Predicting the Outcome of ICU Patients with COVID-19 Requires the Inclusion of All Influencing Factors

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The article by Kajal et al. reporting a retrospective, multicentre study of SARS-CoV-2 infected patients requiring intensive care unit (ICU) admission is attractive as it aims to uncover predictors and outcomes of COVID-19.[1] Mortality in 5,865 patients was 43%, and nonsurvivors were older, had more comorbidities, higher D-dimer, higher CT-severity index, and longer hospital and ICU stays than survivors.[1] High C-reactive protein and D-dimer were associated with mechanical ventilation, and advanced age and high D-dimer were associated with mortality.[1] The prophylactic use of low molecular-weight heparin reduced mortality.[1] The work is compelling, but some points should be discussed.

A limitation of the study is its retrospective design. Retrospective designs have the disadvantage that missing data can no longer be filled in, the correctness of the data can no longer be checked, and additional interesting data can no longer be generated.[1] Missing in this respect is the number of missing data and how they were handled.

A second point is that current medication was not included in the analysis. Since several drugs can strongly influence the course and outcome of an infection, it is imperative to know how many of the included patients regularly took steroids, immunosuppressants, immune modulators, chemotherapeutics, antibiotics, analgesics, sedatives, antipsychotics, or antiepileptics. In particular, drugs that affect the immune system could have a major impact on the course and outcome of a viral infection such as COVID-19.[2]

A third point is that it is not comprehensible why only high CRP and D-dimer but not oxygen saturation and CT-severity index were associated with mechanical ventilation. One would expect that hypoxigenation and severe COVID-19 are strong indicators of mechanical ventilation. How do the authors explain this unusual finding? It is also not comprehensible why comorbidity did not influence the outcome of COVID-19. Several other studies found that the number and severity of comorbidities strongly influence the outcome of SARS-CoV-2 infections.[3]

A fourth point is that patients admitted to 53 Indian ICUs between March 2020 and August 2021 were included.[2] Since anti-SARS-CoV-2 vaccination has been available since December 2020, it is conceivable that at least some of the people admitted after these dates were already vaccinated. Therefore, we should know how many of the included patients had undergone SARS-CoV-2 vaccination and to what extent the vaccination influenced the severity of COVID-19 and its outcome. Was the outcome of the vaccinated people better than that of the unvaccinated people?

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Overall, the study has shortcomings that challenge the results' interpretation. Addressing these limitations could further strengthen and reinforce the statement of the study. Analysis of predictors and outcomes of COVID-19 in the ICU requires the inclusion of all variables that influence the endpoint variables, including current medication.

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Ethical Compliance Statement

The authors confirm that the approval of an institutional review board or patient consent was not required for this work. We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this work is consistent with those guidelines. This article is based on previously conducted studies and does not contain any new studies with human participants or animals performed by any of the authors.

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