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Increased Prevalence of Glycoprotein IIb/IIIa Leu 33 Pro Polymorphism in End Stage Renal Disease Patients on Hemodialysis

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Traditional atherosclerosis risk factors cannot elucidate the increased prevalence of cardiovascular events in end stage renal disease (ESRD) patients on hemodialysis. A previous study has indicated a strong association of the $PI^{A1/A2}$ polymorphism with myocardial infarction, diabetes and renal allograft rejection. In this investigation, we determined the prevalence of the $PI^{A1/A2}$ polymorphism of platelet glycoprotein (GP) IIb/IIIa in ESRD patients on hemodialysis in the Eastern Province of Saudi Arabia. The $PI^{A1/A2}$ polymorphism was determined in 42 ESRD patients receiving hemodialysis and in 49 subjects without current or past history of renal disease. Genotypes were determined by a reverse-hybridization assay and were confirmed by restriction fragment length polymorphism procedures. The PI^{A2} allele frequency among the control sample was 28.6% (2 were homozygous for PI^{A2}, 23 were homozygous for PI^{A1}, and 24 were heterozygous $PI^{A1/A2}$). The PI^{A2} allele frequency among the hemodialysis sample was 50% (2 were homozygous for PI^{A2}, 2 were homozygous for PI^{A1} and 38 were heterozygous for $PI^{A1/A2}$). The PI^{A2} allele frequency among the hemodialysis patients was significantly higher than that in the control group [Odds ratios 2.5 (1.35-4.61), $p<0.003$; Adjusted odds ratios of 2.21 (1.05-4.65), $p<0.036$ after adjustment for the presence of diabetes; Simultaneously adjusting the odds ratios for the presence of standard risk factors (diabetes and hypertension) gave an adjusted OR of 6.87 (1.54-30.71), $p=0.064$]. These results suggest that the PI^{A2} polymorphism may contribute toward the etiology of cardiovascular diseases in ESRD patients. A further study with a larger sample size is needed to confirm above results.