

The study of Cu and Zn serum levels in idiopathic dilated cardiomyopathy (IDCMP) patients and its comparison with healthy volunteers.

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Abstract

Changes in the copper (Cu) and zinc (Zn) concentrations have been reported previously in idiopathic dilated cardiomyopathy (IDCMP). As a result of controversial results, the aim of this study was to compare the Zn and Cu concentrations and Zn/Cu ratio of IDCMP patients to healthy volunteers. In addition, the correlation of Cu and Zn levels with age has been evaluated. The study population consisted of 18 IDCMP patients and 27 healthy volunteers. IDCMP patients had normal angiography with echocardiography supporting cardiomyopathy without pericardial and valvular diseases. Exclusion criteria were renal or hepatic insufficiency, alcohol usage, and intake of supplements containing Cu or Zn within 1 week ago. Cu and Zn levels have been assayed with atomic absorption spectrophotometry. Statistical analysis was performed with SPSS 10 software with independent sample t test for comparing the level of Cu and Zn of IDCMP patients with normal subjects and Pearson correlation to determine the correlation between numeric data. $P < 0.05$ was considered as significant differences. There was a trend for a lower Zn level in IDCMP patients compared to healthy volunteers. (0.97 ± 0.25 mg/l vs. 1.12 ± 0.42 mg/l, respectively). The mean Cu levels of IDCMP and normal subjects were 1.33 ± 0.20 mg/l and 1.31 ± 0.23 mg/l, respectively. There was a significant difference in Zn/Cu ratio among patients based on the NYHA classification of heart failure ($P = 0.003$). Age was negatively correlated with Zn levels in IDCMP group ($P = 0.037$) and positively with Cu levels in healthy volunteers ($P = 0.012$). A lower Zn level in IDCMP patients compared to healthy volunteers and specially a significant difference in Zn/Cu ratio of patients based on their NYHA

classification would suggest a critical role of zinc and Cu imbalance in development of IDCMP.

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