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 without fever. The group was compared with reference group: 24 patients with the planned resection of colorectal cancer at stage Ib-IV and without fever. The group was compared with reference group: 24 patients with the planned resection of colorectal cancer at stage Ib-IV and without fever.

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 after start of surgery.

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 agglutinogen. Major agglutinogen, 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

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tests for \textit{B. pertussis}. As a serologic test, the agglutinin titers against Tohama and Yamaguchi strain are measured widely in Japan. The criterion for infants pertussis established by the National Institute of Infectious Diseases was employed: \( \geq 1:40 \) agglutinin titer of Yamaguchi strain has a diagnostic value. But there is not a universal criterion of the agglutinin titer for adolescent/adult pertussis. We describe about epidemiologic circumstance of a sudden rise in the incidence of pertussis in our University, and the distribution of the agglutinin titers against Tohama and Yamaguchi strain in the patients with adolescent/adult pertussis.

\textit{Patients and Methods:} We analyzed an agglutinin titer against Yamaguchi and Tohama strain for patients with prolonged cough.

\textit{Results and Conclusion:} In mid-May, an index case was diagnosed as suspecting pertussis. Until early July, a total of 361 students/faculty members visited the Health Science Center for a chief complaint of cough, and about 80% people were diagnosed as pertussis. It was considered that pertussis is spreading over the university. Patients diagnosed with pertussis were treated with macrolides. We analyze the agglutinin titers in the patients with pertussis. The agglutinin titer against Yamaguchi strain of \( \geq 1:40 \) was detected in 290 students/faculty members. Maximum agglutinin titer against Yamaguchi strain was 1:5120, and the class with the largest frequency was 1:160.

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70.017

\textbf{Variation in Pilus Encoding Gene Cluster between O1 and Non-O1 Serogroups of \textit{Vibrio cholerae} in Iran}

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\textit{Background:} Two important virulence factors in \textit{Vibrio cholerae} are cholera toxin (CT) and toxin co-regulated pilus (tcp) in VPI. VPI is one of the initial factors required for the emergence and pathogenesis of epidemic V. cholerae. The central segment of VPI contain of TCP gene cluster that is approximately 13kb in size and including proteins involved in synthesis of tcp. Tcp is an important protein that involve in intestinal colonization of bacteria, microcolony and biofilm formation. The aim of this study was to detect the presence and diversity of VPI genes in O1and Non-O1 serogroups of vibrio cholerae that isolated from patients and environment in Iran.

\textit{Materials and methods:} Twenty clinical and forty environmental isolates of \textit{V. cholerae} obtained and serogrouped using O1 and O139 antisera. The identity of isolates was investigated using conventional biochemical tests and confirmed by a species-specific PCR. Eight pair of primers used to analysis VPI cluster which is approximately 41 kb in size. Each pair of primers amplifies within the internal region of the individual genes in the cluster. PCR products were confirmed by restriction fragment length polymorphism (RFLP).

\textit{Result:} Specific biochemical tests and serogrouping of isolates showed that 25% of clinical isolates were O1-Ogawa and 75% were O1-Inaba while 100% of environmental strains were non-O1, non-O139. PCR analysis indicated that 100%, and 90% of clinical strains were positive for RJ and LJ genes and prevalence of the int, ald, tcpA, tagA, toxT and acfB-C were 95% in this group of isolates. Only one of the environmental isolates (2.5%) contained the whole cluster the whole cluster and the remaining 97.5% did not carry any of the genes within the cluster.

\textit{Conclusion:} This study demonstrates the presence of critical virulence genes or other homologues in clinical strains and emphasizes the importance of monitoring \textit{V. cholerae} non-O1, non-O139 serogroup strains for their virulence gene content in order to assess their epidemic potential.

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