

Serum levels evaluation of Zinc, Chromium, Copper, Selenium and Manganese in diabetic and non-diabetic kidney transplant patients

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Background and Aims: One of the major complications of treatment with cyclosporine (CsA) is increasing blood sugar levels in kidney transplant receiving patients. Results of previous study shows that some of the essential elements, including zinc, copper, chromium, selenium and manganese could have an effective role in prevention and treatment of diabetes. we decided to study serum levels of these elements and their correlation with blood levels of cyclosporine.

Methods: This was a unicenter -Afzalipour hospital case-control study in 107 diabetic and non diabetic renal transplant recipients who were treated with CsA. Patients divided to two groups, diabetic (n=51), and non diabetic (n=56). The elements were measured with Atomic Absorption method. Data were analyzed using T-test and Pearson Correlation test.

Results: In this study, Only copper blood levels in diabetic patients were significantly less than non diabetic group (P=0.008). Other elements were not significantly different in two groups. Chromium had significantly indirect correlation (P=0.006) with trough concentration of cyclosporine (C0). Zinc had a significantly indirect correlation (P=0.011) with peak concentration of cyclosporine (C2).

Conclusions: In this study, blood levels of copper in diabetic patients with kidney transplant was decreased. However, this reduction didn't have a significant correlation with blood levels of cyclosporine. Since chromium and copper had indirect correlation with blood cyclosporine levels, and they could involved in occurrence of post transplant diabetes.

Keywords: Zinc; Chromium; Manganese; Selenium; Copper; Diabetes; Kidney transplantation; Cyclosporine