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Serum copper levels in patients with type 2 diabetes mellitus: Relation to glycaemic control

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Background: Diabetes mellitus is a chronic disorder of carbohydrate metabolism, which is associated with hyperglycemia and characterized by both insulin resistance and/or defective insulin secretion. Direct associations between trace elements and diabetes mellitus have been observed. This study was conducted to evaluate serum copper levels in patients with type 2 diabetes mellitus in the Duhok Governorate/Kurdistan region of Iraq.

Methodology: This cross sectional case control study was conducted in Duhok Diabetic Center in Duhok Governorate from June, 2013 to October, 2013. 203 diabetic patients and 113 healthy subjects were conducted in this study. Serum glucose, serum copper, serum caeruloplasmin, serum lipid profile and whole blood *HbA1c* were measured.

Results: The mean serum copper level was significantly higher in diabetic patients (p value <0.01) as compared to healthy control. The results also revealed a significant positive correlation between serum copper, serum caeruloplasmin and whole blood glycated hemoglobin.

Conclusion: Patients with type 2 diabetes mellitus had increased levels of serum copper that mostly related to the increase levels of whole blood glycated hemoglobin.

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