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Journal of Trace Elements in Medicine and Biology

Volume 21, Issue 1, 14 March 2007, Pages 22-28

Serum copper and zinc concentrations are lower in Iranian patients with angiographically defined coronary artery disease than in subjects with a normal angiogram

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Abstract

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Background: An imbalance between zinc and copper metabolism has been reported to predispose to coronary artery disease (CAD) in Western populations, but there are little data for other racial groups. We have therefore investigated the association between serum copper and zinc, and CAD in Iranian subjects undergoing coronary angiography. **Methods:** Serum copper, zinc, fasting lipid profile, and blood glucose levels were measured in 114 patients (67 male and 47 female) undergoing routine coronary angiogram. Anthropometric features including blood pressure were determined using standard procedures. Demographic characteristics, including menopausal status and smoking habit, were assessed by questionnaire. **Results:** Male patients had lower serum copper ($p < 0.05$), lower serum zinc ($p < 0.05$), and higher serum zinc/copper ratio ($p < 0.05$) than females. Serum copper and zinc concentrations were significantly lower in the subjects with angiographically defined CAD than those patients with a normal angiogram, although the zinc/copper ratio was higher in these patients ($p < 0.001$). Serum copper ($r = -0.303$, $p < 0.001$) and zinc ($r = -0.250$, $p < 0.01$) concentrations were both inversely related to age, and copper was positively associated with fasting serum triglycerides ($r = 0.188$, $p < 0.05$). **Conclusion:** Serum copper and zinc concentrations were significantly lower in Iranian patients with abnormal versus those with a normal angiogram. However, the zinc/copper ratio was higher in patients with CAD compared to subjects without CAD. Serum zinc and copper concentrations appear to be influenced by several physiological factors including age and gender. © 2007 Elsevier GmbH. All rights reserved.

Reaxys Database Information

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Author keywords

Angiography; Atherosclerosis; Copper; Coronary artery disease; Zinc

Indexed keywords

EMTREE drug terms: copper; glucose; lipid; triacylglycerol; zinc

EMTREE medical terms: adult; angiocardiology; anthropometry; article; atherosclerosis; copper blood level; copper metabolism; coronary artery disease; diagnostic imaging; disease association; disease predisposition; female; glucose blood level; human; Iran; lipid blood level; major clinical study; male; measurement; menopause; priority journal; questionnaire; sex difference; smoking habit; standard; statistical significance; zinc blood level; zinc metabolism

MeSH: Adult; Age Distribution; Aged; Aged, 80 and over; Copper; Coronary Angiography; Coronary Arteriosclerosis; Female; Humans; Iran; Male; Middle Aged; Risk Factors; Smoking;

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