Introduction to the Special Section: COVID-19 - insights on pharmacology and pharmacotherapy

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The second wave of COVID-19 pandemic is more severe and takes its toll all over the world. During the last few months medical doctors and researchers were seeking for therapies, which could prevent SARS-CoV-2 infection, decrease viral shedding, boost patient's immune response or minimize severe manifestations of acute respiratory distress syndrome and cytokine storm. So far, the most effective measures taken are the same as centuries ago. Isolation of contagious subjects, personal protection by facial masks and professional clothing, social distancing or lockdown were in use since historical plague outbreaks. This Special Section of the current issue of the journal is focused on pharmacological treatment of COVID-19 infection. Our experience in a wide spectrum of this pharmacological modalities is reviewed by Adeleh Sahebnaasagh et al. The first drug against COVID-19 registered by European Medicines Agency (EMA) and Food and Drug Administration is a direct-acting antiviral agent remdesivir. There is no time to wait for completion of all ongoing randomized controlled trials on remdesivir. This ribonucleotide analogue inhibits viral RNA polymerases. Already meta-analysed RCTs demonstrated clear clinical benefits of remdesivir, but interestingly enough, shorter courses of the therapy resulted in a better rate of improvement than the longer ones. Another

RNA polymerase inhibitor favipavir, used to treat influenza in Japan, is reviewed within context of COVID-19 by Alberto Boretti. Repurposing of drugs to combat COVID-19 is discussed in this issue by Thakur Uttam Singh et al. Along the same idea is testing off-label drug activities presented by Krzysztof Marciniak et al. for case of fluoroquinolones. An observational study on amantadine, formerly used in influenza A2 infection to inhibit the viroporin or M2 viral proton channel, is also included in this issue. Efficacy of vitamin C overdose is discussed as well as a potential of cepharantine, an alkaloid inhibiting viral reverse transcriptase, tested previously in human T-lymphotrophic virus infections. Viral sepsis, a term describing a massive release of proinflammatory cytokines causing endothelial damage and massive pulmonary infiltrations can be mitigated by tocilizumab, a monoclonal immunoglobulin G inhibiting interleukine-6 receptor, which is presented by Carmen de Cáceres et al. We hope that the nearest future will bring more and more data on the treatment of COVID-19 and this battle will be won soon.

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