

Blood culture contamination in emergency department: Association with working shift, triage and stroke

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Objectives: To determine the prevalence of blood culture contamination and factors associated with blood culture contamination at Emergency Department, Hospital Universiti Sains Malaysia.

Methodology: This prospective cross-sectional study was conducted from 1st September 2012 to 31st August 2013 and included 136 consenting patients with sepsis, severe sepsis, and septicemic shock according to International Sepsis Guidelines and required intravenous antibiotics. Blood samples were collected by a various health care professionals and were correlated with culture results.

Results: The prevalence of blood culture

contamination was 19.9%. Night shift work (OR, 4.73; CI, 1.35-16.57; p=0.015), semi-critical zone in triage (OR, 3.78; CI, 1.47-9.73; p=0.006) and patients who had a stroke (OR, 5.49; CI, 1.36-22.19; p=0.017) revealed significant association with the risk of blood culture contamination.

Conclusion: Blood cultures obtained during night shift work, semi critical zone in triage and stroke patients were associated with the risk of blood culture contamination. (Rawal Med J 201;43:23-28).

Key words: Blood culture, working shift, triage, stroke, emergency department.

INTRODUCTION

Sepsis is becoming a major problem as it contributed to 40% of emergency department (ED) admissions in the United States¹ with an overall hospital mortality rate approximately 28.6%.² Sepsis survival is associated with a significant decrease in quality of life.³ Even though the reported death rate from septicemia has decreased from 17% to 13% in 2008, it still ranked as the second leading cause of mortality at Ministry of Health hospitals.⁴ Factors such as antibiotic resistance, immunocompromised patients and aging population contributed to the increasing number of sepsis patients.⁵ The role of ED physician is pivotal in a rapid identification, differentiate minor infections from the acute, life-threatening infections and administration an appropriate antibiotic regimen for improving patient care.³

Blood culture (BC) is a vital investigation with

substantial implication in the management of sepsis, especially for the selection of antimicrobial therapy. Surviving Sepsis Campaign (SSC) International Guidelines via early goal-directed therapy (EGDT) has improved survival for patients presenting with severe sepsis and septic shock. The protocol recommends BC and lactate level to be obtained before antibiotics administration.⁶ An authentic BC can have a critical impact on the direction of patient management in ED.⁷

The contamination rate differs between departments and hospitals. The acceptable rate is established at 2 to 3%.⁸ For instance, in the United Kingdom it was between 2% and 6%,⁹ whereas it accounted for 2.7 to 14.3% of all positive cultures in a few hospitals in Malaysia.¹⁰ In considering of high contamination rate in the local setting, the present study aimed to determine the prevalence and associated factors of BC contamination in septicemia patient at ED