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Foodborne Diseases (Article Review)

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Abstract:

Foodborne disease has been one of the most common diseases which actually take place due to the upshot of consuming poisoned or contaminated food. After severe examination and observation, it has been found that the foods become contaminated with pathogenic bacteria, viruses or even different types of parasites. Taking into consideration this topic, several researchers in the world has stated their result after severe observation and examination of food-borne disease. The main aim of this article is to lay information regarding the disease, its causes, and its prevention in accordance to several articles. The given articles have been chosen to take information and make an authentic review of the topic which will be necessary for further study and any other scholarly purpose.

Introduction:

Foodborne disease has been one of the most common diseases that actually happen due to the outcome of consuming poisoned or contaminated food. Generally, after examination, it can be found that the foods become contaminated with pathogenic bacteria, viruses, or different kinds of parasites. Different agents and chemical products are also responsible for the exaggeration of the food borne diseases. The main aim of this paper is to enlighten a concept and overall review of different scholarly articles related to food borne disease. The causes of the disease as per different reports and their prevention will be reviewed and highlighted in the paper.

Contaminated or poisonous foods can be dangerous to the human as well as animal health. It can give emergence to high level food borne diseases. After severe examination and observation it has been found that the foods become contaminated with pathogenic bacteria, viruses or even different types of parasites. As per Adley and Ryan, the outcome of food borne diseases can also be severe and pathetic including economic loss and the reputation of the country. After several surveys it has been found that still food borne disease have not been brought under control. Once the disease outbreaks

it can cause severe health and economic loss. The probability of food borne disease is not only prevalent in weaker countries [1]. According to Käferstein, “Our knowledge of diseases caused by biologically and chemically contaminated food varies considerably between developing countries” [2]. As per the research it is seen that Systematic food borne surveillance activities by conducting epimological study is hardly undertaken but it is very rare. The media is the only way through which the public and the health authorities learns about the disease. It is good that the information and the consequence of the disease is available that is helping to treat and cure infant diarrhea, malnutrition of the infants, child and the adults. There has been an emergence of different types of food borne diseases among which the most common is the Cholera. It can happen due to contaminated food and water also. One of the negative things is that information and occurrences regarding this type of diseases are rarely available in the developing countries. Without the availability of proper information, the lives of hundreds of people might get threatened. As per the report the authority must take into consideration the safety of fresh and proper food supply and shared responsibility to reduce food borne diseases. The report suggests that the society must interpret the fact that food is not only a commodity related to trade or agriculture, but it can also lead to a serious public health issue. It has also enlightened the fact that the Ministries of Health in every single country must take into consideration the safety of food as an “essential public health function”. In another article it has been stated by Cuervo, Castillo and Santiago-Connolly, that though food borne disease has become a public threat in the world recently but the government and different public health authorities has been working hard to minimize the hazard that is caused by the food borne disease [2].

Causes of food borne disease

Despite advances in the rules and regulations regarding the reduction of the food borne disease, massive amount of people die every year. This type of diseases are caused generally by three principle hazards: biological, chemical and physical. Different forms of bacteria, viruses, and parasites are the main cause of acute and chronic food borne disease [3]. There are some factors which play an important role in the advancement of the disease. The adaptations of the microbes through the process of natural selection leads the way to the emergence of pathogens. Due to economical and technical developments new type of foods have been introduced. Certain environmental changes have also gained access to the new type of foods. As the food chain has become much more longer so the environmental changes have gained access to the food chain. As the food chain has become so much longer so it is quite obvious that the food contamination has gained access to the food chain threatening million of people’s lives. Poverty and pollution has also been another cause for the food contamination. Lack of food supply and preparation in a safe way has become also challenging and is interconnected with each other leading to food borne illness. Proper dietary belief can also be another cause for the food contamination. Some people have certain dietary beliefs due to rituals or culture which is responsible for the creating of illness among human beings. Travel and migration is also enlisted to be one of the major factors that is responsible for the contamination of food [4]. Travellers are known to change their destinations for several purposes and they can also spread bacteria and other viruses rapidly in an environment. Other chemical changes that are responsible for the contamination of the food in an environment should also be taken into consideration. Bacteria, viruses and other agents are also responsible, and they have several forms which can be hazardous to food and water. Bacteria includes different forms like *Escherichia coli*, *Enterococcus faecalis*, *Listeria monocytogenes*, *Salmonella enteritidis*, *Campylobacter jejuni*, *Vibrio vulnificus*, *Listeria monocytogenes* and *Streptococcus parasanguinis* [4]. There are different

