Factors Associated with Sepsis-related Deaths in Rural ED Transfer Patients

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1. INTRODUCTION

Sepsis is a dangerous immune reaction to an infection that affects over 1.7 million people in the U.S. each year.[1] Sepsis cases require intensive care with the first line of treatment generally beginning in the emergency department (ED). It has been found that lower volume EDs, which are more commonly rural departments, have greater death rates compared to higher volume ones.[2]

However, what has not been agreed upon is whether a transfer from a low volume, rural ED to a high volume facility reduces death rates alone as sepsis treatment therapies are roughly the same in both rural ED and urban hospitals.[3] To that end, Ameripour et al.[4] sought to examine which factors may affect death rates in patients who are transferred in these circumstances.

2. PRIMARY FINDINGS

Ameripour et al.[4] looked at sepsis patients in a Oregon healthcare system that transferred from rural hospitals to a high-volume urban trauma center, analyzing clinical factors like patient vitals, lab results, chart notes, and health outcomes in the hospital after transfer. The study found that a sepsis diagnosis prior to transfer generally reduced a patient's likelihood of dying from sepsis. This is likely due to the fact that the quicker sepsis can be identified, the quicker the proper treatment protocols can be put into place to save a patient's life.

2. PRIMARY FINDINGS

Alternatively, if the patient had previously been admitted into the ICU of the hospital network in their lifetime they were more likely to pass away. Though no specific rationale was provided for why a past history of ICU admission increased the likelihood of death, it was implied that this may be indicative of other health issues that can negatively impact patient outcomes.

The study also found that clinical factors like elevated serum lactate and abnormal red blood cell distributions made a difference in patient survival rates after transfer. Sepsis creates an inflammatory state which has been linked to increased red blood cell distribution width, which is why it is associated with negative outcomes for patient survival.[5] As serum lactate levels are also correlated with sepsis, it was speculated by Ameripour et al. that slightly elevated levels actually helped providers identify sepsis earlier and lead to positive outcomes.

3. HOW THIS IMPACTS PATIENT CARE

This study has large implications, especially in the context of severe septic shock cases, which kill about 30-40% of patients, even after treatment.[1] In addition to improving the process of transfer for sepsis patients in a rural to urban environment, the results of this study may also be able to inform new guidelines for hospitals to rule out sepsis earlier and attend to past hospital admissions more vigorously. As sepsis is a frequent occurrence in U.S. hospitals, it is imperative to increase efficiency in treatment and transfer care to save more lives.

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Eric joined RAP-EMCC because he wanted to learn more about how clinical research is conducted and gain more exposure to different healthcare environments. In his free time, Eric likes to lift weights and go on hikes.
Fun fact: Eric has family in Taiwan and Japan!