

Should we be Worried about the Faecal Droplet–Respiratory Transmission Route of COVID-19?

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Abstract

According to Coronavirus disease 2019 (COVID-19) Situation Report 132, by WHO, this disease has spread all over the globe with 5 934 936 confirmed cases and 367 166 deaths, at time of communicating this correspondence. The rate of transmission of Coronavirus disease-19 is unprecedented with very high basic reproduction number. Investigations regarding the transmission routes of Covid-19 are underway to better contain the spread of these viruses.

Keywords: COVID-19; Norovirus; Aerosolization; SARS-Cov-2

About The study

The authors here present their view on the faecal droplet–respiratory transmission route of coronavirus. SARS- CoV and SARS-Cov-2 demonstrate 79% sequence similarity at the genome level. So, it makes better sense to base our quest for this novel route of transmission on the previous studies done on SARS-CoV. During an outbreak of SARS-CoV in a high-density Hong Kong housing complex Amoy gardens, it was found out that SARS-CoV shed in the feces of an infected building guest may have transmitted the disease to other inhabitants of the building via droplets and aerosols of virus-contaminated commode water. The infected water entered multiple apartments through faulty toilet plumbing and floor drains. This had led to a large cluster of 268 SARS cases. There is every chance that COVID-19 pandemic can also spread from this route. Previous coronavirus infections in humans were mild and self-limiting but Covid-19 virus has been different in its transmission, morbidity and mortality. There have been very less studies on the transmission route of coronaviruses as Covid-19 is a novel coronavirus. There is need for more information about survival of coronavirus in water and wastewater. Many cases of transmission of coronaviruses through droplets and aerosols formed from water contaminated with microorganisms have occurred in the past. For example, ingestion or inhalation of dried particles formed because of the desiccation and aerosolization of body fluids and fecal matter has resulted in the transmission of hantavirus and norovirus. As explained, SARS was spread through person-to-person fecal droplet–respiratory transmission route and the focal point was

Amoy Gardens apartment building in Hong Kong. According to in depth analysis of the studies on different coronaviruses in literature, the prospects for long-term survival of corona virus along with the airborne fecal droplet transmission model leads one to believe that fecally contaminated aqueous media could be a big risk for the spread of this disease. If water or sewage contaminated with SARS-CoV-2 becomes aerosolized, it could possibly expose large chunk of public to infection. In an area where quarantine is imposed, there would be a sense of false security if one would not take this transmission route under consideration. Contaminated commercial, residential, and hospital water or sewer systems will continue the transmission of the virus in a quarantined area too. Safety and security of building plumbing systems should be a major factor while making a comprehensive policy on the containment of the infection of the coronavirus. Only quarantine measures cannot guarantee that infection would not spread. Also, research should be carried out on the kinetics of coronavirus survival and inactivation in water, sewage, and other aqueous media. For example, it has been along held belief that in sewage water, the organic matter and suspended solids provide protection to the virus because viruses adsorb to these particles. However, the adsorption of viruses on the surface of organic matter and solids can be used to remove the viruses by settling the solids. There is need for more testing of water samples to determine whether water treatment methods are effective in killing SARS-CoV-19 and coronaviruses in general. Careful appraisal of this transmission route is important to effectively manage the pandemic arising because of covid-19. In order to better evaluate the hazards posed by this new exposure pathway, studies are needed on the survival and persistence of 2019-nCoV in water and sewage [1-6].

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