

A World of Changes: The Inheritance of COVID-19

Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), the viral agent of coronavirus disease 2019 (COVID-19), expanded its territory to almost all the globe very soon after its first diagnosis in Dec. 2019 in Wuhan, China.¹ Hardly a single aspect of life could be found that is not affected by COVID-19 outbreak. During about four months, the pandemic has introduced substantial challenges besides the health crisis, including severe restrictions in common daily habits as well as an immense impact on economy, financial losses, and lockdown of some industries, to name a few.

People around the world are desperately following the scientists' hard attempts to find solutions for conquering COVID-19. Researchers are still trying to learn more about SARS-CoV-2 and its pathogenicity, especially its interaction with the immune system. Despite the new findings announced on daily basis, many unexplored data remain to be discovered. The clinical trials of several potential medicines such as hydroxychloroquine, tocilizumab, methylprednisolone, lopinavir/ritonavir (Kaletra®), remdesivir, oseltamivir, favipiravir (Favilavir® in China), azvudine, darunavir/cobicistat, and interferons alpha and beta in COVID-19 patients are ongoing.^{1,2} Additionally, five candidate vaccines have entered clinical trials. But, no proven efficacious treatment is known yet and neither an effective vaccine is available. Meanwhile, inaccurate statements by some authorities or unreliable reports on social media regarding the preventive or therapeutic effects of some drugs against COVID-19 could mislead people who are hopelessly seeking a way out.

Several recent investigations that aimed to screen multiple populations to explore the rate of people who have acquired immunity against SARS-CoV-2, resulted in a range of 2-30%. In spite of controversies about the accuracy of the results, the presented rates are still far behind "herd immunity", or an acceptable limit for returning to a normal life and easing major restrictions.³ Recent statistics from some countries are indicating a decreasing trend of new cases, while in some other parts of the world, the disease threat seems to be rising. Thus, the uncertainty is still being continued, and regardless of some predictions, there is no definite estimation about the date that this risky situation can be overcome globally.

Many questions have been raised with no precise answers yet. Would the mutations lead the virus toward a friendlier and milder pathogen or the virus continues its hostile behavior toward human beings? Will the world face another wave of outbreaks soon? Will the virus be weakened as the weather gets warm in many countries? If controlled in summer, will it return in autumn and winter? Only time can help to find precise answers to these questions, so the situation demands patience along with scientific observations and investigations.

The outbreak has already highlighted many of our faults and drawbacks as nations and authorities. Unpreparedness and weakness of the health infrastructures, delayed responses regarding the disease spreading, underestimation of the risk in some countries are some of the examples of the low level of preparedness in some countries.⁴ On the other hand, the virus has been a blessing for the nature, in contrast to its animosity with humans. The decreased air pollution⁵ is an example, which spotlights the climate crisis resulted from excessive exploitation and mismanagement of natural resources by men.

The world after COVID-19 cannot be the same as what was before. This is a fact that we should accept. But, handling change is not easy for humans. Psychologists believe that people sometimes even prefer to stick to a hurtful but familiar condition and not to encounter with a new unknown experience even though the new situation could be more pleasant. COVID-19 pandemic has brought many changes in the world. Dealing with these changes may not be easy without a shift in our attitude and approach.

The complexity of the hazards of SARS-CoV-2 infection seems more than what was assumed at first. Recently, the severe damages of COVID-19 to body organs other than lung, including brain, liver, kidneys, and heart were identified. The key role of blood clots in this infection was also suggested.⁶ Such complicated pathogenesis mechanism of the virus involving multiple organs cannot be understood without using a systemic approach and taking into account the interactions of different parts of the body including the blood and immune system with all its cells, cytokines, and other components.


A systemic approach seems the one needed for managing COVID-19 not only from a medical perspective, but also for all the other aspects of our lives that have been affected by this mysterious virus. Systemic thinking, which considers the whole as an entity that is not equivalent to sum of its compartments, is an approach that can be employed in different areas. In medical field, a systems biology approach might guide scientists to figure out the pathogenesis mechanism of SARS-CoV-2.

All in all, we need a systemic view and a radical shift in our look, attitude, behavior, habits, and priorities in

order to cope with the unavoidable changes and become prepared for probable future health crisis. But, the major question is that are we ready, as individuals, societies, and governments, for such a revolutionary change?

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