OMICS Group Conferences
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World Congress on
Endocrinology

August 26-28, 2013 DoubleTree by Hilton, Raleigh, NC, USA

Association between E-selectin s128r (a561c) polymorphism and diabetic retinopathy: A possible relationship

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E-selectin is a cell surface glycoprotein that mediates the adhesion of leucocytes to the vessels endothelium. Diabetic retinopathy, a leading cause of vision loss, is associated with altered endothelial function. Endothelial dysfunction, as in diabetes, is associated with altered production of leukocyte adhesive molecules e.g. E-selectin. However, it is unknown whether genetic polymorphism in the E-selectin gene plays a role in diabetic retinopathy or not.

It is a case control study to determine the frequencies of E-selectin genotypes and allelic forms in diabetic patients having diabetic retinopathy and to evaluate the role of E-selectin gene polymorphism as a predisposing factor for diabetic retinopathy.

E-selectin polymorphism was determined in 84 type 2 diabetic patients and in 40 age and sex matched control subjects. In diabetic group, 46 diabetic patients had no retinopathy, while the other 38 diabetic patients were duration matched diabetic patients with diabetic retinopathy as well. E-selectin genotyping was accomplished by polymerase chain reaction (PCR) amplification followed by restriction enzyme digestion (RFLP). Plasma E-selectin level was estimated by enzyme linked immunosorbant assay (ELISA). Lipid profile was, also, determined by colorimetric method.

Results: In the present case control study, a total of 85% of control subjects had AA genotype, while 15% had AC genotype and no CC genotype was detected. Frequencies of the AA, CC, and AC genotypes were found as 37%, 32.6%, and 30.4% in diabetic patients with no retinopathy and as 31.6%, 36.8%, and 31.6% in diabetic patients complicated by retinopathy respectively. The CC genotype was significantly associated with diabetic patients as a whole; odd ratio 6.9 (CI: 2.2-21.6; P=0.0001) but no genotype was associated significantly with diabetic retinopathy patients. All lipid profile parameters and plasma E-selectin were significantly increased in diabetic patients except HDL-cholesterol which was significantly decreased in diabetic patients group as a whole as well as diabetic retinopathy patients group.

Conclusion: The S128R (A561C) polymorphism of E-selectin gene may be associated with diabetes mellitus but not with diabetic retinopathy suggesting that E-selectin gene polymorphism has no role as a predisposing factor for diabetic retinopathy. Such hypothesis needs to be more confirmed in further larger studies.

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