

# The Diagnostic and Prognostic Value of Procalcitonin in Patients with The Diagnosis of SIRS Sepsis and Septic Shock In Intensive Care Unit

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## Background

It was aimed to evaluate the diagnostic and prognostic value of PCT in patients with the diagnosis of SIRS, sepsis and septic shock in intensive care unit.

## Methods

A prospective study was conducted on patients with SIRS, sepsis and septic shock in intensive care unit at a tertiary care center between December 2014-July 2015. Definitions were used according to the Surviving Sepsis Campaign, International Guideline, 2012. The PCT levels were compared to predict bacteremia and mortality.

## Results

A total of 156 patients were enrolled into the study. The study group was consisted of 64 (41%) bacteremic patients and the control group was consisted of 92 (59%) non-bacteremic patients. The overall mortality rate was 60.3%. Although PCT levels in the bacteremic group ( $11.9 \pm 21.5$ ) were higher than non-bacteremic group ( $5.9 \pm 11.5$ ), this difference was not significant ( $p=0.168$ ). The mean levels of PCT in bacteremic patients with Gram-negative bacteria were  $16.3 \pm 27.6$ , while Gram-positive bacteria was  $7.3 \pm 10.7$  ( $p=0.145$ ). PCT levels in patients with intra-abdominal infection ( $14.6 \pm 24.6$ ) were significantly higher than patients with the other infections ( $5.9 \pm 11.4$ ) ( $p = 0.008$ ).

The mean PCT levels were significantly higher in non-survivors compared to survivors ( $10.1 \pm 18.0$  vs  $5.7 \pm 13.7$ ;  $p=0.000$ ). PCT, Charlson comorbidity index, APACHE II and SOFA score levels of patients with septic shock were significantly higher than the patients with SIRS and sepsis (Table 1). Significant correlation was found between SOFA score and PCT level ( $p=0.000$ ).

## Conclusion

It can be speculated that PCT is a good predictor of mortality in patients with SIRS, sepsis and septic shock compared to other scoring systems in intensive care units. It can also be useful in early diagnosis and beneficial on follow-up of bacteremic patients.

Table 1: Charlson index, APACHE II score, SOFA score, CRP and PCT levels in patients with septic shock

	SIRS and sepsis		Septic Shock		
	Mean±SS	Min.-Max.	Mean±SS	Min.-Max.	
Charlson Index	4,86±3,5	0-12	6,1±3,48	0-15	<b>0,027</b>
APACHE II Score	20,43±8,45	4-36	29,5±6,5	15-42	<b>0,000</b>
SOFA Score	7,48±4,05	0-16	11,4±3,21	4-21	<b>0,000</b>
CRP	16,94±9,74	0,4-40,64	19,21±9,5	0,06-45,06	0,112
Procalcitonin	3,55±6,39	0,01-30,38	14,29±22,36	0,12-135,12	<b>0,000</b>