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Serum levels of TNF- α , IL-6, and selenium in patients with acute and chronic coronary artery diseaseHassanzadeh, M.^a, Faridhosseini, R.^b, Mahini, M.^a, Faridhosseini, F.^b, Ranjbar, A.^c^a Department of Cardiology, Mashhad University of Medical Sciences, Mashhad, Iran^b Department of Allergy and Immunology, Mashhad University of Medical Sciences, Mashhad, Iran^c Allergy Research Centre, Cologne, Germany

Abstract

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Background: Selenium (Se) is part of the glutathione peroxidase enzyme complex (GSH-PX) that plays an important role in antioxidant mechanisms in body, also it has been demonstrated that populations with low Se intake have 2-3 times greater risk of ischemic heart disease. Objective: To determine the circulating levels of IL-6, TNF- α , Cu, Zn, and Se in patients with chronic coronary artery disease (CCAD), acute myocardial infarction (AMI), and normal individuals. Methods: Patients were divided into two groups: 25 subjects with CCAD and 25 patients with AMI. The control group included 50 normal individuals who did not have any history of ischemic heart disease, and were sex and age matched with the patients. Blood samples were collected during the first hours after the onset of chest pain in AMI group. Serum concentration of Se, Cu, and Zn were determined by atomic absorption spectrometry and TNF- α and IL-6 levels were measured using ELISA method. Results: In both groups of patients there was a significant reduction in serum Se levels (82.36 + 11.31 μ g/L in CCAD, 74.08+11.31 μ g/L in AMI, and 105+32.52 μ g/L in the control group, P=0.03). TNF- α titers were increased in AMI patients compared with CCAD and control group. Mean TNF- α levels were 37.44 pg/ml in CCAD, 914.32 pg/ml in AMI, and 4.80 pg/ml in the control group (P=0.01). Serum levels of IL-6 in CCAD and AMI patients were 3.28 \pm 15.55 pg/ml and 472 \pm 207.88 pg/ml, respectively, and 1.28 pg/ml in the control group (P=0.001). Conclusion: These findings confirm previous studies and demonstrate that patients suffering from AMI exhibit lower plasma concentrations of Se and higher concentrations of pro-inflammatory cytokines of TNF- α and IL-6.

Reaxys Database Information

Author keywords

AMI; Copper; IL-6; Selenium; TNF- α ; Zinc

Indexed Keywords

EMTREE drug terms: copper; glutathione peroxidase; interleukin 6; selenium; tumor necrosis factor alpha; zinc

EMTREE medical terms: acute heart infarction; article; blood analysis; blood level; blood sampling; clinical article; controlled study; coronary artery disease; enzyme linked immunosorbent assay; human

Chemicals and CAS Registry Numbers: copper, 15158-11-9, 7440-50-8; glutathione peroxidase, 9013-66-5; selenium, 7782-49-2; zinc, 7440-66-6

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