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Serum levels of Zinc and Copper in individuals with giardiasis

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Abstract:

**Background:** Trace elements regulate the key metabolic pathways, modulate the immune response, and suppress the incidence of various diseases. The most important vital elements in human body are Copper and Zinc. Zinc is necessary for the immune system functions. Zinc deficiency is associated with acute diarrhea. Copper is essential for the production of red blood cells, hemoglobin formation and absorption of iron, and for the activity of various enzymes. However, the association between trace elements and giardiasis has rarely been investigated. The aim of this study was to measure the serum levels of Zinc and Copper in individuals with giardiasis in comparison with the normal subjects.

**Materials and Methods:** Stool samples were collected in sterile clean stool cups from all volunteers. Examination of fecal samples for detection of *Giardia* cyst and/or trophozoite was carried out using the direct wet smear and formol-ether concentration method. Among these volunteers a total of 49 positive individuals for *Giardia lamblia* were enrolled as the study group. The control group consisted of 39 age and sex matched healthy volunteers. Serum was obtained from both groups and kept in -70°C freezer for biochemical laboratory examination. Zinc and Copper levels were measured by Diagnostics Kit and colorimetric endpoint-method.

**Results:** Zinc levels in the study group was remarkably lower than the control group ($P=0.001$). In addition, there was a significant difference in serum copper levels between both groups ($P=0.003$).

**Conclusion:** Giardiasis elevated the serum copper levels, while it decreased the serum zinc.

**Keywords:** Giardiasis, Trace elements, Zinc, Copper