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Serum creatine kinase activity and monocyte counts are increased in acute myocardial infarction, but not in general infection patients

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Background: Biomarkers specificity is an important factor for their reliable utilization. Known markers for acute myocardial infarction (AMI) including creatine kinase (CK) activity, C-reactive protein (CRP) level and blood cell counts are thought to be altered in other pathological conditions such as infections.

Methods: We recruited 15 AMI patients, 15 patients with bacterial infections (infected control group) and 35 normal Subjects. Peripheral blood samples were obtained for blood cell counts and biochemical analyses.

Results: We therefore compared these biomarkers in 15 AMI patients (troponin criteria > 0.100 ng/mL) and 15 infected controls with respect to 35 normal subjects. Only monocytes were significantly increased in AMI patients ($0.793 \times 10^9/L$) than normal controls ($0.497 \times 10^9/L$). Infected controls showed a significant increase in total WBC ($11.50 \times 10^9/L$ versus $6.149 \times 10^9/L$) and neutrophils (9.360 versus $3.223 \times 10^9/L$) counts and significant decrease in RBC (3.750 versus $5.105 \times 10^{12}/L$) counts as compared to normal controls. Serum CK activity was significantly increased in AMI patients (313.20 ± 94.84 U/L) and decreased in infected controls (48.40 ± 10.35 U/L) as compared to normal controls (100.82 ± 8.86 U/L). The levels of CRP were significantly higher in infected controls (136.93 ± 34.83 mg/L) and non-significantly higher in AMI patients (38.53 ± 12.76 mg/L) than normal controls (3.48 ± 0.59 mg/L). Monocytes were significantly correlated with both CK activity and CRP level, however there was no correlation between CK activity and CRP level.

Conclusion: Differential trends of monocytes and CK activity in AMI and infective controls point towards their possible application in prognosis of AMI patients. (Supported by National Plan for Science and Technology, King Saud University Project No. 08-BIO571-02).

Biography

Alhomida has completed his Ph.D. in 1993 from the University of Akron, Ohio, USA and have joined King Saud University, Department of Biochemistry, College of Science, Riyadh, Saudi Arabia since 1994. In 2002-2006 he became the Chairman of the Department of Biochemistry and in 2010-2012 he became the Vice-Dean of Graduate Studies and Scientific Research. He has published more than 95 papers in reputed journals and has been serving as an Editor-in-Chief of Saudi Journal of Biological Sciences and as editorial board member of reputed.

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