

CORRESPONDENCE



ICU organization and disparities in clinical trajectories and outcomes during the pandemic

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Guidet et al. [1] in an interesting paper demonstrated higher mortality of critically ill patients aged >80 years admitted to the intensive care unit (ICU) during the first phase of the pandemic of coronavirus disease 2019 (COVID-19) compared to those with respiratory failure before the pandemic. Despite worse outcomes, patients admitted during the pandemic were less sick and frail. In addition, decisions to forgo treatment and time to death were also different. Such results raise questions about what could possibly contribute to this scenario, since disease severity and functional status cannot explain the findings.

Severity scores on admission of COVID-19 may not reflect the full severity and course of the disease. On admission patients may present isolated pulmonary dysfunction and later progress to acute respiratory distress syndrome (ARDS) and multiorgan involvement [2]. Thus, in the beginning of the pandemic, while the time-course of the disease and risk factors for mortality (i.e., frailty and age) were incompletely understood, we believe that beyond the understanding of individual patient's characteristics, it is the ICU organization that may hold the key to explain variability in outcomes.

The pandemic disrupted ICU organization and negatively affected the outcomes of COVID and non-COVID patients [3]. The surge of patients challenged the access to ICU beds, the sustainability of medical supplies, optimal staffing patterns and ultimately the quality of care.

Overwhelmed healthcare professionals, in insufficient number were less able to sustain quality of care and guarantee evidence-based practices and adherence to protocols. Coupled with the severity of the disease and the well-known low functional reserve of very old patients, a lack of established protocols, well designed processes of care and trained staff were additional elements to contribute to worse outcomes.

Studies demonstrate an association between ICU organizational characteristics (i.e. staffing and process features) and better outcomes [4]. There is consistent evidence that ICU staffing patterns such as full-time intensivists coverage, higher nurse/bed ratios and a higher number of protocols managed by the multidisciplinary team, are associated with reduced mortality, shorter duration of mechanical ventilation (MV) and length of stay (LOS) in the ICU. It is reasonable to assume that well-organized ICUs that are managed in a data-driven way using information about patients' characteristics and outcomes may be faster to adapt to the emerging challenges, being more resilient [5].

The pandemic has shown the fragility of ICU processes and structure, and, above all, how patients are vulnerable to these modifiable patterns. Furthermore, the pandemic lessons can act as propellant for improvements in many spheres. It is important to understand the organizational characteristics of better performing ICUs to learn from them and be able to be prepared for challenges that may affect patient's outcomes in pandemic and non-pandemic times. For research, measuring and organizational data should be considered a goal for future observational studies. Also, in our daily ICU practice, the organizational challenge of ICUs must be faced immediately using current evidence generated by clinical trials and quality

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improvement studies creating a more resilient environment able to adapt, learn, respond, and anticipate in face of new events [5].

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Declarations

Conflicts of interest

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