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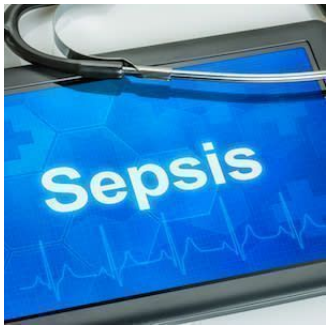
Serial Measurement of Pancreatic Stone Protein for Detection of Sepsis



Sepsis continues to be a challenging health problem associated with high morbidity and mortality. Approximately 48.9 million cases of sepsis were recorded worldwide in 2017, with 11 million related deaths. Sepsis guidelines emphasise the early recognition and aggressive management of this condition with early antibiotic treatment and support. If not treated early, sepsis can evolve into life-threatening septic shock and multiple organ failure.

Sepsis diagnosis is generally based on nonspecific clinical signs, laboratory findings and medical scores usually obtained after sepsis onset. To date, no biomarker has been identified with the capacity to detect sepsis quickly and accurately. C-reactive protein (CRP) is an inflammatory marker widely used to help in the diagnosis of infection. Procalcitonin (PCT) has also been extensively evaluated as a marker of bacteraemia. However, both have shown suboptimal performance. Pancreatic stone protein (PSP) is a C-type lectin protein that triggers polymorphonuclear cell activation and has proinflammatory activity.

It is already established that the early recognition and management of sepsis improves patient outcomes. In particular, the use of biomarkers could help in specifically identifying earlier signs of sepsis.

In this study, the researchers explore the potential of serial measurements of C-reactive protein (CRP), procalcitonin (PCT) and pancreatic stone protein (PSP) for early recognition of sepsis in ICU. The study was conducted in 14 ICUs in France, Switzerland, Italy, and the U.K and included 243 adult ICU patients at risk of nosocomial sepsis. They tested the association of clinical sepsis diagnoses with the trajectories of PSP, CRP, and PCT in the three days preceding sepsis diagnoses for markers of early sepsis detection.

Fifty-three patients developed nosocomial sepsis after a median of 6 days. Sepsis diagnosis was associated with an increase in biomarkers value over the three days preceding the diagnosis of sepsis. PSP started to increase five days before the diagnosis; PCT 3 and CRP started to increase two days before diagnosis.

The diagnostic accuracy of PSP, CRP and PCT were similar, but serial PSP measurement demonstrated an increase of this marker in the days preceding the onset of signs necessary to diagnose sepsis. Hence, these findings justify further evaluation of the potential benefit of serial PSP measurement in the management of critically ill patients developing nosocomial sepsis.

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