

Abstract Submission No. : 2423

The Role of Cytokine in Critically Ill Patients with Septic Acute Kidney Injury

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Objectives: Identification of highly reliable outcome predictors in severe septic acute kidney injury (AKI) is important to define disease severity, to predict bedside prognosis, and to monitor response to treatment. Cytokine panel has been proposed as a possible prognostic marker of clinical outcome in septic patients. In this pilot study, we investigated the prognostic value of cytokine level in patients with septic AKI.

Methods: We enrolled 54 patients admitted to intensive care unit (ICU) requiring continuous renal replacement treatment (CRRT). Anti-coagulated blood was obtained at initiating CRRT, and plasma cytokine level (IL-2, IL-6, IL-10, IL-12, IL-17, TNF- α , IFN- γ) were measured by ELISA.

Results: Altogether, 21 patients died among a total of 54 critically ill patients, the mortality being 38.8%. Compared to survivor group, the levels of IL-6 in non-survivor group were significantly higher (3522 ± 581 vs. 632 ± 132 pg/ml, $p < 0.05$), likewise the level of TNF- α (142 ± 53 vs. 73 ± 28 , pg/ml, $p < 0.05$). Meanwhile, the levels of IL-2 were lower in non-survivor group compared to those of survivor group (0.3 ± 0.1 vs. 0.9 ± 0.4 pg/ml, $p < 0.05$), the levels of IL-17 were also lower in non-survivor group as same (0.2 ± 0.1 vs. 5.8 ± 3.2 pg/ml, $p < 0.05$). However, there were no significant changes in other cytokines.

IL-6 and TNF- α levels were significantly higher in non-survivors when compared to these levels in survivors.

Conclusions: Cytokine such as IL-6 and TNF- α can be considered a good prognostic marker of clinical outcome in septic AKI patients receiving CRRT. Increases in its levels are associated with poor outcome.