Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Immunogenomic phases of COVID-19 and appropriate clinical management

In their Article in *The Lancet Microbe*, Bernadette Schurink and colleagues found that multiorgan involvement of COVID-19 is not directly virus induced but mainly due to the pathobiological immune alterations.[1] Their outstanding study further outlined the urgent need of crucial biomarkers indicating clinicobiological phase of COVID-19 relevant to key decision making at the bedside of a patient with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

We have described three immunogenomic phases ("initial", "propagating", "complicating") of coronavirus (CoV) infections and their corresponding transcripts (*ACE2*, *ANPEP*, *EGFR*, *IGF2R*, *IFN*) as potential biomarkers.[2,3] At the "initial" and "propagating" phases of CoV infection, crucial renin-angiotensin system family genes were up-regulated (*ACE2*, *ANPEP*) while some others (*EGFR*, *IGF2R*) were down-regulated. Antivirals and immunomodulation with immune plasma or intravenous immunoglobulin seem to be appropriate treatments during the first two phases of CoV infections.[3] During the "complicating" phase, there is an increase in the expression of some key immune system genes, particularly *IFN*-family genes.[2] Glucocorticoids, monoclonal antibodies, and other immunosuppressive regimens might be most useful during the third "complicating" phase of CoV infections, the phase associated with macrophage activation and exaggerated or disproportionate immune attack.[3]

Schurink and colleagues disclosed multisystemic COVID-19-associated inflammatory changes in the lungs, heart, kidneys, and brain.[1] All of those organs have a local autocrine tissue renin-angiotensin system[4] that could be affected by the SARS-CoV-2 ACE2 interactions and their immuno-inflammatory pathological outcomes. Therefore, directed renin-angiotensin system modulator medicines, such as soluble ACE2, APN01, angiotensin (1–7), TXA127, and MAS receptor agonists,[3–5] might be considered to be so-called drugs of hope for the pharmacobiological management of the all three stages of CoV infection on the basis of future controlled clinical trials.[3]

I declare no competing interests.

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