

A Study on Incidence of Bacteria Fostering Blood Culture Positivity

HASD Chandrasena¹, ES Jayasuriya^{1#}, HEH Perera¹, M Kothalawala², and
RD Widanagamage¹

¹ Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University,
Ratmalana, Sri Lanka

²National Hospital of Sri Lanka, Colombo, Sri Lanka

#erandasapumaljaya@gmail.com

Abstract

Analysis of single positive blood culture is widely used in Sri Lanka in the diagnosis of sepsis. There are only a few studies conducted regarding information on bacteria that could give rise to sepsis and the probability of bacteria causing sepsis. Therefore, the aim of this study was to identify bacteria that commonly give positive results for single positive blood cultures and to study the incidence of bacteria giving positive results. A prospective cross-sectional study was conducted at the Microbiology Laboratory, National Hospital of Colombo, Sri Lanka. Patients (144) who had given positive results for blood cultures were recruited from the 30th of October to the 31st of December 2022. The epidemiological profiles (patient name, age, gender, BHT, disease conditions, and comorbidities) and the results obtained for the blood cultures of patients were analyzed. Out of 144 positive blood cultures, 58.3% and 41.7% were identified as Gram-positive bacteria and Gram-negative bacteria respectively. Amongst Gram-positive bacteria, Methicillin-sensitive *Staphylococcus aureus* (MSSA), Methicillin-resistant *Staphylococcus aureus* (MRSA) & Gram-positive bacilli showed positive results, whilst coagulase-negative Staphylococci had given the highest incidence (23.6%) of giving positive results on blood cultures. Amongst Gram-negative bacteria, *Escherichia coli*, *Pseudomonas aeruginosa*, and *Acinetobacter baumannii* were reported as common bacteria that give positive results on blood cultures. *Klebsiella pneumoniae* had the highest incidence (11.8%) in the Gram-negative group. Therefore, this study identified the most common bacterial species apart from contaminating skin flora that cause blood culture positivity and the incidence of bacteria for blood culture positivity.

Keywords: *Gram-positive, Gram-negative, Coagulase-negative Staphylococci, MRSA, MSSA*