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Genetic association of IL-6, TNF-α and SDF-1 polymorphisms with serum cytokine levels in diabetic foot ulcer.

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Abstract

The IL-6 -174G/C (rs1800795), TNF-α -308G/A (rs1800629) and -238G/A (rs361525) and SDF-1 801G/A (rs1801157) are well characterized SNPs which have previously been linked to various diabetic complications. However, the involvement of these SNPs in DFU remains poorly studied. In the present study we looked at the association of these SNPs with DFU (disease phenotype) and correlated it with the serum levels of cytokines (intermediate phenotype) along with other clinical risk factors of DFU (adiponectin, leptin and hsCRP). Genotyping was carried out in Normal glucose tolerance ((NGT)/Control=106), T2DM without DFU (T2DM=139), T2DM with neuropathy (DFU-DN=191) and T2DM with PVD (DFU-PVD=79) subjects by PCR-RFLP and the serum cytokine levels were determined by ELISA. IL-6 -176 "C" allele conferred significant protection against T2DM but not against DFU. TNF-α -308 "A" allele (but not -238 SNP) conferred significant susceptibility towards both T2DM and DFU-DN. The SDF-1 "A" allele conferred significant protection against both DM and DFU-DN but not against DFU-PVD. Further, these alleles were shown to influence the serum cytokine/chemokine levels under diabetic conditions. Thus SNPs in cytokine/chemokine genes serve as valuable biomarkers for DFU.

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