

Abstract

Purpose

Presepsin is a more specific and valuable biomarker of sepsis, and many research results have been reported recently. However, since presepsin is highly affected by kidney function, acute kidney injury (AKI), especially the situation requiring continuous renal replacement therapy (CRRT), has a significant impact on presepsin dynamics and has not been studied. This study analyzed the relationship between serum presepsin and mortality in patients undergoing CRRT due to AKI.

Methods

From April to September 2022, patients who underwent a presepsin test just before CRRT at Konyang University Hospital were included, and patients who were undergoing chronic dialysis for end stage kidney disease were excluded. A total of 36 patients were enrolled, of which 25 were sepsis and 11 were non-sepsis. The predictive values of APACHE-II score, SOFA score, and serum presepsin for 28-day mortality were analyzed using receiver operating characteristics (ROC) curve analysis.

Results

In predicting 28-day mortality in the overall cohort, area under the ROC (AuROC) values of APACHE-II score, SOFA score, and serum presepsin were 0.719, 0.694, and 0.636, respectively, which the presepsin showed the lowest predictive value. However, in the analysis of only sepsis patients, the AuROC values of APACHE-II score, SOFA score, and serum presepsin were 0.708, 0.737, and 0.776, respectively, which the presepsin was the best predictive marker for 28-day mortality. Moreover, the AuROC value in the model combined with the SOFA score and serum presepsin increased to 0.833.

Conclusion

Presepsin was not a useful marker of 28-day mortality in overall CRRT patients, including non-sepsis. However, in patients with sepsis, it was observed as the best predictive marker of mortality, which is thought to be because presepsin is a very specific marker for sepsis. Presepsin may be helpful in clinical practice for predicting mortality in CRRT patients with clinically suspected sepsis.

Introduction

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Methods and Materials

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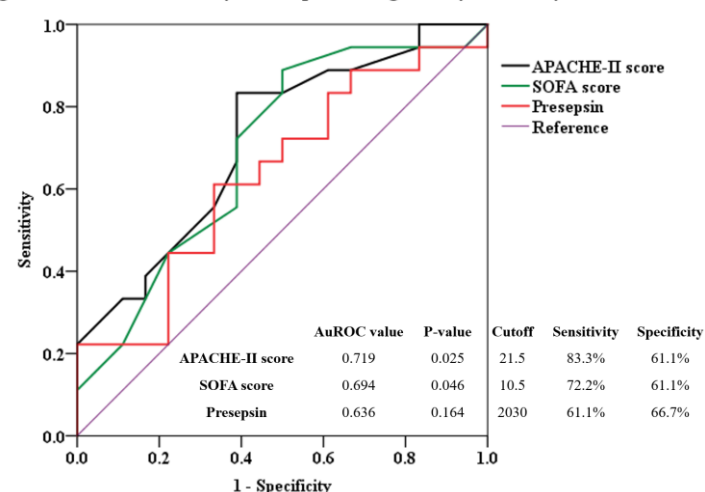
A total of 36 patients were enrolled, of which 25 were sepsis and 11 were non-sepsis. The predictive values of the Acute Physiology and Chronic Health Evaluation-II (APACHE-II) score, Sequential Organ Failure Assessment (SOFA) score, and serum presepsin for 28-day mortality were analyzed using receiver operating characteristics (ROC) curve analysis.

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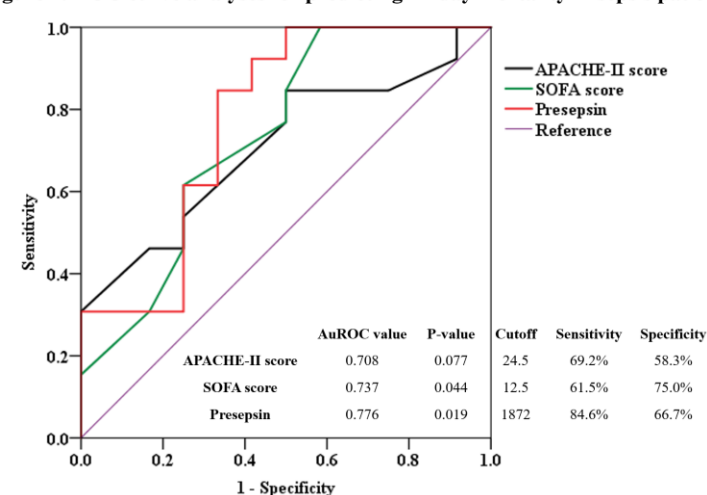
Results

Figure 1. ROC curve analyses for predicting 28-day mortality in overall cohort



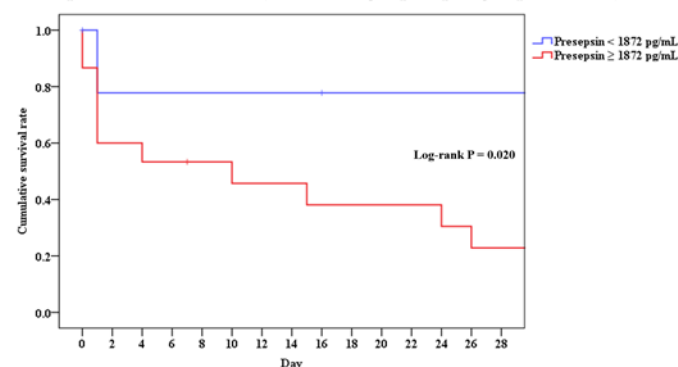
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Figure 2. ROC curve analyses for predicting 28-day mortality in sepsis patients



In the Kaplan-Meier survival analysis performed according to the presepsin cutoff value in sepsis patients, a significant decrease in survival rate was observed in the high presepsin group (Figure 3).

Figure 3. Kaplan-Meier survival analysis according to presepsin groups divided by cutoff value



Conclusions

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