Pancreatic Stone Protein (PSP) as a sepsis biomarker in patients admitted to intensive care

Zani G[1], Felloni G[1], Di Antonio F[1], Graziani E[1], Valbonetti M[1], Fiducioso D[1], Menchise F[1], Dal Checco E[1], Gecele [1], Valenti S[2], Fusari M[1]

[1] Department of Anaesthesia and Intensive Care, AUSL Romagna, Santa Maria delle Croci Hospital, Ravenna, Italy

[2] Department of Pathology, Transfusion and Laboratory Medicine, AUSL Romagna, Santa Maria delle Croci Hospital, Ravenna, Italy

Background

Sepsis is a life-threatening and time-dependent syndrome whose clinical outcome is strictly related to its rapid detection and clinical management. Although sepsis mechanisms have been largely investigated over the years there are still many unsolved questions and sepsis early recognition remains complex due to its heterogeneity. In this clinical picture the timely measurement of biomarkers could provide an early initiation of adequate treatments.

Methods

This was a monocentric prospective observational pilot study including adult ICU patients at risk of nosocomial sepsis, with the aim to investigate the use of PSP in the daily management of these critically-ill patients. Together with PSP, procalcitonin (PCT) and C-reactive protein (CRP) were analysed at specific timing: ICU admission, onset of a septic trigger, five days after antibiotic start, two days after antibiotic suspension. PSP was measured in five minutes at the bedside with the POCT abioSCOPE® from a single drop of whole blood.

Results

63 patients were enrolled, 40 finally included in the analysis of whom 26 developed sepsis and 14 remained non-septic. PSP was significantly higher in patients with sepsis compared to those without sepsis both at T0 (ICU admission) and T1 (onset of septic trigger) [PSP ($p<0.05$), PCT (NS), CRP (NS)]. Furthermore, PSP reached peak values at T2 (five days after antibiotic start) and then decreased, as expected, at T3 (two days after antibiotic suspension).

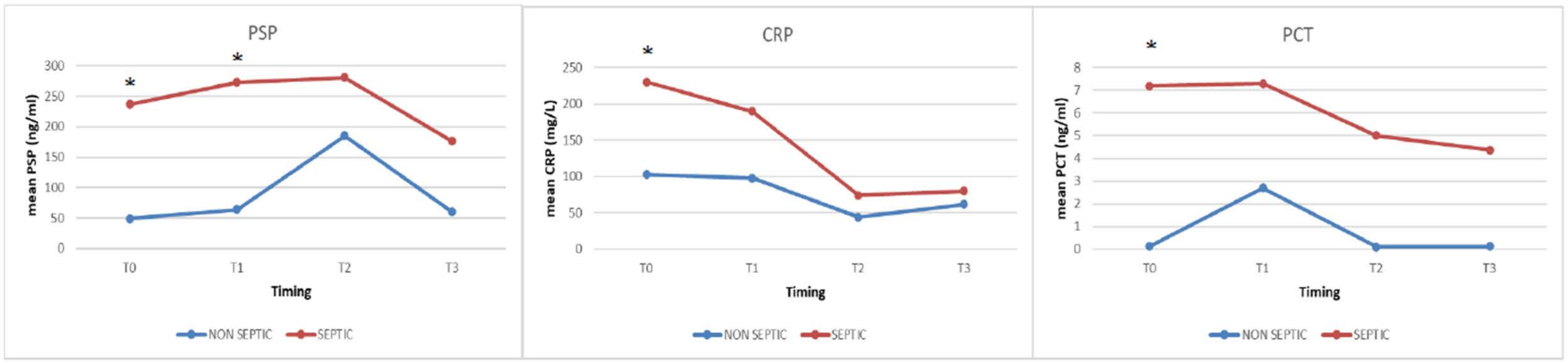

Fig. 1. Mean PSP (ng/ml), CRP (mg/L) and PCT (ng/ml) levels in the two group of patients (septic and non-septic) over the time.
*$p<0.05$

Conclusions

Our study suggests a potential role of PSP as diagnostic biomarker of sepsis in critical ICU patients. Daily PSP monitoring may anticipate an appropriate treatment and avoid worsening of the clinical picture, improving standard of care and outcome, but further studies are needed to confirm our hypothesis.

References:
1. Evans L, Rhodes A, Alhazzani W et al. Intensive Care Med. 2021 Nov;47(11):1181-1247.
2. Llewelyn MJ, Berger M, Gregory M et al. Crit Care. 2013 Mar 26;17(2):R60.
3. Pugin J, Daix T, Pagani JL et al. Crit Care. 2021 Apr 20;25(1):151.