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Association of hypoxia inducible factor-1 alpha exon 12 mutation in diabetic patients with and without diabetic foot ulcer.

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Hypoxia inducible factor 1 alpha (HIF-1 α) is a key regulator of the genes involved in the cellular response to hypoxia. This study aims to determine the HIF-1 α gene polymorphism and its association with protein expression in diabetic subjects with and without diabetic foot ulcers (DFU). A total of 529 patients with T2DM (N = 185), DFU (N = 199) and Control (N = 145) were accounted for the study. PCR-RFLP experiment was carried out in order to find the allelic and genotypic comparison of HIF-1 α gene in various groups of patients. There was a highly increased frequency of GA, RR value of 3.533(2.099-5.950) with p-value of 0.0001 on DFU patients when compared to that of control subjects with risk allele of GA, RR value of 1.756 (1.294-2.384) with p-value of 0.00001. Thus, we found that there was a significant association of HIF-1 α polymorphism in exon 12 among DFU patients when compared to control groups. The circulatory HIF-1 α protein expression study indicated a decreased expression in DFU levels when compared to T2DM and control. Overall, the study showed that there is an association of HIF-1 α polymorphism (G1970A) in diabetes and DFU patients when compared to the healthy group.