

# Comparison of culture-negative and culture-positive sepsis

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## Introduction:

Sepsis, a potentially life-threatening syndrome, arises from the body's dysregulated response to infection. It poses a significant challenge in diagnosis and management(1,2).

## Objective :

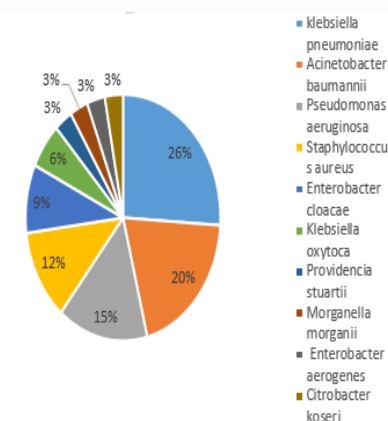
The aim of this study was to compare the differences in characteristics and outcomes between patients with culture-negative and culture-positive sepsis.

## 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),and white blood cell(WBC) level assessments. Additionally, cultures were conducted to detect potential infections

## Results :

- **110** patients hospitalized in the ICU for sepsis were recorded.
- Sex ratio :**1.4**.
- The mean age of the patients : **56 ± 20** years.
- 31% of patients had microbiologically confirmed infections, mainly caused by *Klebsiella pneumoniae* (**26%**) and *Acinetobacter baumannii* (**20%**) (**figure 1**) .
- The mortality rate at 30 days was higher for patients with a positive culture (**38%**) than for those with a negative culture (**33%**) (**p<0.001**).
- The mean levels of CRP and PCT were higher for patients with a positive culture (**p>0,05**). Specifically, the mean PCT level was **12.2±4** ng/ml for patients with a positive culture and **10±3.2** ng/ml for patients with a negative culture.
- Similarly, the mean CRP level was **200.3±118.5** mg/L for positive culture sepsis patients and **193.2±126.7** mg/L for negative culture sepsis patients.
- The culture-positive patients also had a higher WBC count.
- The effectiveness of antibiotic treatment didn't differ significantly between positive and negative culture sepsis patients (**p=0.9**).
- Positive culture sepsis patients had a longer average hospital stay of **12±8** days, compared to **9±7** days for those with negative culture(**p=0.6**).



**Figure 1: Germ Distribution Among the Infected Population**

## Conclusion:

The contrast in patient's characteristics between positive and negative cultures emphasizes the need to better understand the underlying mechanisms in order to further reduce the mortality rates of septic patients in intensive care units.

## References :

1. Font MD, Thyagarajan B, Khanna AK. Sepsis and Septic Shock - Basics of diagnosis, pathophysiology and clinical decision making. Med Clin North Am. juill 2020 ; 104 :573-85.
2. Nannan Panday RS, Lammers EMJ, Alam N, Nanayakkara PWB. An overview of positive cultures and clinical outcomes in septic patients: a sub-analysis of the Prehospital Antibiotics Against Sepsis (PHANTASi) trial. Crit Care Lond Engl. 21 mai 2019 ; 23:182.