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LETTER TO THE EDITOR

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Fecal transmission in COVID-19: A potential shedding route

To the Editor,

We read with interest recent article by Zhang et al[1] on the diagnosis of Coronavirus disease 2019 (COVID-19) by fecal specimen test. Following the recent outbreak of pneumonia with unknown pathogen in Hubei province in China, a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) isolated from human airway epithelial cells and the disease was named COVID-19.[2] It is a public health emergency of international concern and rapidly spearing all over the world.[3]

Fever and cough are the most common clinical manifestations and gastrointestinal (GI) symptoms including nausea or vomiting and diarrhea are less common.[4] Moreover, ground-glass opacity and lymphocytopenia are the most common radiologic and laboratory findings, respectively.[4]

Angiotensin converting enzyme II (ACE2) may act as the potential intermediate hosts transmitting SARS-CoV-2 to humans.[5] Reverse transcriptase-polymerase chain reaction (RT-PCR) is a routine method for the diagnosis of COVID-19 in oropharyngeal swabs.[6] Intestinal tissue involvement was reported in patients with SARS-CoV and Middle East respiratory syndrome Coronavirus (MERS-CoV) infection.[7] Because of the novelty of SARS-CoV-2, the features of this pathogen are still unclear.

In the MERS-CoV outbreak in 2012, 14.6% of patients had positive fecal specimens.[8] Wu et al verified the presence of SARS-CoV-2 RNA in 55% of fecal specimens in patients with positive oropharyngeal swab test.[9] Recent evidence showed that SARS-CoV-2 present in fecal specimens from patients with COVID-19 and hands, food, and water contamination may occur by fecal content and may cause a critical infection by invading the oral cavity and respiratory tract.[1,10,11]

According to a bioinformatics study by Zhang et al ACE2 was not only highly expressed in the lung alveolar type 2 cells, esophagus upper and stratified epithelial cells but also in absorptive enterocytes from ileum and colon. On the other hand, the GI system is a potential shedding route for COVID-19.[12]

In the study in China on 14 laboratory-confirmed COVID-19 patients, the molecular diagnosis of COVID-19 in fecal specimens was equally accurate with oropharyngeal swab. Likewise, patients with a positive fecal test did not experience GI symptoms and had nothing to do with the severity of lung infection.[1] The clinical significance of evaluation RT-PCR test in fecal specimens also emphasized in most recent studies because in more than 20% of patients with COVID-19 the fecal swab test remains positive even after negative results in oropharyngeal swab test.[13]

More positives result in anal swab specimens than oral swab in a later stage of infection, suggesting shedding and thereby transmitted through oral-fecal route.[14]

In conclusion, the present method for the diagnosis of viral RNA of SARS-CoV-2 in oral swabs is not perfect because live SARS-CoV-2 may exist in fecal while oropharyngeal specimen is negative. The major concern in this condition is person to person transmission when the patient considers as a cured person with negative nucleic acid test. On the other hand, negative oropharyngeal swab may not an indication for discharge and possible shift from more oropharyngeal positive results during the early period to more anal positive results during the later period should be considered in this patients. Furthermore, anal swab specimen will reduce health care providers' infections by COVID-19. Finally, protection from fecal shedding route should be considered as important medical advice for reducing SARS-CoV-2 infection, notably in treated patients who met discharge criteria with negative oropharyngeal swab test. Further studies need to consider negative fecal viral RNA test as a criterion for patients discharge, undoubtedly, protect against fecal shedding is necessary during hospitalization and after patients discharge.

CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

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