ADVANCES IN FOOD TECHNOLOGY AND NUTRITIONAL SCIENCES

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Opinion

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Perspectives on Foodborne Parasites

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Recently, the emergence of a global food market, the growth of organic food produced by organic farming, and changes in eating habits have aroused an interest in foodborne illnesses, which constitute an important public health problem around the world. The World Health Organization (WHO) and Food and Agriculture Organization (FAO) of the United Nations estimate that parasites such as helminths (e.g., Anisakidae*, Cysticercus* spp.*, Taenia saginata, T. solium and Trichinella spiralis*) and protozoa (e.g., *Cryptosporidium* spp.*, Cyclospora cayetanensis, Entamoeba histolytica, Giardia duodenalis, Toxoplasma gondii* and *Trypanosoma cruzi*), which have consequences on human and animal health, are currently responsible for some foodborne diseases.[1-3]

The research provides various information regarding the foodborne by these parasites. Several parasites detected in humans can be transmitted by water, fruit juices and other raw or undercooked foods, however, a large portion of outbreaks are caused by unknown or unidentified foods; and data about the percentage of foodborne illnesses caused by helminths or protozoa are variable worldwide. Unlike bacteria, fungi and virus, helminths and protozoa are multicellular eukaryotic organisms and have a complex life cycle that generally includes several intermediate forms, and invertebrate and vertebrate hosts.

Moreover, because foodborne illnesses such as acute Chagas' disease, cysticercosis, taeniasis or toxoplasmosis is frequently overlooked – and by transmission is one of the reasons why these are called neglected diseases – research is still faced with difficulties, mainly due to no notification of or the underreporting of human cases.

Consequently, parasitology research in the context of food science is a newly recognized and expanding area, and thus will become a major challenge during the upcoming decades both in developed countries and in developing countries, given economic importance and in public health about foodborne diseases, which can affect source of income based on fresh foods and costs with medical treatment and hospitalization.

Accordingly, the formation of multidisciplinary research teams composed of professionals involved in parasitology, food science and technology, genetics and laboratory animal science, coming together in an integrated fashion and with common goals, is fundamentally important. Rapprochement between university, industry, official food control laboratories and other research institutions and technology centers, public or private, is also necessary, especially in countries where such cooperation occurs infrequently.

To summarize ecological and epidemiological investigations, in general, analysis of foodborne outbreaks from biological contamination shows that occurrence of cases of disease can be caused by different developmental forms of parasitic agents, especially oocysts and cysts of protozoa or helminth eggs.

In humans, these investigations are primarily based on associations or correlations between consumption of a food possibly contaminated; secondly, the clinical conditions and/or laboratory diagnosis of human parasitosis, as the parasitological certification (e.g., "parasite-free") in food and beverages as prophylaxis is still incipient, mainly with respect to protozoa.

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Biological contamination of food occurs accidentally, but a careful assessment must also consider that the occurrence of foodborne parasitic diseases may become tendency or endemic in some regions over the years, if left uncontrolled. Imagine the number of asymptomatic hosts that are not known in such cycles.

For prophylactic methods of foodborne parasitic illnesses to be well known, they must be present in public policy development and be constantly diffused in a high-quality fashion in basic education. This is important as these methods aim to easily reduce or eliminate biological hazards in food and include the use of simple hygienic and health measures.

Among the proposed effective control measures, those primarily suggested are as follows: the consumption and/or use of filtered or boiled water for food preparation and proper hand washing after using the toilet and before preparing food (both by the general population and by food handlers). In addition; the proper washing or cooking of fruit and vegetables before contact with work surfaces (in the home or commercial kitchen); and lastly, as well as the proper cleaning of instruments and work surfaces between preparing different food products. All of these above steps can help to prevent cross contamination. Besides proper handling and preparation of food, there are many factors and difficulties to consider with regards to implementation of an anti-parasitic and prophylactic food safety system.

Nowadays, these factors include the possibility of obtaining samples of water and food, possibly contaminated at the time of occurrence of outbreaks; transport and correct storage of samples; knowledge about the composition and the complexity of the food matrix; the standardization of new analytical methods of detecting parasites in food in contrast to modern molecular biology technologies; the training of human resources, mainly microscopy experts; the inclusion and the speed of clinical and laboratory diagnosis of parasitic illness in non-endemic regions; and advances in legislation.

Hence, advances in these factors are indispensable in order to ensure safe food provision for populations and will minimize other difficulties to be overcome so that foodborne outbreak investigations are efficient and, in fact, conclusive.

REFERENCES

1. FAO. Food and Agriculture Organization of the United Nations.“Top Ten” list of food-borne parasites released. Website: http://www.fao.org/news/story/en/item/237323/icode/ 2014; Accessed July 10, 2015.

2. WHO. World Health Organization. Food safety. Website: http://www.who.int/mediacentre/factsheets/fs399/en/ 2014; Accessed July 10, 2015.

3. CDC. Centers for Disease Control and Prevention. Parasites. Website: http://www.cdc.gov/parasites/index.html 2015; Accessed July 10, 2015.