

The Health Crisis Caused by the New Coronavirus and the Underground World of Noninfluenza Respiratory Viruses: The Need for a Global Surveillance Plan

What we are experiencing with the novel coronavirus pandemic is that it is one of the most serious health crises since the early twentieth century. This should prompt the scientific community to fill the gap in knowledge by investing more in scientific research and surveillance of noninfluenza respiratory viruses (NIRVs). In recent years, there has been an improvement in the knowledge of influenza viruses. Unfortunately, little has been done with respect to the NIRVs leaving a gap in knowledge.^[1] While nascent efforts to understand coronaviruses, in the wake of Severe Acute Respiratory Syndrome Coronavirus 1 and Middle East Respiratory Syndrome (MERS) and of the current SARS-CoV-2, exist, there is no systematic laboratory surveillance of coronavirus or other NIRVs infections in humans. This heterogeneous group of viruses includes the respiratory syncytial virus, parainfluenza viruses, coronaviruses, rhinoviruses, adenoviruses, and other human metapneumoviruses. This represents a health problem with important economic and social consequences.^[1-3] NIRVs are known to be the main cause of morbidity and mortality from respiratory infection of viral origin in children and it has a close link with asthmatic pathology.^[2,3] In adults, the afore-mentioned pathogens can also cause pneumonia, flares of chronic pathologies, and hospitalizations, especially in subjects with classical risk factors that lead to common flu complications (elderly, immunocompromized subjects affected by preexisting chronic pathologies).^[3-5] Furthermore, we know that coinfection in people with influenza is common^[2] and that infections sustained by the respiratory syncytial virus show morbidity and mortality in the elderly and in high-risk subjects comparable to seasonal influenza.^[3-5]

NIRVs constitute a largely unexplored group of viruses. There are several doubts and uncertainties about the infection caused by the coronavirus, such as disputes on the seasonal trend, natural immunity conferred by the infection, possible reactivation in some subjects, accuracy of antibody tests, and sensitivity to different available therapies. All these controversial questions are a result of poor knowledge of the common coronaviruses, making eventual comparison impossible.

Therefore, in the subsequent months, the scientific community will have to concentrate a large part of the available resources to fight against coronavirus, not neglecting the potential risks from the other NIRVs,

which could become the next protagonists of a new health crisis. In fact, NIRVs, except for adenoviruses, are RNA viruses. Retroviruses represent the main cause of emerging infectious diseases in humans. The high mutation rate of RNA viruses greatly increases the ability to evolve, increasing the risk of zoonotic spillover, adaptation to new host and development of drug resistance. This new awareness should push governments and health authorities to devote more resources and investments toward research on NIRVs, since these respiratory transmission viruses are not only an important cause of morbidity and mortality in vulnerable subjects, but an unpredictable source of a pandemic risk and a constant threat to human coexistence.

Antiviral research and large-scale epidemiological studies, together with an implementation of genomic sequencing and a monitoring and surveillance system similar to that of flu, are the only effective strategy toward the prevention of another global health crisis in the future.

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Conflicts of interest

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