Association Between Timing of Antibiotic Administration and Mortality from Septic Shock in Patients Treated with a Quantitative Resuscitation Protocol

Puskarich, Michael A ; Trzeciak, Stephen ; Shapiro, Nathan I ; Arnold, Ryan C ; Horton, James M ; Studnek, Jonathan R ; Kline, Jeffrey A. ; Jones, Alan E

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Abstract:

Objective We sought to determine the association between time to initial antibiotics and mortality of septic shock patients treated with an emergency department (ED) based early resuscitation protocol. Design Pre-planned analysis of a multicenter randomized controlled trial of early sepsis resuscitation. Setting 3 urban US EDs. Patients Adult septic shock patients. Interventions A quantitative resuscitation protocol in the ED targeting 3 physiological variables: central venous pressure, mean arterial pressure and either central venous oxygen saturation or lactate clearance. The study protocol was continued until all endpoints were achieved or a maximum of 6 hours. Measurements Data on patients who received an initial dose of antibiotics after presentation to the ED were categorized based on both time from triage and time from shock recognition to initiation of antibiotics. The primary outcome was in-hospital mortality. Main Results Of 291 included patients, mortality did not change with hourly delays in antibiotic administration up to 6 hours after triage: 1 hour (OR 1.2, 0.6–2.5), 2 hours (OR 0.71, 0.4–1.3), 3 hours (OR 0.59, 0.3–1.3). Mortality was significantly increased patients who received initial antibiotics after shock

recognition (N=172, 59%) compared with before shock recognition (OR 2.4, 1.1–4.5); however, among patients who received antibiotics after shock recognition, mortality did not change with hourly delays in antibiotic administration. Conclusion In this large, prospective study of ED patients with septic shock, we found no increase in mortality with each hour delay to administration of antibiotics after triage. However, delay in antibiotics until after shock recognition was associated with increased mortality.

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