



This study was performed to investigate the clinical impacts and risk factors for N-CLABSI in intensive care unit (ICU) patients” Zhu et al (2019).

Abstract:

**BACKGROUND:** Most of the previous studies focused on central line-associated bloodstream infection (CLABSI), while non-central line-associated bloodstream infection (N-CLABSI) was poorly studied. This study was performed to investigate the clinical impacts and risk factors for N-CLABSI in intensive care unit (ICU) patients.

**METHODS:** An observational study was conducted in an adult general ICU. The electronic medical records from 2013 to 2017 of all patients aged  $\geq 18$  years admitted to the ICU  $> 2$  days were analyzed retrospectively. Patients with N-CLABSI and without N-CLABSI or with CLABSI were compared for clinical features and outcomes. Predicted death in ICU included death in ICU and discharging from ICU against medical advice because of critical conditions and the desire to pass away at home. Propensity score (PS) matching was used to ensure that both two groups had similar baseline characteristics. Multivariate regression models were used to confirm whether N-CLABSI was an independent risk factor for each of the outcomes and to analyze the risk factors for N-CLABSI in ICU patients.

**RESULTS:** Of 5046 patients included, 155 developed 168 ICU-acquired N-CLABSI episodes (2.1 episodes per 1000 patient-days) in the ICU, accounted for the majority of nosocomial

bloodstream infections (NBSIs; 71.8%). After PS matching, patients with N-CLABSI had prolonged length of stay (LOS) in ICU (median 15 days,  $p < 0.001$ ) and LOS in hospital (median 13 days,  $p < 0.001$ ), excess hospitalization costs (median, \$27,668 [in US dollar 2017, 1:6.75],  $p < 0.001$ ), and increased mortality in ICU (8.8%,  $p = 0.013$ ) and predicted mortality in ICU (22.7%,  $p < 0.001$ ), compared with those without N-CLABSI. There were no significant differences in all the outcomes between N-CLABSI and CLABSI. N-CLABSI was an independent risk factor for each of the outcomes. Gastrointestinal bleeding (adjusted odds ratio 2.30), trauma (aOR 2.52), pancreatitis (aOR 3.45), surgical operation (aOR 1.82), intravascular catheters (aOR 2.93), sepsis (aOR 1.69), pneumonia (aOR 1.53), intraabdominal infection (IAI, aOR 8.37), or healthcare-associated infections other than NBSI, pneumonia, and IAI (aOR 3.89) were risk factors for N-CLABSI in ICU patients. CONCLUSIONS: N-CLABSI was associated with similar poor outcomes with CLABSI, including prolonged LOS in ICU and in hospital and increased hospitalization costs and predicted mortality in ICU. The risk factors for N-CLABSI identified in this study provide further insight in preventing N-CLABSI.

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### Reference:

Zhu, S., Kang, Y., Wang, W., Cai, L., Sun, X. and Zong, Z. (2019) The clinical impacts and risk factors for non-central line-associated bloodstream infection in 5046 intensive care unit patients: an observational study based on electronic medical records. *Critical Care*. 23(1), p.52.

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