Introduction and Aims: 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.

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 Thr256s 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=0.001). The distribution of AHSG Thr256Ser gene polymorphism in hemodialysis and control groups were similar (p=0.111)(figure 1). In the hemodialysis group, serum fetuin A levels in the patients with genotype Thr/Thr (n=94, 366.9±184.2 mg/L) were found to be significantly 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 albumin, 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).

Conclusions: 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.