

08. Biomarkers in the Battle Against Sepsis: Does Procalcitonin Lead the Way?

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BACKGROUND: Sepsis is a life-threatening emergency with the leading cause of 24.1 million deaths globally. The early evaluation of the severity of the sepsis continues to be difficult, thus making it necessary to conduct further studies on biomarkers like Procalcitonin and C-reactive protein (CRP). **OBJECTIVE:** This study aims to compare the efficacy of procalcitonin and C- reactive protein in predicting the severity of sepsis. **METHODOLOGY:** This study analyses the efficacy of procalcitonin against C- reactive protein by evaluating the parameters of effectiveness based on the prediction capabilities of sepsis severity using serum biomarker levels in blood. **RESULTS:** Procalcitonin (PCT) levels in septic patients have been shown 10 times higher than in non-infected patients. CRP levels also shows a significant spike of 4.9 times high in severe sepsis cases. Patients with positive blood cultures have shown higher PCT and CRP values compared to culture-negative patients. Diagnostic analysis have shown superior performance of PCT over CRP in sensitivity representing an absolute diagnostic improvement of 20.3% and an approximately 37.6% relative increase in predictive accuracy for sepsis detection. **CONCLUSION:** Procalcitonin has shown higher sensitivity and specificity compared with CRP in evaluating sepsis severity. Higher procalcitonin concentrations correlated significantly with the presence of bacterial infection in the blood stream, organ dysfunction, SOFA scores, and disease progression. This aids in providing effective treatment course for sepsis.

Key Words: Sepsis; Procalcitonin; C-reactive protein; Biomarkers; SOFA score.