

COVID 19: Are we fighting with the monster?

As per a recently published article, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) viral RNA has been detected in faecal samples up to 47 days after the appearance of the first symptom (mean 27.9 ± 10.7 days), and it was $\cong 1.7$ times more in duration compared to respiratory samples in 55% of the patients.^[1] Reporting of SARS-CoV-2 from enteral system indicates initial zoonotic origin, may be from bat or pangolin. SARS-CoV-2 hence poses a significant threat of being transmitted faecal-orally, and the presence of angiotensin-converting enzyme 2 (ACE2) in intestinal epithelium supports the hypothesis.^[1] In general, most of viruses causing human illnesses don't transmit by enteral and parenteral routes simultaneously because of their structural and functional limitations. The presence of viral RNA in faecal samples breaks this usual rule of nature, giving the virus unique capability to cause disease. Currently, the respiratory transmission is considered as the only by different routes of acquiring the infection. The findings of the study may be significant in the future as we exactly don't know much about the SARS-CoV-2, especially in densely populated areas and the countries with reduced sanitation levels. This may be analogous to the Hepatitis E virus, which epidemiologically shows variable transmission of different genotype, as faecal-oral in the developing world and zoonotic in the developed world.^[2] With time, it can be clarified whether it can have significant enteral though only alimentary canal is involved in HEV transmission. The faecal-oral transmission may be significant in the Indian subcontinent.

In one of the studies, the median half-lives of SARS-CoV-2 under different circumstances was compared with previous SARS-CoV-1. The study clearly showed the comparable half-lives of both virus under different experimental settings i.e. aerosol, and copper except cardboard where SARS-CoV-2 had longer half-life.^[3] Despite the similarities, it has been much more disastrous than the previous one, owing to its very high infectivity and high viral load in pharynx and nasal cavity (upper respiratory tract) and shedding of virus irrespective of the presence of symptoms.^[3] It is the actual and practical problem of testing, especially in the underdeveloped resource-limited countries, where prudent utilization of resources is a prerequisite.

Presently, there are no data available regarding the temperature and humidity survival of SARS-CoV-2. A recently published study analyzed the characteristics of areas with community spread. It was more common in areas of temperature range 5-11°C with low absolute humidity ($4-7 \text{ g/m}^3$).^[4] Previous SARS-CoV-1 was sensitive to a relatively higher temperature and at $>29^\circ\text{C}$ was not able to survive; however, there is a mixed opinion regarding the temperature sensitivity and exposure-duration in light about SARS-CoV-2, as this is the new virus which is highly unpredictable. Considering the study,^[4] countries with day temperature $>35^\circ\text{C}$ and longer duration of day-light, the airborne spread may reduce significantly. We only can hope like its previous counterpart it may not survive at higher temperatures, which may be beneficial to the Indian subcontinent.

Multiple possible transmission routes, high viral load even in asymptomatic patients, and unpredictable effects of temperature made it a pandemic. Fortunately, the majority of patients have a mild illness (80%-85%), and mortality rate of 2%-4%. Considering the huge number of infected people, even with this mortality rate, the number of deceased is going to be very high. Regarding long-term outcomes, we will have to wait regarding chronic complications. After looking into the characteristics, admittedly, we are struggling against the monster.

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Conflicts of interest

There are no conflicts of interest.

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