forms of virus which is also affecting the human health and the economy of a country. It has different forms like Norwalk and Norwalk-Like Viruses, Hepatitis. Protozoa including *Cyclospora cayentanensis*, *Cryptosporidium parvum*. Mycotoxins and even pesticide residues after spraying it in the agricultural fields penetrate deeper into the food which also gets contaminated. In this case, Havelaar et al. (2015) has also stated the causes of food contamination. The majority of the food borne disease were diarrheal disease agents, specifically norovirus and *Campylobacter* spp. He has also stated, “Diarrheal disease agents, especially non-typhoidal *Salmonella enterica*, were also responsible for the majority of deaths due to FBD. Other major causes of FBD deaths were *Salmonella Typhi*, *Taenia solium* and hepatitis A virus. The global burden of FBD caused by the 31 hazards in 2010 was 33 million Disability Adjusted Life Years (DALYs); children under five years old bore 40% of this burden”[5]. As per the report the World Health Organization has found that non diarrheal causes of the deaths emerging from food borne diseases were generally found due to *Salmonella Typhi* and the number of death estimate was for about 52000 [5]. A research by Olsen et al. (1997) states the outbreak of the massive food contamination disease once in the United States of America. After severe observation it has been found that the disease has happened due to consumption of local and common food. After a research survey the number of people affected has been estimated. Within the years between 1993 – 1997, for about 2751 people has been found deeply impacted due to food borne diseases. After this outbreak a total amount of 86,058 persons have been found to become severely ill. This outbreak has happened due to lots of agents as discussed below but the report states something else. The report states with evidence that 75% and later 86% of the cases were determined to happen due to bacterial pathogens. For the largest number of outbreaks and deaths only an agent named *Salmonella* serotype Enteritidis has been held accountable to cause the huge hazard. Majority of the outbreaks have happened due to consumption of eggs. Now 17% of the disease has happened due to chemical outbreak and the other agents were responsible for the remaining outbreak [6]. Another group of researchers have also presented their study after verifying the outbreak of the food borne disease in the USA. As per Gould et al. (2013), “a total of 6,647 outbreaks of foodborne disease were reported (1,314 in 1998, 1,343 in 1999, 1,417 in 2000, 1,243 in 2001, and 1,330 in 2002). These outbreaks caused a reported 128,370 persons to become ill. Among 2,167 (33%) outbreaks for which the etiology was determined, bacterial pathogens caused the largest percentage of outbreaks (55%) and the largest percentage of cases (55%)”.

Prevention

The world has taken significant prevention and steps to avoid the growth and impact of the food borne disease. In order to adopt some safety measures the WHO along with its partners have launched an initiative to make an assessment of the global burden of the food contaminated disease. The Foodborne Disease Burden Epidemiology Reference Group formed by the WHO has made an estimate between the year 2006 – 2015 referring to the age, sex and region for the foodborne diseases caused by several agents as discussed – microbes, parasites, and chemicals [8]. According to research it has been found that in some of the developed countries like the UK and the USA for about 15 – 20% of the people has been found to be more susceptible to the food borne disease compared to the general population. For the prevention of food borne disease, the health sectors have suggested to low microbial diets, higher risk foods should be excluded from the diets of the vulnerable people. As per the paper the US Food Code has made a chart for the immune compromised and general people to follow to reduce the risk of food borne diseases. Meat or poultry products should be cooked in normal room temperature, smoked fish and pre-cooked seafood is healthy, milk should be pasteurized,

cooked sprouts, processed cheese, cream cheese or mozzarella, fast foods that should be reheated, canned foods etc [9].

Conclusion

From the above discussion it can be concluded that food borne disease is really a very well-known and hazardous disease which can impact the quality of public life. This paper has reviewed several articles related to food borne disease along with estimate of total human beings affected. The paper has also reviewed the causes and prevention of the food borne disease in both developed and developing countries. Further the intention of this review paper is to lay authentic information of the articles and assist the future researchers to gain information from this paper.

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