry, ground beef, candy products and coca are sources of infection [38]. The presence of E. coli bacteria first indicates the presence of fecal contamination, and this gives special attention. This bacterium introduces an endotoxin strain, a particularly dangerous strain that was discovered in 1983.

Prevention of bacterial food poisoning

Proper frozen storage of foods helps prevent food poisoning. Prevention is often the role of government, by setting strict rules for health and public services for veterinary surveys of animal products in the food chain, from the agricultural field to manufacturing and delivering products to supermarkets and restaurants. Here, the organizing process includes: Traceability: the origin of the ingredients in the final product must be known (whether from the parent farm from which the ingredients were collected, by identifying the crop or animal sources) and where and when they were processed; Then the source of the disease can be found, traced, and then try to find solutions to treat it (and it may be possible to punish the responsible), in addition to providing the opportunity to dispose of the final products and withdraw them from the market if a problem is proven; Implementation of sanitary procedures including HACCP and "cold chain" certification standards; Control, control, deterrence and law enforcement authority for veterinarians. In the year 2006, the US Food and Drug Administration in the United States of America adopted the methodology of phage therapy, which includes spraying meat with viruses that infect bacteria, thus preventing the spread of infection. However, this has raised concerns, because without mandatory labels, consumers would not be aware that meat and poultry products have been treated with that spray [39-41]. In the home, prevention is mainly food safety practices. Many forms of bacterial food poisoning can be prevented, even if the food has been contaminated, by adequately cooking the food, and either eating it directly and quickly, or freezing it effectively. However, despite this, many toxins remain indestructible even with heat treatments. In the post-war period that occurred in Aberdeen, Scotland in 1964, there was an outbreak of widespread infection (>400 cases) of typhoid, and this was due to contaminated preserved meat imported from Argentina. Where the preserved meat was packed into cans and due to the failure of the refrigeration plant, frozen river water at the mouth of the Río de la Plata was used to freeze and cool the cans in which the meat was preserved. However, one of the boxes had defects in it, which resulted in contamination of the meat kept inside [42]. The meat in that box was cut into strips using a meat slicer in an Aberdeen food store, and because of the poor cleaning procedures of the machine, the contamination spread to the meat stored in other boxes that were cut using the same machine. The people of Aberdeen then ate the contaminated meat, became infected and became ill. Foodborne disease outbreaks during the seventies of the twentieth century prompted the United Kingdom to bring about fundamental and drastic changes in food safety law in the Kingdom of Britain. These outbreaks included the deaths of about 19 patients in an outbreak that occurred at Stanley Royal Hospital [43] in the 1980s. And about 17 deaths in 1996 in Wishu from infection with E. coli O157, which was an indication for the establishment of the Food Standards Agency, which according to the comment of former British Prime Minister Tony Blair in 1998 that the white document [44,45]: A Force for Change Cm 3830 It will have executive authority and power, as well as be open and oriented to serve the interests of consumers.

CONCLUSIONS

Food poisoning, also known as foodborne illness, is an illness caused by eating contaminated food. Infectious germs, including bacteria, viruses, and parasites, or their toxins, are the most common cause of food poisoning. Infectious germs and their toxins can contaminate food at any stage of processing or production. Contamination can also occur in the home if food is prepared or cooked incorrectly. Symptoms of food poisoning, which can begin within hours of eating contaminated food, often include nausea, vomiting or diarrhea. Often, food poisoning is mild and goes away without treatment. But some patients need to go to hospital.

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