International Journal of Surgery 83 (2020) 28–29

Contents lists available at ScienceDirect

International Journal of Surgery

journal homepage: www.elsevier.com/locate/ijsu

Commentary

A Commentary on "A comparative overview of COVID-19, MERS and SARS: Review article" (International Journal of Surgery 2020; 81:1–8)

ARTICLE INFO

Keywords
COVID-19
Coronavirus
Pandemic
Viral infection outbreak
Severe acute respiratory syndrome (SARS)
Middle East respiratory syndrome coronavirus (MERS-CoV)
Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
Epidemiology
Public health
Global health emergencies

Dear Editor,

Liu et al. [1] have presented a comparative review of the three most notable coronaviruses, namely, SARS-CoV, MERS and SARS-CoV-2, which have resulted in major epidemics in the 21st century. The authors have reported their respective epidemiology and etiology, the pertinent clinical features, findings of laboratory tests and imaging as well as treatment options.

While MERS-CoV originated in and was mainly restricted to the Middle East [2], SARS-CoV spread from Guangdong, China to around 30 countries, lasting for about 8 months [3]. In contrast, SARS-CoV-2 originated in Wuhan, China and spread like a wildfire across the globe resulting in about 0.776 million deaths and 21.7 million confirmed cases of COVID-19 as of August 17, 2020 in 188 countries [4].

Bats are considered as the common reservoir for all three types of coronavirus but the intermediate hosts are different for each of them [5]. For SARS-CoV, raccoons, civet cats and badgers; for MERS, camels [6] and for SARS CoV-2, pangolins [7], cats and ferrets [8] serve as the intermediate hosts. Transmission most likely took place through consumption of meat, milk or serum of the host animal and/or by direct contact [1]. Nosocomial transmission was the dominant route of transmission for all three of the viruses; considerable secondary transmission through asymptomatic patients was also reported [9]. Reproduction factor (R_0) for SARS was 3, for MERS 0.8–1.3 [10] and for SARS-CoV-2 up to 2.5 at the beginning of the epidemic [11]. The timing of peak viral loads in MERS was during the second week of infection, on the 10th day in the case of SARS-CoV and during the first week for SARS-CoV-2, viral load being higher in severe cases for all three viruses [12].

The clinical spectrum of all three viral infections is similar with a prodrome of non-specific symptoms the most frequent being fever and dry cough, followed by muscle aches, chills and shortness of breath while some patients present with nausea, vomiting and diarrhea [13]. Severity of coronavirus infections is greater with older age, and co-morbidities like diabetes, chronic heart disease, and hypertension. While complicated cases of SARS and COVID-19 manifested rapid progression to acute respiratory distress syndrome (ARDS), severe MERS cases were more likely to present extra pulmonary organ dysfunction as well as the need for treatment with vasopressors [13].

To date, only symptomatic support is the mainstay of treatment for all three types of coronavirus infections. Antibiotics are given to guard against superimposed bacterial infections or complications. Studies regarding the efficacy of ribavirin, alone or in combination with, interferon or glucocorticoids have reported conflicting results [14,15]. Remdesivir, although effective against SARS-CoV and MERS-CoV, still lacks evidence from clinical trials for its effectiveness against COVID-19 [16]. In vitro experiments report chloroquine effectiveness in the prevention and control of SARS-CoV infection while randomized controlled trials show hydroxychloroquine effectiveness in shortening recovery time for COVID-19 pneumonia [17].

Convalescent plasma transfusions have been found effective in improving prognosis in early stages of SARS with similar results reported in five critically ill patients with COVID-19. However, risks due to infection transmission to transfusion personnel, strict criteria for donor selection and limited evidence from Randomized Controlled Trials restrict its use [18]. A number of vaccines against human MERS, SARS-CoV and COVID-19 are being developed [19]. The commonest long-term complications of SARS, MERS and COVID-19 is pulmonary

DOI of original article: https://doi.org/10.1016/j.ijsu.2020.07.032.

https://doi.org/10.1016/j.ijsu.2020.08.049
Received 17 August 2020; Accepted 21 August 2020
Available online 11 September 2020

fibrosis in recovering patients [1]. However, SARS-CoV2 being a novel virus, patients may present with other sequelae not yet evident.

Provenance and peer review

Commentary, internally reviewed.

Ethical approval

Not applicable as all data reported in this work in available in the public domain.

Sources of funding

No funding.

Author contribution

All authors conceived and planned the study. S.A. and S.G.S.S. identified and reviewed the relevant literature. S.A. drafted the manuscript. S.G.S.S. edited and updated the manuscript. S.F.H.S. and S.G.S.S. reviewed the manuscript for critical input. All authors approved the final version of the manuscript.

Guarantor

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Declaration of competing interest

Author declares no conflict of interest.

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