

The Relationship Between Cigarette Smoking, NOS3 Gene T⁷⁸⁶→C Polymorphism, and Diabetic Nephropathy

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Dear Editor,

Gene polymorphism can cause serious problems for humans. Endothelial nitric oxide synthase (NOS3) gene is one of the important human genes, which plays a significant role in normal endothelial function; consequently, polymorphism of this gene can cause vascular diseases in diabetic patients (1, 2). On the other hand, smoking can contribute to increased T⁷⁸⁶→C polymorphism of NOS3 gene, and more importantly, ⁻⁷⁸⁶C allele can increase the harmful effects of smoking (3).

Diabetic nephropathy (DN) is a cardiovascular disease in patients with type II diabetes. Numerous studies have been conducted on the relationship between T⁷⁸⁶→C polymorphism and DN. In this regard, researchers have stated that C allele for T⁷⁸⁶→C polymorphism is more common among patients with diabetes and DN, compared to those without DN. In fact, the outbreak is so severe that this polymorphism was introduced as a risk factor for increasing DN in diabetic patients (2).

Also, Ahluwalia et al. stated that risk of DN is associated with (-786)CC genotype. They indicated that T⁷⁸⁶→C functional polymorphism of NOS3 gene could lead to reduced gene expression of NOS3 (4). In addition, another study suggested a significant and interesting relationship between (-786)C allele and increasing risk of DN. This study was performed on Japanese diabetic patients, and it was revealed that T⁷⁸⁶→C polymorphism could intervene in the progress of DN (5). On the other hand, in a meta-analysis, it was concluded that this polymorphism is associated with susceptibility to DN (6). Also, Mooyaart et al. confirmed this findings in another meta-analysis (7).

As mentioned earlier, it can be understood that T⁷⁸⁶→C polymorphism is an important factor for DN, and as stated, smoking is a developing and progressing risk factor for any problem in this polymorphism; therefore, T⁷⁸⁶→C polymorphism and smoking are 2 serious risk factors for diabetes. Smoking is not permitted for either diabetic or nondiabetic patients. In fact, due to increased

probability of serious health problems in diabetic patients, smoking should be avoided, as it is associated with DN. Overall, diabetic patients or those at risk can promote their health by avoiding smoking.

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