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Can the intensivists predict the outcomes of critically ill patients on the appropriateness of intensive care unit admission for limited intensive care unit resources ?

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The coronavirus disease 2019 (COVID-19) pandemic continues to affect countries throughout the world. Since the first case of COVID-19 was announced in China in January 2020, the disease has spread rapidly, becoming a pandemic, with 259,465,151 infected and 5,174,661 deaths worldwide as of November 2021.

In South Korea, 4,116 new COVID-19 cases were reported on November 24, 2021, raising the total caseload to 425,065, according to the Korea Disease Control and Prevention Agency. This marked the highest number since the country reported its first confirmed case of COVID-19 in January 2020. The number of critically ill patients hit an all-time high of 586. The country added 35 more deaths from COVID-19, the highest number since the start of the fourth wave of the pandemic in July. The death toll has now reached 3,363, with the fatality rate standing at 0.79% as the number of critically ill patients is on the rise.

As the global COVID-19 pandemic persisted, problems such as limited medical resources, insufficient intensive care unit (ICU) equipment, and medical staff shortages gradually intensified. In particular, medical shortages may make it difficult to achieve timely hospitalization and adequate intensive care such as mechanical ventilation. Thus, there is a need for appropriate hospitalization and risk identification strategies for patients who are disproportionately likely to experience critical complications or mortality.

In these clinical situations, intensivists have a core role and responsibility to provide prognostic guidance, which is an essential part of shared decision-making [1] that requires integrating prognostic assessments with patients' values and preferences [2]. Previous studies have shown that ICU physicians are moderately accurate in predicting in-hospital mortality [3,4], but evaluations of ICU physicians' abilities to predict longer-term mortality and functional outcomes have been limited to patients who require long-term mechanical ventilation [5].

In this issue of *Acute and Critical Care*, Chang et al. [6] reported the outcomes of patients perceived as non-beneficially or beneficially admitted to the ICU and evaluated whether their prognosis was consistent with the intensivists' perceptions. This study found that the perceptions of the intensivists of the appropriateness of ICU admission were consistent with the prognosis of critically ill patients. Intensivists' perceptions were identified as a significant predictor of not only ICU outcomes (short-term prognosis) but also 6-month outcomes (long-term prognosis). The survival rate at the time of ICU discharge between the non-beneficial

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and beneficial admission groups was significantly different (36% vs. 78%), and it further diverged at the 6-month follow-up (0% vs. 52%).

The authors concluded that the outcomes of patients perceived as having non-beneficial ICU admissions were extremely poor. The intensivists' perceptions were important in predicting patients' outcomes and were more consistent with the long-term prognosis than with immediate outcomes. Therefore, intensivists should play a role in determining how to utilize limited ICU resources.

The numerous extant clinical scoring systems for critically ill patients, such as Acute Physiology And Chronic Health Evaluation (APACHE), Sequential Organ Failure Assessment (SOFA), and Simplified Acute Physiology Score (SAPS), provide information on the short-term mortality rate but have limitations in predicting the patient's long-term prognosis and quality of life [7-9]. This gap underscores the importance of the role played by critical care physicians or intensivists.

Furthermore, in this study, when intensivists judged the futility of ICU admission based on their expertise, their perceptions were found to be in good agreement with both the short-term and long-term prognoses. These results suggest the possibility that intensivists' perceptions can supplement and compensate for the limitations of current scoring systems for critically ill patients.

Of course, there is no single method to predict the prognosis of ICU patients and to resolve the issue of futile ICU care. However, through a combination of diverse clinical parameters, scoring systems, and intensivists' perceptions, we will arrive at better and more efficient solutions for resolving these limitations. Future studies should also focus on improving the allocation of scarce ICU resources during the COVID-19 pandemic.

CONFLICT OF INTEREST

No potential conflict of interest relevant to this article was reported.

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