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CHEST

Steady As She Goes

Practicing Evidence-Based Critical Care When the Evidence Is Limited

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In this issue of *CHEST*, Janz et al[1] share the results of their study about integrating a clinical protocol when caring for critically ill patients with coronavirus disease 2019 (COVID-19). This particular retrospective, observational cohort study took place in four hospitals in New Orleans from early March to mid-April 2020. The authors focused their efforts in two major areas: (1) they wished to see if utilizing an evidence-based protocol would be associated with improved outcomes, and (2) they analyzed outcomes in their critically ill patients with COVID-19 who were admitted to so-called "safety-net" hospitals (SNH).[2,3]

First, we praise the authors for doing their best to fight the "tsunami of misinformation"[4] that has been so common, challenging, and distracting when attempting to care for patients with COVID-19. As the readers of *CHEST* are aware, doing successful research during the pandemic is no easy feat. That having been said, let us devote our attention to two particular subjects of interest: what did the authors actually do, and are the results beneficial and relevant to the average practicing intensivist?

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The concept of the value of "protocolized care" for critically ill patients is not new, with an obvious example being the first iteration of the Surviving Sepsis Campaign guidelines (2004).[5] Our first comment would be that we would have surmised that many of the ICUs in their four-hospital system would have already had some form of guidelines and protocols in place prior to this study. If their argument was that they did not have COVID-19-specific protocols in place, this would be another controversial statement. As was made clear by the release of COVID-19 specific guidelines in March of 2020, the preexisting, well-accepted, evidence-based approach to the management of respiratory failure from this virus was, and remains, the recommended technique for optimal outcomes in this disease.[6] Although we now have data to support the use of COVID-19-specific pharmacologic interventions, such as remdesivir and dexamethasone, it remains of the utmost importance that tried and true, evidence-based, ICU-level interventions continue to be used in order for there to be quality outcomes in the critically ill patient with COVID-19.[7]

Their specific protocol can be broken down into two major areas: (1) the use of noninvasive positive pressure ventilation (NIPPV) for respiratory failure and (2) how best to care for the tracheally intubated patient. In terms of the use of NIPPV, this itself is controversial for two reasons: first, it invokes a highly provocative philosophy of "avoiding intubation at all costs" for patients with COVID-19, and secondly, there is concerning potential for nosocomial transmission of COVID-19 with NIPPV.[4,6,8,9] The recommendation for when to start NIPPV was if the patient was unable to keep their oxygen saturation at >88% with 6 L of oxygen via nasal cannula. In terms of the care for the tracheally intubated patient, the protocol recommended using the ARDSnet approach from the study published in 2000, a method that has been supported by data from multiple subsequent trials.[10] Other recommended protocolized interventions included proning the intubated patient when appropriate (Pao_2/Fio_2 <150), minimizing fluid whenever feasible, using a light sedation strategy, and performing a daily spontaneous awakening trial

combined with a spontaneous breathing trial.[11] The majority of these interventions would be considered to be a standard of care by most intensivists. Given the fact that their clinical protocol was evidence-based, it is not particularly surprising, therefore, that the authors were able to demonstrate an increase in ventilator-free days (25 vs 0 days; $P = .005$), improvements in 28-day in-hospital mortality rate (from 56% to 37%; $P = .02$), and a decreased need for renal replacement therapy by caring for patients with this approach.

As the authors themselves admit: "It is…unknown which aspects of the protocol may have provided benefit to patients and which aspects had little effect."[1] They go on to mention that there was an increase in the number of ventilator-free days over time in all network hospitals, regardless of exposure to protocol. The majority of the patients received appropriate low-tidal-volume ventilation. Components of the protocol that did increase over time included the level of positive end-expiratory pressure, the use of NIPPV, and the percentage of patients for whom endotracheal intubation was avoided.

As a secondary topic of the article, the authors then go on to describe the outcomes of critically ill patients with COVID-19 in their SNH (with an SNH being defined by ≥50% of inpatient admissions either uninsured or Medicaid)[2], demonstrating that 93% were African American, with median ventilator-free days of 22 and a 39% in-hospital mortality rate. It is not particularly clear why they wished to look at all patients in the SNH with COVID-19, because this specific study was primarily an effort to determine whether a protocolized approach to care is advantageous in critically ill patients with COVID-19. It appears as if these patients were in a mix of units in terms of exposure to the evidence-based clinical protocol, somewhat obfuscating the data that were obtained from SNH analysis. Also, it is unclear why a discussion of SNH is relevant at all because the protocol implementation should be cost-neutral from a financial standpoint. We think this issue of looking separately at SNH patients is potentially a bit of a distraction for two reasons: (1) it is an important enough topic that it probably should be considered in another study, and (2) it is not clear what exactly the authors were trying to look at by doing this SNH analysis. If the study was primarily analyzing issues of race, ethnicity, or socioeconomic status, then, again, these issues are important enough to merit separate investigation.

So, in summary, Janz et al[1] were able to demonstrate—using an observational, retrospective method—an association between the use of a clinical protocol when caring for critically ill patients with COVID-19 and improved outcomes. Though this result is not particularly surprising, it is somewhat comforting to review data that confirm that an evidence-based, protocol-guided approach when providing critical care appears to be as valuable for patients with COVID-19 as it is for all other patients with respiratory failure. If the current pandemic leads to more ICUs developing evidence-based care protocols, then at least one good thing will have come out of what has otherwise been a rather abysmal year.

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