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Assessment of serum paraoxanase activity, total oxidant and antioxidant capacity in relation to inflammation in hemodialysis patients

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The aim of study was to evaluate the relationship of serum paraoxanase1 (PON1) activity, total oxidant (TOS) and antioxidant (TAS) status with inflammation in hemodialysis patients. 23 patients (diagnosed with hemodialysis) and 27 healthy volunteers were included in study (18-75 years). Rel Assay diagnostics kits were used to determine PON1, arylesterase (ARES), TAS, and TOS in individual serum samples. PON1 and ARES were found to be low in hemodialysis patients. PON1 were determined to be low in 87% of study group and 33% of control group. Individuals who have high PON1 activity were found to have high levels of ARES and HDL ($p<0.05$). When all subject's PON1 activity and lipid profile were assessed, PON1 activity had strong positive correlation with HDL, negative correlation with LDL and cholesterol ($p<0.05$). Negative correlation was observed between CRP and PON1, ARES and TAS, but positive correlation with TOS ($p <0.05$). CRP levels of hemodialysis patients were 11.7±15.9 mg/L, PON1 values were found to be low in 88% of patients with inflammation. TAS were below normal levels in 91.3% of study group and 70% of control group. However, in all of control group and 86.9% of study group's TOS were normal. Significant differences were found between PON1, TAS and TOS. Finally, low PON1 activity in hemodialysis patients is associated with reduction in antioxidant capacity of HDL, thereby causing atherosclerosis and inflammation. While decrease in oxidants in hemodialysis patients is though positively, decrease in antioxidants is unwanted. Therefore, TAS and TOS levels are important in terms of immunity and metabolic disorders.

Biography

Hazal Kucukkaraca has graduated from Hacettepe University, Faculty of Health Sciences Department of Nutrition and Dietetics in 2014. She has been working as a Research Assistant at Ondokuz Mayis University, Faculty of Health Sciences, Department of Nutrition and Dietetics since 2015. She is continuing her graduate studies in Nutritional Science.

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