Clinical Characteristics of a Military Trauma Cohort with Stenotrophomonas maltophilia Infection

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Abstract

Background: Stenotrophomonas maltophilia is an emerging pathogen in critically ill trauma patients that has a unique resistance pattern often not covered by empiric antimicrobials. This study reveals the clinical epidemiology of patients with S. maltophilia infections in a military trauma cohort.

Methods: Patients enrolled in the Trauma Infectious Disease Outcomes Study (TIDOS) from June 1, 2009 to September 1, 2014 were assessed. TIDOS eligibility criteria include active duty personnel or Department of Defense beneficiaries ≥18 years who are injured during deployment requiring evacuation to Landstuhl Regional Medical Center (LRMC) in Germany and ultimately transferring to a participating clinical site in the US. All patients with S. maltophilia isolates obtained during clinical workup for an infectious syndrome (≥5 days) of hospital stay were included. Results: Of 131,545 patients, 65 patients with complete clinical data and S. maltophilia isolates were included. All injuries occurred in support of operations in Afghanistan (63%) or Iraq (7%). Other Gram-negative bacilli were isolated in patients with S. maltophilia infections of which 59% were skin and soft tissue infections, 10% bloodstream infections, 10% sepsis, 4% respiratory infections, 4% Nosocomial pneumonia, and 2% septicemia. Clinical and injury data were analyzed retrospectively. Conclusion: The clinical epidemiology of patients with S. maltophilia infections is different from patients with other Gram-negative infections.

Background

• Stenotrophomonas maltophilia has been shown to be a cause of ICU infections and is not covered with empiric antimicrobials.
• Multidrug-resistant organism colonization of evacuated US personnel from Iraq and Afghanistan in 2009 reached 13%.
• S. maltophilia has been previously associated with combat wound infections.
• Risk factors for S. maltophilia infection have been assessed in ventilator-associated pneumonia cases, but not specifically in wound infections.
• We sought to identify clinical characteristics and outcomes associated with S. maltophilia infection in deployment-related injured personnel in Iraq and Afghanistan.

Methods

• Data collected from the Trauma Infectious Disease Outcomes Study (TIDOS) from June 1, 2009 to September 1, 2014 was assessed.
• TIDOS eligibility criteria include active duty personnel or Department of Defense beneficiaries ≥18 years who are injured during deployment requiring evacuation to Landstuhl Regional Medical Center (LRMC) in Germany and ultimately transferring to a participating clinical site in the US.
• All patients with S. maltophilia isolates obtained during clinical workup for an infectious syndrome (≥5 days) of hospital stay were included.

Results

• Overall Demographics and Injury Patterns:
  • 95 and 1744 infectious syndromes were identified in the S. maltophilia and other Gram-negative infection groups, respectively.
  • Incidence density was 1.3 per 100 days (95% CI: 1.1, 1.6) for S. maltophilia.
  • Skin and soft-tissue infections comprised the majority of infections in both groups.
  • Median operating room visits within 2 weeks of infection was 6 (IQR: 5, 6) and 4 (IQR: 3, 6) for the S. maltophilia and comparator group, respectively.
• Mechanical ventilation was employed in 34% (68%) S. maltophilia patients versus 34% (46%) patients of the comparator group.

Conclusions

• In this military population, patients with S. maltophilia infections are more likely to have blast injuries and less likely to be associated with bloodstream infections and pneumonia compared to other Gram-negative infections.
• S. maltophilia infection was more likely to be found in patients with higher injury severity scores, requiring amputation prior to arrival in the US, mechanical ventilation, and later in the course of hospitalization.

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