Emergency Department to ICU Time Associated With Mortality

Most emergency rooms have a triage system that enables the triage nurse to determine which patient is seriously ill to ensure that the patient is promptly admitted and treated. For disorders like heart attack and stroke, there are standard emergency room protocols in most hospitals that enable patients to receive care within 3-5 hours of initial symptoms. Unfortunately, there are many other patients who have to wait until they are called.

When critically ill patients present to the emergency room, the time to be admitted directly to the ICU varies due to many factors. Sometimes, the paperwork is not complete, or the investigations are not done. It may be that the ICU does not have an empty bed. But does the time to be admitted to the ICU from the emergency room really matter? What happens if a seriously ill patient has been waiting for a long time to get an ICU bed? Does this waiting period affect outcomes or mortality?

Several studies in the past have looked at the emergency department to ICU admitting time, and the admitting times vary from 3 hours to 9 hours. The question is: is there a critical time within which a critically ill patient should be admitted quickly from the emergency room to the intensive care unit?

In this study, researchers investigated whether the emergency department to ICU time was associated with hospital mortality. The researchers conducted a retrospective observational cohort study, which included 14,788 adult patients admitted directly to the ICU from the emergency department in six university hospitals between 2009-2016. They assessed the disease severity using the Acute Physiology and Chronic Health Evaluation IV (APACHE IV) tool and looked at the crude and adjusted ratio of the emergency department to ICU time on mortality. In addition, they also looked at secondary outcomes in the ICU, and mortality at 30 and 90 days.

What the researchers observed was that the median emergency department to ICU time was 2 hours (range 1.3-3.3 hours). When the data were adjusted, they noticed a correlation to hospital mortality. Individuals with the highest APACHE IV probability and long emergency department to ICU time on admission had the highest mortality. They also observed the same features when looking at the 30-day and 90-day mortality.

The conclusion of the study was that emergency department to ICU time of more than 2.4 hours was associated with increased hospital mortality. The higher the APACHE IV probability, the higher the mortality. Study researchers point out that critically ill patients who present to the emergency room should be quickly triaged and admitted to the ICU, as this may help lower hospital mortality.

Source: Critical Care Medicine
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