



Serum Trace Element Levels in Children Presenting With Diabetic Ketoacidosis And Diabetic Ketoacidosis: A Longitudinal Controlled Study

Hakan Doneray*, Kadri Gurbuz**, Ayşe Ozden*, Mehmet Ali Gul***, Zerrin Orbak*

Ataturk University *Pediatric Endocrinology, **Pediatrics, Biochemistry, Erzurum, Turkey



BACKGROUND

There have been very few studies, with contradictory results, on the serum trace elements in children and adolescents presenting with diabetic ketosis and diabetic ketoacidosis due to type-1 diabetes mellitus. The objective of this longitudinal controlled study was to determine serum trace element status including selenium (Se), zinc (Zn), copper (Cu), manganese (Mn), chrome (Cr), and cobalt (Co) in type-1 diabetic children and adolescents presenting with diabetic ketosis and diabetic ketoacidosis and compare them with that of healthy controls.

MATERIALS and METHODS

Thirty eight children and adolescents with diabetic ketosis and diabetic ketoacidosis, aged 3 to 17 years, and 38 similar ages - and the same sex-matched healthy controls were participated in the study. Serum hemoglobin A1c, free thyroxine (FT4), thyroid stimulating hormone (TSH), creatine kinase (CK), and trace elements including Se, Zn, Cu, Mn, Cr, and Co were measured. Blood gases were determined and whole blood analysis was performed. All patients were evaluated at the diagnosis (visit 1), 10-15 days after diagnosis (visit 2), three months after diagnosis (visit 3), and six months after diagnosis (visit 4).

RESULTS

The mean serum Se and Zn concentrations in diabetic patients at each visit were higher than those in healthy controls. No correlations were found between the serum Se and Zn levels and others parameters.

CONCLUSION

The serum Se and Zn levels of diabetic children and adolescents during six months after diagnosis are noticeably different compared to those of healthy controls.

