

Clinical Medicine

Poster

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## Procalcitonin and Interleukin-6 for predicting culture-negative and culture positive bacterial sepsis in critically ill patients with systemic inflammatory response syndrome

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**Introduction:** Differentiation between culture-negative bacterial sepsis (BS), culture-positive BS and non-infectious systemic inflammatory response syndrome (SIRS) among critically ill patients remains a diagnostic challenge to the intensive care unit (ICU) physicians. This study aimed to evaluate the role of procalcitonin (PCT) and interleukin-6 (IL-6) in predicting non-infectious SIRS, culture-negative BS and culture-positive BS in the ICU. **Methods:** This prospective observational study was conducted in a tertiary ICU in Pahang. The patients were divided into sepsis and non-infectious SIRS based on clinical assessment with or without positive cultures. Patients with positive cultures were further divided into bacteraemia and positive other culture. The PCT and IL-6 were measured daily over the first 3 days. **Results:** Two hundred and thirty nine consecutive patients diagnosed with SIRS were recruited, of whom 164 (69%) had sepsis. Among sepsis patients, there were 62 (37.8%) culture positive and 102 (62.2%) culture negative. Of these, 27 (16.5%) develop bacteraemia. The most common site of infection was respiratory (34.4%). Post-LSD analyses showed significant difference in the PCT between culture negative sepsis and SIRS ( $p=0.01$ ); and positive other culture and SIRS ( $p=0.04$ ). On the other hand IL-6 cannot differentiate between SIRS and negative culture sepsis ( $p=0.06$ ). Both PCT and IL-6 predicted bacteraemia with an AUC of 0.70 (0.57 to 0.82) and 0.68 (0.53 to 0.70). IL-6 is independently associated with bacteraemia and other culture after adjusting for age, sex, hypertension, SAPS II score and day 1 PCT. **Conclusions:** Procalcitonin but not Interleukin-6 is able to differentiate SIRS from culture-negative BS. However, IL-6 is independently associated with bacteraemia and other culture.

**KEYWORDS:** Procalcitonin, Interleukin-6, culture-negative sepsis, SIRS