

Epidemiology, Management, and Outcomes of Sepsis in ICUs among Countries of Differing National Wealth across Asia

By

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AMERICAN JOURNAL OF RESPIRATORY AND CRITICAL CARE MEDICINE

Volume: 206 Issue: 9 Page: 1107-1116

DOI: 10.1164/rccm.202112-2743OC

Published

NOV 1 2022

Indexed

2022-11-30

Document Type

Article

Abstract

Rationale: Directly comparative data on sepsis epidemiology and sepsis bundle implementation in countries of differing national wealth remain sparse.

Objectives: To evaluate across countries/regions of differing income status in Asia 1) the prevalence, causes, and outcomes of sepsis as a reason for ICU admission and 2) sepsis bundle (antibiotic administration, blood culture, and lactate measurement) compliance and its association with hospital mortality.

Methods: A prospective point prevalence study was conducted among 386 adult ICUs from 22 Asian countries/regions. Adult ICU participants admitted for sepsis on four separate days (representing the seasons of 2019) were recruited.

Measurements and Main Results: The overall prevalence of sepsis in ICUs was 22.4% (20.9%, 24.5%, and 21.3% in low-income countries/regions [LICs]/lower middle-income countries/regions [LMICs], upper middle-income countries/regions, and high-income countries/regions [HICs], respectively; $P = 0.001$). Patients were younger and had lower severity of illness in LICs/LMICs. Hospital mortality was 32.6% and marginally significantly higher in LICs/LMICs than HICs on multivariable generalized mixed model analysis (adjusted odds ratio, 1.84; 95% confidence interval, 1.00-3.37; $P = 0.049$). Sepsis bundle compliance was 21.5% at 1 hour (26.0%, 22.1%, and 16.2% in LICs/LMICs, upper middle-income countries/regions, and HICs, respectively; $P < 0.001$) and 36.6% at 3 hours (39.3%, 32.8%, and 38.5%, respectively; $P = 0.001$). Delaying antibiotic administration beyond 3 hours was the only element independently associated with increased mortality (adjusted odds ratio, 2.53; 95% confidence interval, 2.07-3.08; $P < 0.001$).

Conclusions: Sepsis is a common cause of admission to Asian ICUs. Mortality remains high and is higher in LICs/LMICs after controlling for confounders. Sepsis bundle compliance remains low. Delaying antibiotic administration beyond 3 hours from diagnosis is associated with increased mortality.

Keywords

Author Keywords: sepsis; epidemiology; mortality; sepsis bundle

Keywords Plus: SEPTIC SHOCK; CAMPAIGN GUIDELINES; MORTALITY; IMPLEMENTATION; DEFINITIONS; ANTIBIOTICS; CARE

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