

## Abstract

### **Blood stream infections following trauma admitted to trauma intensive care setting at the National hospital of Sri Lanka**

#### Introduction

Trauma is one of the leading causes of morbidity and mortality of hospitalized patients worldwide. According to Sri Lankan situation, morbidity is higher than mortality. Objectives were to find the rate of bacteraemia among trauma patients, organisms responsible with their susceptibility pattern and associated factors for culture positive blood stream infections.

#### Methods

A descriptive cross-sectional study carried out for four months in two accident service intensive ICUs and three neurotrauma ICUs at the NHSL. Patients' demographic and clinical details were extracted from clinical notes and blood cultures were sent according to CDC criteria; positive blood cultures were processed according to the SOPs.

#### Results

During the study period, 251 patients admitted and blood cultures were obtained from 172 patients. Forty six blood cultures indicated positive with 7 contaminants, 16 line colonizers and 23 significant positive blood cultures in which 5 denoted as secondary bacteraemia and 18 primary bacteraemia. Culture positive bacteraemia rate among trauma patients was 9.2%. Majority of Gram positive isolates were Enterocci (4/7) whereas *Acinetobacter calcoaceticus* (8/13) comprised majority of Gram negative organisms. All Gram positive organisms were sensitive to vancomycin, teicoplanin and linezolid whereas all Gram negatives were sensitive to colistin.

From 12 demographic and clinical parameters and 10 laboratory parameters 6 factors found to be significantly associated with culture positive bacteraemia. Admission to an accident service ICU (Odds ratio 2.521, 95% CI 1.036-6.138), ICU admission for >5 days (Odds ratio-5.340 with 95% CI 1.881-15.164), ISS >25 (Odds ratio 4.992, 95% CI-1.877-13.272), haemoglobin concentration <10 g/dl (Odds ratio- 3.102 with

95% CI-1.266-7.603), albumin concentration of <30g/L (Odds ratio-6.021 with 95% CI 2.31-15.696) and AST level >3 times normal (Odds ratio-2.660 with 95% CI 1.049-6.745) have associations with bacteraemia.

### Conclusion

*Acinetobacter* and *Enterococcus* species were common among blood culture isolates. Admitting to accident service ICU, with severe injury (ISS> 25) for more than 5 days would predict culture positivity. If blood haemoglobin is low (<10g/dL), AST level high (>3 times normal) with low albumin level (<30g/L) chances of culture positivity would increase remarkably. Follow up of patients to get final outcome and associations with mortality among trauma patients in the country are the areas for further research.