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Food contamination, food safety and COVID-19 outbreak

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Abstract

Purpose – COVID-19) is the present global problem. The potential for food borne transmission of COVID-19 becomes a present discussed public health issue. At present, there are many reports on the food contamination with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It is no doubt that the viral contamination in food is possible. The authors summarize and discuss on food contamination, food safety and COVID-19 outbreak.

Design/methodology/approach – The authors give a commentary on the available data on food contamination during COVID-19 outbreak. Based on basic food safety principles, the authors build an argument on available recommendation regarding food safety during the COVID-19 outbreak.

Findings – It still lacks in many details of food safety during COVID-19 pandemic. Public health personnel usually refer to classical food safety principles for recommending general people about food safety, but it still lacks for updated specific data on COVID-19. The present commentary gives some few ideas and it is necessary to have further specific research on this specific issue.

Originality/value – This is an original commentary regarding the new contemporary problem on food contamination, food safety and COVID-19 outbreak.

Keywords COVID, Food, Safety

Paper type Commentary

Introduction

Coronavirus disease 2019 (COVID-19) is the present global problem. Since its first appearance in 2019, the new disease has already caused more than 85 m infected persons worldwide. COVID-19 is caused by a novel coronavirus pathogen. The infection causes acute febrile respiratory illness. People with COVID-19 can be asymptomatic and silently spread the disease [1]. The contact with contamination in air environment is the main consideration in the disease spreading. The face mask wearing and respiratory infection control is the basic public health preventive recommendations. Nevertheless, the atypical possible mode of transmissions of COVID-19 becomes the important public health consideration [2].

Of several possible atypical modes of transmission, food borne transmission is widely discussed. At present, there is no evidence that COVID-19 is a food borne disease [3]. Whether the new virus is transmitted by food is still an interesting question [4]. The contamination in food becomes a big issue for management. Since a hand contamination can result in pathogen carrying into the mouth or nose cavity, it is necessary to have good hand sanitation during COVID-19 outbreak. An infected person might cause contamination into his/her surrounding environment. The contamination into food in case that an infected person works with food

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becomes a very important issue. The potential for food borne transmission of COVID-19 become a present discussed public health issue at present. According to New Zealand Food Safety & Science Research Centre [5, 6], it was noted that there was negligible risk of spread from food products or packaging. Based on the mentioned data from New Zealand, Kingsbury and Lake also noted that reducing the risk of contamination of food products or packaging should focus on managing the risk of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection amongst food workers who might be the cause of contamination in food. Nevertheless, according to the United States Centers for Disease Control and Prevention (US CDC) public information [7], it is noted that "*It is possible that a person can get COVID-19 by touching a surface or object, including food or food packaging, that has the virus on it and then touching their own mouth, nose, or possibly their eyes. However, this is not thought to be the main way the virus spreads.*" At present, there are many reports on the food contamination with SARS-CoV-2. It is no doubt that the viral contamination in food is possible. The observation on food contamination in imported frozen food results in big consideration worldwide [7].

COVID-19 outbreak, food contamination, food safety

In fact, many clusters of COVID-19 occur in food markets. The first saga of COVID-19 in China also occurred at a famous seafood market [8]. Recently, the new cluster also occurred in a seafood market in Indochina. The contamination of food in the market where the outbreak occurs is an important issue that is little studied. As already mentioned, food contamination is possible [7] but the remained question is whether it can result in disease spreading or not. Food safety and COVID-19 becomes a very important issue at present [9]. It is proposed that cold chain transportation of food product might promote the disease transmission [10]. Based on available evidence, pathogen can survive in frozen food for a long time. The change the one who contact with contaminated food can get a virus is possible if there is no good prevention. In fact, the acidity in human stomach might effectively destroy the virus. However, it is not known that if a hand is contaminated by the contaminated virus in food, it can cause disease contact at the nose or mouth or not.

The important issue is the appropriate measures against food contamination during COVID-19 outbreak. When an outbreak occurs in a market, it is necessary to close the market, cleaning the place, actively search for contact case and control of further local transmission. Nevertheless, surveillance of food safety is needed. The environmental metagenomics study to monitor the food contamination is recommended. This is a basic requirement for ensuring the consumer for food safety. The standard recommendations for food safety for the general people during an outbreak are needed [11]. Ceylan *et al.* [11] suggested for eliminating the potential SARS-CoV-2 risk in food material, sanitation of food staff and nutritional management during COVID-19 outbreak based on general food safety principle; however, there is no specific recommendation for food handling or cooking. Finding and collecting for new knowledge for construction of the complete food safety recommendations that covers the whole process is still necessary.

The recommendations should cover how to safely visit to food market/shop, how to select and deliver food, how to contact with fresh food, how to wash and prepare food for eating.

Although there are some referencing food science/food technology literatures [12–14] emphasizing the different methods that have been applied to prevent pathogen growth in food, there is no specific report in COVID-19. The commonly referenced reports, which described methods for safe food processing and handling [12, 13] as well as WHO's referencing HACCP (Hazard analysis critical control point) for food handling in retail and restaurants or heat treatment methods for decontaminating food/killing pathogens (1993) [14] are usually the ones published before the first appearance of the new disease, COVID-19.

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For COVID-19, heating is usually recommended at present but it lack specific scientific evidences and still requires further studies for confirmation of the exact effect of heating on the virus. The way for heating food has to be well studied. Referring to heating for getting rid of some pathogen such as parasites, it usually requires very high temperature heating and long period of heating [14]. The mentioned basic knowledge on heating might be well recognized and presumptively assumed for its effectiveness in the present COVID-19 outbreak situation. However, due to the lack of specific study, the present practice of food safety is usually an assumption without concrete evidences. Therefore, this is an important issue for scientific argument.

There is still no official report on study on cooking effect and viral destruction. This is an important issue for further researching. Additionally, not only fresh foods, but also frozen food, dried food or canned foods have to be well managed during COVID-19. The report on identification of SARS-CoV-2 in imported frozen dairy product brings attention to the global public health community for the improvement of food safety procedure during the present COVID-19 pandemic [4]. A silent outbreak might occur at any food factory and there is a need to have surveillance for safety of food products. For example, it still lacks of data for the period that the pathogen can exist in fresh foods, dried food or canned foods or not. Nevertheless, the contamination in imported frozen food is already reported [4]. In that case, the food product might not be handled appropriately and contamination occurred [4]. As a rule, if there is a cluster of COVID-19 outbreak at any food market or food factory, it is necessary to have an urgent food safety management for ensuring the safety of local people during the crisis.

Recommendations

At present, it still lacks in many details of food safety during COVID-19 pandemic. Public health personnel usually refer to classical food safety principles for recommending general people about food safety, but it still lacks for updated specific data on COVID-19. The present commentary gives some few ideas and it is necessary to have further specific research on food safety, covering the whole process from food production, transfer, preservation, sale, handling, cooking, consumption and food waste management are still urgently required.

Conclusions

There are evidences on pathogen contamination food, although it is not confirmed that the contamination can result in disease transmission. It is necessary to find appropriate recommendations for prevention of contamination.

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