

Caring for Noncritically Ill Coronavirus Patients

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The early days of the coronavirus disease 2019 (COVID-19) pandemic were fraught with uncertainty as hospitalists struggled to develop standards of care for noncritically ill patients. Although data were available from intensive care units (ICUs) in Asia and Europe, it was unclear whether these findings applied to the acute but noncritically ill patients who would ultimately make up most coronavirus admissions. Which therapeutics could benefit these patients? Who needs continuous cardiopulmonary monitoring? And perhaps most importantly, which patients are at risk for clinical deterioration?

In this issue, Nemer et al begin to answer these questions using a retrospective analysis of 350 noncritically ill COVID-19 patients admitted to non-ICU care at Cleveland Clinic hospitals in Ohio and Florida between March 13 and May 1, 2020.¹ The primary outcome was a composite of three endpoints: increased respiratory support (high-flow nasal cannula, noninvasive positive pressure ventilation, or intubation), ICU transfer, or death. The primary outcome occurred in 18% of all patients and the risk was greatest among patients with high admission levels of C-reactive protein (CRP). This analysis found that while clinically significant arrhythmias occurred in 14% of patients, 90% of those were in patients with either known cardiac disease or an elevated admission troponin T level and in only one case (<1%) necessitated transition to a higher level of care. Overall mortality for COVID-19 patients initially admitted to non-ICU settings was 3%.

While several tests have been proposed as clinically relevant to coronavirus disease, those recommendations are based on studies performed on critically ill patients outside of the US and have focused on survival, not clinical deterioration.^{2,3} In their cohort of noncritically ill patients in the US, Nemer et al found that not only is CRP associated with clinical worsening, but that increasing levels of CRP are associated with increasing risk of deterioration. Perhaps even more interesting was the finding that no patient with a normal CRP suffered the composite outcome, including death. The authors did not report levels of other laboratory tests that have been associated with severe coronavirus disease, such as platelets, fibrin degrada-

tion products, or prolonged prothrombin time/activated partial thromboplastin time. As many clinicians will note, CRP's lack of specificity may be its Achilles heel, potentially lowering its prognostic value. Still, given its wide availability, low cost, and rapid turnaround, CRP could serve as a screening tool to risk stratify admitted coronavirus patients, while also providing reassurance when it is normal.

The results of this study could also impact use of hospital resources. The findings regarding the low risk of arrhythmias provide support for limiting the use of continuous cardiac monitoring in noncritically ill patients without previous histories of cardiac disease or elevated admission troponin levels. Patients with normal admission CRP levels could potentially be monitored safely with intermittent pulse oximetry. Continuous pulse oximetry and cardiac monitoring are already overused in many hospitals, and in the case of coronavirus the implications are even more significant given the importance of minimizing unnecessary healthcare worker exposures.

The vast majority (79% to 90%) of patients hospitalized for coronavirus will be cared for in non-ICU settings,^{4,5} yet most research has thus far focused on ICU patients. Nemer et al provide much-needed information on how to care for the noncritically ill coronavirus patients whom hospitalists are most likely to treat. As a resurgence of infections is expected this winter, this work has the potential to help physicians identify not only those who have the highest probability of deteriorating, but also those who may not. In a world of limited resources, knowing which patient is unlikely to deteriorate may be just as important as recognizing which one is.

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References

1. Nemer D, Wilner BR, Burkle A, et al. Clinical characteristics and outcomes of non-ICU hospitalization for COVID-19 in a nonpalliative, centrally monitored healthcare system. *J Hosp Med*. 2021;16:7-14. <https://doi.org/10.12788/jhm.3510>
2. Lippi G, Pleban M, Henry B. Thrombocytopenia is associated with severe coronavirus disease 2019 (COVID-19) infections: A meta-analysis. *Clin Chim Acta*. 2020;506:145-148. <https://doi.org/10.1016/j.cca.2020.03.022>
3. Klok FA, Kruip MJHA, van der Meer NJM, et al. Incidence of thrombotic complications in critically ill ICU patients with COVID-19. *Thromb Res*. 2020;191:145-147. <https://doi.org/10.1016/j.thromres.2020.04.013>
4. Giannakeas V, Bhatia D, Warkentin M, et al. Estimating the maximum capacity of COVID-19 cases manageable per day given a health care system's constrained resources. *Ann Intern Med*. April 16, 2020. <https://doi.org/10.7326/M20-1169>
5. Tsai T, Jacobson B, Jha A. American hospital capacity and projected need for COVID-19 patient care. *Health Affairs* blog. March 17, 2020. Accessed October 12, 2020. <https://www.healthaffairs.org/doi/10.1377/hblog20200317.457910/full/>

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