

Serum zinc and copper levels in ischemic cardiomyopathy.

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Abstract

Changes in the copper (Cu) and zinc (Zn) concentrations have been reported previously in ischemic cardiomyopathy (ISCMP). Due to controversial results, the aims of this study were to compare levels of Cu, Zn, and Zn/Cu ratio of ISCMP patients with healthy volunteers and also to investigate the possible relationship between trace elements status in ISCMP patients with the severity of clinical disease based on the New York Heart Association (NYHA) classification. The subjects of this study consisted of 30 ISCMP and 27 healthy volunteers. ISCMP was diagnosed with a history of previous myocardial infarction and also coronary artery disease was confirmed by coronary angiography. Exclusion criteria were renal or hepatic insufficiency, alcohol usage, and intake of supplements containing Cu or Zn within 1 week. Cu and Zn levels have been assayed with atomic absorption spectrophotometry. Statistical analysis was performed with the SPSS 10 software using independent sample t test for comparing the levels of Cu and Zn between ISCMP and normal subjects. The mean Cu level of the ISCMP group (1.54 +/- 0.52 mg/L) was significantly more than the Cu levels of the healthy volunteers (1.31 +/- 0.24 mg/L; $p = 0.048$). The mean Zn levels of the ISCMP and healthy volunteers were 1.05 +/- 0.28 and 1.12 +/- 0.42, respectively, without any significant difference between groups. There was a trend for higher Cu level, lower Zn level, and lower Zn/Cu ratio in NYHA III patients in comparison with NYHA II group. Considering the results of this study, Cu may have a role in the development of ISCMP. Interventions such as administration of Cu chelators to relieve the symptoms or to decrease the progression of ISCMP is needed to be examined in large clinical trials. In this study, the Zn level of ISCMP patients was not significantly

different in comparison with the healthy volunteers.

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