

Causes of prolonged hospitalisation after COVID-19 are more varied than assumed

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We read with interest the article by Shaik et al on a retrospective analysis of the reasons for prolonged hospitalisation among 150 patients with SARS-CoV-2 infection admitted between 1 April and 1 July 2020 (1). The average length of hospitalization was 48.5 days and that of extended stay was 27.5 days (1). The most common reasons for prolonged hospitalisation were mandatory isolation (n = 62), hospital-acquired infections (n = 37), acute respiratory distress syndrome (ARDS) (n = 32), myopathy/neuropathy (n = 31), pulmonary fibrosis requiring oxygen therapy (n = 31), and completion of SARS-CoV-2 infection treatment (n = 25) (1). It was concluded that the causes of prolonged hospital stays should be uncovered to make optimal use of available hospital resources in future pandemics (1). The study is impressive, however, some of the issues raised require further discussion.

First is the retrospective design of the study (1). A retrospective design has some disadvantages: some data may be missing, the accuracy of the data cannot be easily checked, desired missing or new data can no longer be generated, and clues for specific investigations are often not comprehensible. We should know how much data from the cohort was missing and to what extent this affected the results. How many patients were excluded due to missing data?

Second, several causes of prolonged hospitalisation due to SARS-CoV-2 infection were not discussed. Prolonged hospitalisation after SARS-CoV-2 infection may be due not only to the necessary isolation, hospital-acquired infections, myopathy/neuropathy, pulmonary fibrosis, ARDS, or the duration of SARS-CoV-2 infection treatment, but may also be due to exacerbation of comorbidities that already existed before hospitalisation. Some diseases are known to relapse during SARS-

CoV-2 infection, including Guillain-Barre syndrome, myasthenia gravis, multiple sclerosis, pemphigus vulgaris, various other immunological diseases, and reinfection with SARS-CoV-2 (2).

Third, the side effects of medications first administered during hospitalisation were not analysed. Several medications such as remdesivir, tocilizumab, nirmatrelvir/ritonavir, molnupiravir, favipiravir, hydroxychloroquine, azithromycin, lopinavir/ritonavir, or nafamostat mesylate, which are administered to treat SARS-CoV-2 infection, are known to have the potential to cause serious side effects (3). For example, azithromycin can cause vomiting and diarrhoea and hydroxychloroquine is known to cause muscle weakness.

Fourth, it was not specified what type of myopathy or neuropathy was diagnosed in the 31 patients who had this complication. We should know whether these patients had critical illness myopathy or whether they developed other types of secondary myopathy. As for neuropathy, we should know how many of them developed polyradiculitis, how many had plexitis, and how many had polyneuropathy. Have there been patients in whom SARS-CoV-2 infection was complicated by myasthenia?

Fifth, no definition of the term “prolonged hospitalisation” was given. We should know the cutoff for prolonged hospitalisation.

In summary, the interesting study has limitations that put the results and their interpretation into perspective. The causes of prolonged hospitalisation after SARS-CoV-2 infection are more varied than assumed. Before drawing final conclusions, all factors causing prolonged hospitalisation should be considered.

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References

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Response by the authors

Thank you very much for the detailed comments on our paper titled “Duration and aetiology of extended hospitalization among COVID-19 patients in United Arab Emirates”, published in the Eastern Mediterranean Health Journal October 2023 edition. The authors would like to provide the following response to the comments:

First, retrospective design is not ideal of course, but by the time we decided to conduct the study it was too late to do a prospective study. Since the study was basic, we only looked at those patients who fulfilled the definition of prolonged stay and analysed the progress notes on electronic medical record, therefore, no patient was excluded because of missing data.

Second, before conducting the data analysis we divided the possible complications into complications related to: (1) COVID-19 treatment, (2) hospitalisation, and (3) pre-existing conditions or conditions unrelated to COVID-19 infection. We analysed the final data to find the actual reasons and their distribution. Although SARS-CoV-2 infection can cause these complications, such complications are rare, and probably our patient cohort was small, we did not find them in any of our patients.

At our hospital, specialised diseases such as multiple sclerosis are admitted under their respective specialities such as neurology, therefore, if SARS-CoV-2 had exacerbated multiple sclerosis, patients with multiple sclerosis would not have been included because they would have been admitted to the general medical ward.

Third, we wanted to broadly know the reasons for prolonged stay so we could be better prepared for any future pandemic. We did not aim to analyse specific side-effects of each COVID-19 medicine. Most of the side effects mentioned are short-lived and are unlikely to cause prolonged hospitalisation. We found acute kidney or liver injury in a few patients, and we mentioned this in our paper.

Fourth, we did not focus on specific complications. Most of our patients did not undergo further investigation such as nerve conduction because they were isolated and for financial reasons. This would be an interesting subject to analyse in further studies.

Fifth, “patients were considered fit for discharge after 2 consecutive negative test results.” Therefore, all patients who stayed in the hospital after 2 negative SARS-CoV-2 tests were considered to have prolonged hospitalisation.