

# PRONOSTIC VALUE OF PROCALCITONIN IN PATIENTS WITH SEPSIS

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## Introduction:

Procalcitonin (PCT), a precursor for calcitonin, is a prohormone involved in the inflammatory processes. It helps diagnose sepsis and determine whether an infection is bacterial or non-bacterial (1,2).

## Objective :

This study aims to explore the prognostic implications of PCT in patients with sepsis.

## Materials and Methods:

This was a retrospective study conducted over a period of 1 year from January 1, 2022 to December 31, 2022. All sepsis patients over 18 years old admitted to the intensive care unit (ICU) were recorded. The patients underwent procalcitonin (PCT), C-reactive protein (CRP), white blood cell (WBC) and platelets (PLT) level assessments. To evaluate the relationship between PCT, CRP, WBC, PLT levels and 30-day mortality, we used ROC curves and we calculated the area under the curve (AUC).

## Results :

- In total : **110** patients included.
- Sex ratio of **1.4** .
- Mean age : **56 ± 20** years.
- Within **30** days of admission, **35%** of the patients died (**Figure1**).
- In the non-survival group, the PCT level averaged **14.7±5.5** ng/ml, compared to **9.6±2.5** ng/ml in the survival group (**p=0.33**).
- In the survival group, CRP averaged **214.4±117.8** mg/L compared to **167.4±121.2** mg/L in the non-survival group (**p=0.06**).
- The WBC count was **17.3×10<sup>9</sup>/L ±15.4×10<sup>9</sup>/L** in the survival group and **15.4×10<sup>9</sup>/L ±8.2×10<sup>9</sup>/L** in the non-survival group (**p=0.5**).
- Additionally, PLT levels were **225.54 ×10<sup>9</sup>/L ± 168.38 ×10<sup>9</sup>/L** for survival group and **204,56.4 ×10<sup>9</sup>/L ±131.86 ×10<sup>9</sup>/L** for non-survival group (**p=0.98**).
- The study of ROC Curves showed that PCT had the highest predictive value for **30-day** mortality in sepsis patients, with AUC areas of **0.6** (95% CI: **0.5–0.7**).
- For a threshold PCT level of **3** ng/ml, the sensitivity and the specificity were **65%** and **81%** respectively.

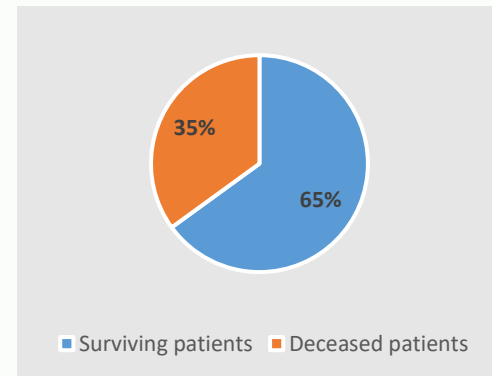


Figure 1: 30-day mortality rate

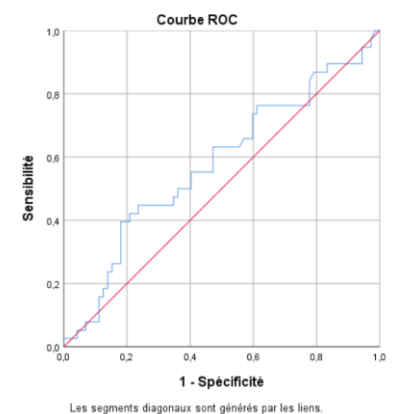


Figure 2:ROC curve of PCT according to 30-day mortality

## Conclusion:

PCT level has high predictive value for assessing the 30-day prognosis of sepsis patients and can be used as an indicator for evaluation and prognosis patients.

## References :

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2. Reinhart K, Meisner M. Biomarkers in the critically ill patient: procalcitonin. Crit Care Clin. avr 2011;27(2):253-63.