

PANCREATIC STONE PROTEIN (PSP) PREDICTS PERIOPERATIVE SEPSIS IN CRITICALLY ILL PATIENTS UNDERGOING CARDIAC SURGERY



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Background

Sepsis represents a life-threatening organ dysfunction caused by a dysregulated host response to infection. Pancreatic Stone Protein (PSP) is a protein produced during early stages of sepsis, so it may improve early identification and management of sepsis in critically patients. Here, we analyze the use of PSP in predicting the onset of sepsis in patients undergoing cardiac surgery.

Methods

This case series included 18 patients undergoing cardiac surgery between February and May 2022. Blood samples at admission were taken for analysis of PSP and the results were compared to other inflammatory markers at several time points (the day after and 4 days after the surgical procedure). The primary goal is to assess trends in inflammatory markers, as well as the ability of PSP in predicting mortality and the development of organ dysfunction.

Results

We included 3 patients who received heart transplantation, 6 patients scheduled for myocardial revascularization, 4 patients with endocarditis, 2 patients with aortic dissection and 3 patients scheduled for valve replacement. PSP, CRP and WBC were evaluated and in Figure 1 data were reported for each case. PSP was able to early detect patients at high risk for developing postoperative sepsis. PSP showed elevated levels (> 200 ng/ml) before cardiac surgery in only 2 patients, both were characterized by organ dysfunction with the need of CRRT (one patient was on chronic hemodialysis, while the other was on CRRT before kidney transplantation); however, they had a persistence of high PSP at the two determinations after surgery, indeed they were readmitted in ICU due to sepsis complication after cardiac surgery. A third patient with elevated PSP presented sepsis and severe neurological complications. Conversely, in the other patients PSP were not significant: they presented stable values in the postoperative period and didn't present sepsis complications and ICU readmission.

Both CRP and WBC were able to discriminate these 2 patients; CRP values increased later compared to PSP (in the fourth postoperative day), while WBCs count showed unspecific trend during the study period.

Conclusion

In this case series, we reported the application of PSP in predicting the onset of postoperative sepsis, as well as organ dysfunction and prolonged ICU length of stay and/or readmission.

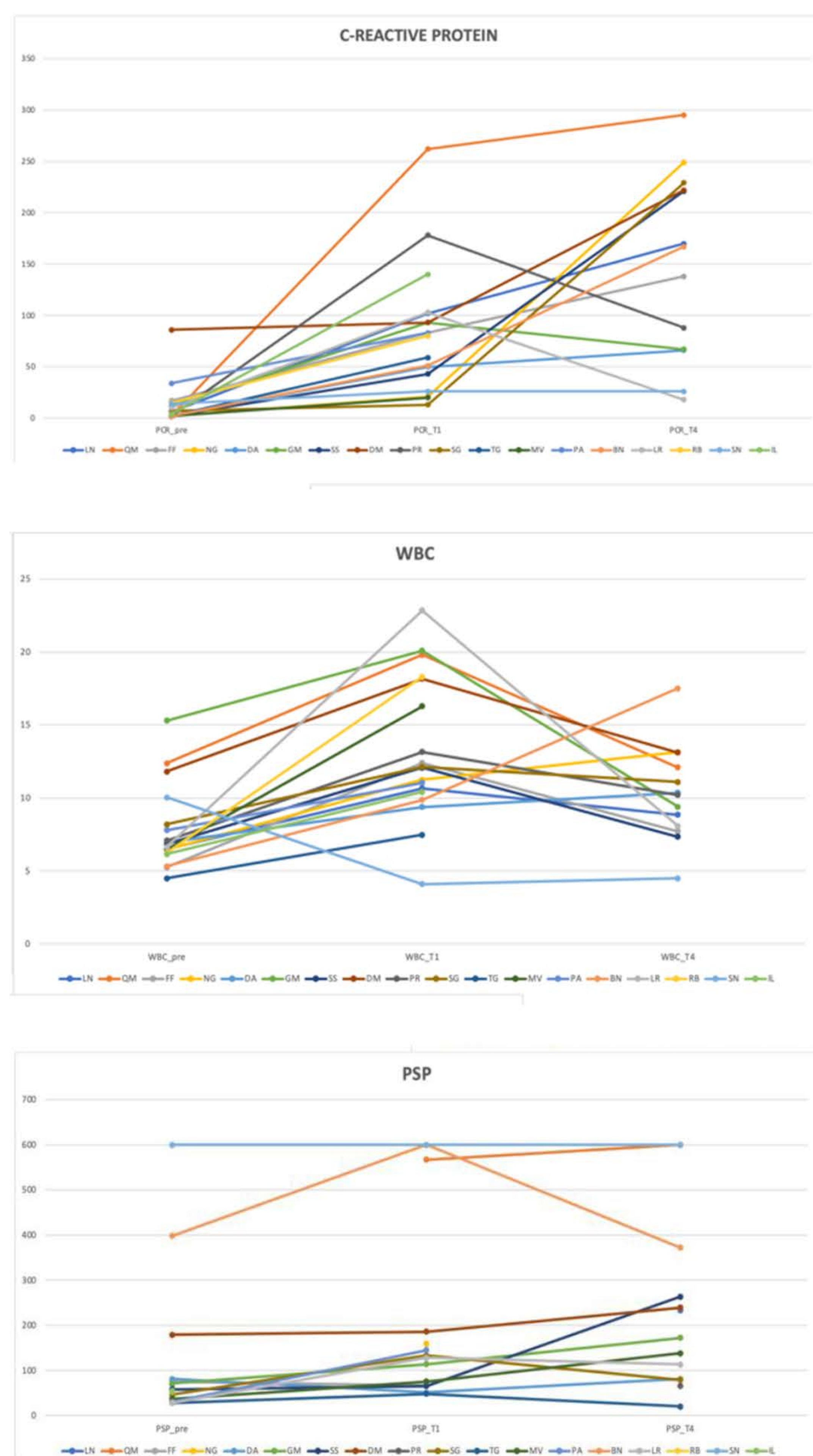


Figure 1. Trends of PSP concentration (ng/ml) in the study cohort, compared to C-reactive protein (CRP) and White Blood Cells (WBCs)