

RELATIONSHIP BETWEEN PROCALCITONIN PLASMA LEVEL AND SEVERITY OF INFECTION

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INTRODUCTION. In the context of new promising and other already available efficient treatment of sepsis (1), one would find of particular interest to have a biological marker, early produced and linked to the severity of the septic state, at his disposal. PCT may match the criteria. We therefore assessed the reliability of procalcitonin (PCT), a recent bacterial infection marker, in predicting severity of sepsis, and how soon (2, 3).

METHODS. In order to examine the relationship between PCT plasma levels and sepsis severity, we investigated 42 patients (patients) who developed ICU acquired infection. Severity of sepsis was assessed by ACCP/SCCM criteria (4), and PCT levels were measured once daily until day five. The number of males and females was respectively 35 and 7, mean age 56 ± 20 years. The APACHE II Score was 18.5 ± 5.1 at time of admission in the ICU. Twenty one were trauma patients, 9 postcardiac surgery patients, 3 neurosurgical patients and 9 medical patients.

RESULTS. Infections which occurred on day 6.9 ± 5.7 were mainly bronchopneumonia. Sepsis occurred in 25 patients, severe sepsis in 13 patients and septic shock, defined by both hypotension requiring vasoactive agent and lactate level > 2.5 mmol/L, in 6 patients. On day one of sepsis, PCT levels were between 0.11 and 82.6 ng/ml, (mean = 5.3, median = 0.825) in sepsis, 0.23 and 9.97 ng/ml (mean = 2.7, median = 1.08 ng/ml) in severe sepsis, 1.91 and 57.7 ng/ml (mean = 16.8, median = 11.5 ng/ml) in septic shock. Even by excluding the patient with 82.6 ng/ml, we found no significant difference between sepsis and severe sepsis. On the other hand, levels in septic shock were significantly different from the other groups, increasing on day 2 in 21.7% of sepsis, in 38.5% of severe sepsis and 50% of septic shock. During the five days observation, levels > 1 ng/ml were observed in 12 sepsis patients (52%), in 9 severe sepsis patients (69%) and in the 6 septic shock patients (100%). > 5 ng/ml in 3 sepsis patients (15%), in 3 severe sepsis patients (23%), in the 6 septic shock patients (100%). This leads to the point that, with a threshold of 1 or 5 ng/ml, the sensitivity to confirm the severe sepsis state or septic shock is respectively of 79% and 47%, with a specificity of 48% and 87%.

CONCLUSION. Disappointingly, procalcitonin does not appear to be a reliable marker of severe sepsis.

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