THE RELATIONSHIP BETWEEN SERUM FETUIN A LEVELS AND FETUIN GENE POLYMORPHISM IN HEMODIALYSIS PATIENTS

Mehmet Tugrul_Sezer[1], Atila Altuntas[1], Ayse Yigit[2] , Efkan Uz[3] Veysel Kıdır[1], Bunyamin Aydın[4] , Salih İnal[1], Hasan Basri Savas[3].

- *[1]Suleyman Demirel University, Faculty of Medicine , Internal Medicine Department, Nephrology Division, Isparta, Turkey.*
- *[2]Suleyman Demirel University, Faculty of Medicine, Department of Medical Genetics Isparta, Turkey.*
- *[3]Suleyman Demirel University, Faculty of Medicine, Deparment of Biochemistry, Isparta, Turkey.*
- *[4]Suleyman Demirel University, Faculty of Medicine , Internal Medicine Department, Endocrinology and Metabolism Division, Isparta, Turkey.*

Introduction: Vascular calcification is one of the most important causes of mortality in end-stage renal disease. Fetuin A, also called as Heramans Schmid alpha 2 glycoprotein (AHSG), is one of the important proteins that inhibit vascular calcification. In this study, we aimed to evaluate relationship between AHSG gene polymorphism and fetuin A levels.

Materials and Methods: 152 patients receiving regular hemodialysis treatment and 61 healthy controls were included to this cross-sectional study. The patients in the hemodialysis group were recruited from the patients receiving regular dialysis treatment at least 9 months. Serum fetuin-A levels were assessed by ELISA method. AHSG Tre256s gene polymorphism is determined by PCR-RFLP.

Results: Serum fetuin A level in hemodialysis patients (330.5 171.2 mg/L) was significantly lower as compared to control group (382.9 138.5 mg/L) (p=0.001). Despite of that significant negative correlation between serum fetuin-A levels and C-reactive protein (CRP) (r=-0.285, p<0.0001), significant correlation between serum fetuin-A levels and serum albumin levels wasn't determined (p>0.05). The distribution of AHSG Thr256Ser gene polymorphism in hemodialysis and control groups were similar (p= 0.111)(figure 1). In the hemodialysis group, serum fetiun A levels in the patients with genotype Thr/Thr (n=94, 366.9 184.2 mg/L) were found to be singnificantly higher than in the patients with genotype Thr/Ser (n=52, 278.1 132.7 mg/L) and Ser/Ser (n=6, 212.5 63.3 mg/L) (respectively; p=0.005, p=0.022). Serum fetuin A levels in the patients with genotype Thr/Ser and Ser/Ser were similar (p=0.211)(figure 2). A stepwise multiple regression model analysis (*N*=152), correcting for impact of age, gender, serum albümin, CRP, dialysis patients age, revealed independent relationships (total R^2=0.21) between the Thr2556Ser polymorphism(β:-0.271, p<0.0001, 95% CI: -0.403, -0.14), CRP(β:-0.013, p<0.0001, 95% CI:-0.018, -0.008), and fetuin A levels (log-transformed).

Concluison: In this study, hemodialysis patients with Thr/Ser and Ser/Ser genotypes of AHSG gene polymorphism had lower levels of serum fetuin A. An association between inflammation and low serum fetuin A levels in hemodialysis patients was observed. In this patient population, further studies are needed to investigate effects of different races and environmental conditions to AHSG gene polymorphisms and serum fetuin A levels.

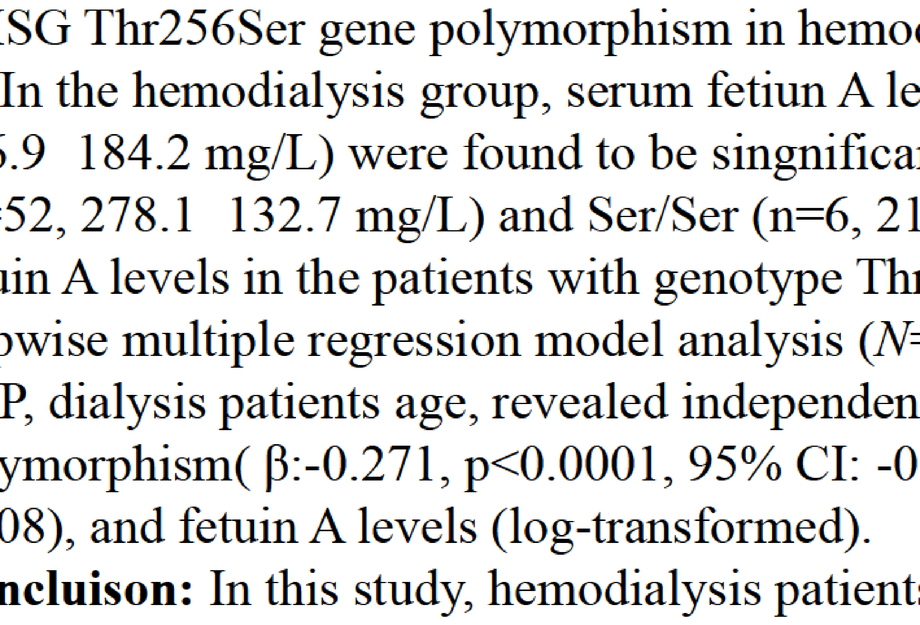

Figure1: Distribution of fetuin-A genotypes in HD patients and controls. The distribution of AHSG gene polymorphisms in HD patients and in healthy controls is similar.

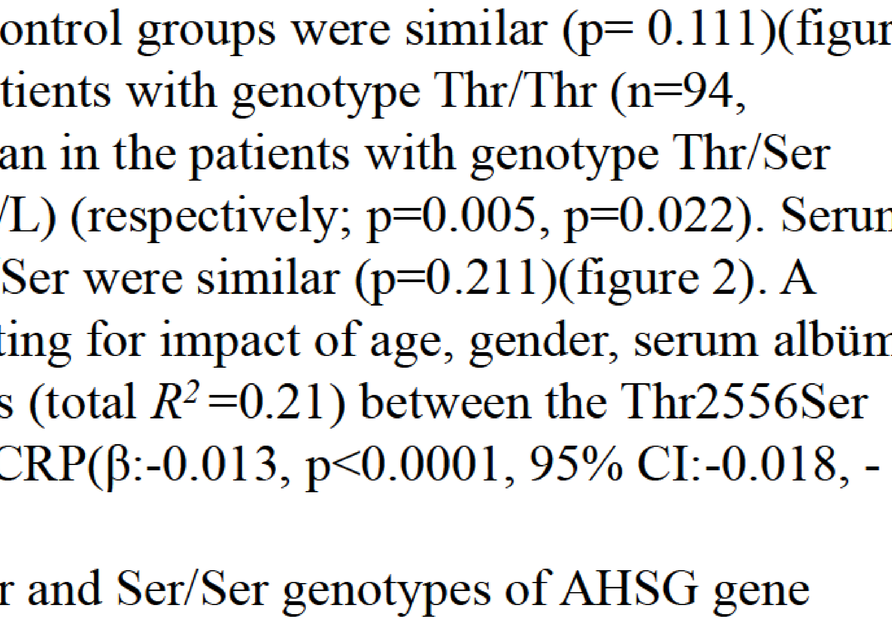

Figure 2: Serum fetuin A levels between * and ** (p=0.005); between * and # (p=0.022).

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