

Procalcitonin in Early Detection of Postoperative Infectious Complications. the Comparison with a Set of Cytokines, Soluble Cytokine Receptors and Acute Phase Proteins

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Background: Infections and sepsis are relevant complications in patients undergoing large abdominal surgery and still constitute a diagnostic challenge. Only limited markers can differentiate incipient postoperative sepsis from uncomplicated early postoperative reaction. A prospective clinical study was performed to examine the accuracy of procalcitonin (PCT), set of cytokines, soluble cytokine receptors and acute phase proteins in patients following major abdominal surgery.

Subjects and Methods: Between January 2006 and February 2008, 48 patients with febrile episode of the early postoperative period after abdominal surgery were entered into the study. Blood samples were obtained on the first day of fever for the measurement of plasma PCT (Kryptor), TNFalpha, IL-1beta, IL-1ra, IL-2, IL-6, sIL-6R, IL-8 (ELISA), and 10 acute phase proteins (nephelometry). Data were compared with reference group: 24 patients with the planned resection of colorectal cancer at stage Ib-IV and uncomplicated healing; venous blood samples were obtained repeatedly before surgery, 6, 12, 18, 24, 48, and 72 h after start of surgery

Results: Febrile reaction of 26/48 patients was linked with positive blood culture results. PCT and IL-6 concentrations of blood culture positive subjects differed significantly from non-bacteremic patients ($p < 0.01$ for both parameters) as well as from uncomplicated patients ($p < 0.003$ and $p < 0.001$). Cutoff levels to distinguish blood culture positive and negative subgroups using ROC were 0.96 ng/ml for PCT and 345 pg/ml for IL-6. Other inflammatory parameters showed high sensitivity but lower specificity for bacterial complications in relation to uncomplicated postsurgical course. PCT and monitored cytokines culminated 18–36 h following uncomplicated surgery and postoperative PCT levels did not exceed 1.02 ng/ml in this group

Conclusions: Simultaneous PCT and IL-6 examination is a reliable approach to distinguish incipient infectious complications in early postoperative period. Their measurement is well founded for daily monitoring of high-risk patients after large abdominal surgical procedures. Supported with grant IGA-MZ-CR-4825–3.

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Diagnostic and Prognostic Value of Procalcitonin in Patients with Sepsis

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Background: Severe generalized bacterial, parasitic or fungal infections with systemic manifestations are associated with increased procalcitonin (PCT) serum levels. PCT is a marker of severity of sepsis at the same time. We investigated the value of PCT levels on different days for identifying of severity of sepsis.

Methods: In this study 50 patients who were diagnosed as sepsis and followed up in intensive care units of Gazi University Medical Faculty were included. In the patients who were diagnosed as sepsis, serum PCT levels were determined before beginning the antibacterial treatment on the first day, then after the diagnosis on the days 3 and 5. Illness severity was measured using APACHES II scores. PCT was quantified by use of a specific immunoluminometric assay (LUMitest procalcitonin, Brahms Diagnostica, Berlin)

Results: Serum PCT levels were determined as high for the patients diagnosed as sepsis. There has been a significant statistical difference among the three measurements in the surviving patients on the aspects of repeated measurements. We determined a statistical difference on the aspects of PCT levels between the surviving and died patients when the patients are separated into two groups as patients with high risk and low risk according to PCT levels. While it is not determined a difference between measurements of PCT levels on the days 1 and 3, because of the determination of a difference between the PCT levels measured on the days 1 and 5 in the surviving patients, it was thought that measurements of PCT levels on the days 1 and 5 can give sufficient data.

Conclusion: As a result of the study, it was viewed that with the patients who have sepsis, PCT can be used as not only a diagnostic but also a prognostic marker.

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Analysis of *Bordetella pertussis* Agglutinin Titer in the Patients with Adolescent/Adult Pertussis

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Background: *Bordetella pertussis* is a gram-negative bacterium that infects a respiratory tract and causes pertussis. *B. pertussis* contains agglutinin. Major agglutinin, Agg2 and Agg3 is derived from Tohama strain (vaccine strain) and Yamaguchi strain (epidemic strain) respectively. Pertussis is diagnosed by nasopharyngeal culture, PCR and serologic