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The Relationship between IL-1β Gene Polymorphisms and Coronary Artery Disease in Elderly Population

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ABSTRACT

Coronary Artery Disease (CAD) is the leading cause of morbidity and death in people around the world. In recent years, many studies have shown that cytokine gene polymorphism can change protein expression and protein function, thereby affecting their role in CAD. Interleukin (IL)-1β is a classical inflammatory factor, and the gene mutation of IL-1β plays a very important role in the occurrence and development of CAD. In this paper, the relationship between IL-1β gene polymorphism and CAD reported in the past will be collected and briefly summarized. It is expected that these results can provide a reference for the early diagnosis and treatment of CAD.

Abbreviations: CAD: Coronary Artery Disease; IL: Interleukin; CYP17A1: Cytochrome P450, Family 17: Subfamily A, polypeptide 1; MT2A: Metallothionein2A; RBP4: Retinal Binding Protein 4; MMP-1: Matrix Metallo Proteinase-1; SNP: Single Nucleotide Polymorphism; CRP: C-reactive Protein Introduction Cardiovascular disease is a complex disease, which is the leading cause of morbidity and mortality in people around the world, including China . Coronary artery disease (CAD) is the most common heart disease associated with atherosclerosis. It is a complex, multi-step, multi-factor (including genetic and environmental factors) process Hypertension, hyperlipidemia, diabetes and smoking have been reported to play a vital role in the development of CAD [4]. However, environmental factors are not the best predictors of CAD risk. A large number of studies have shown that genetic variation may greatly affect the development of CAD, and many genetic polymorphisms may play an important role in the development of CAD, such as Cytochrome P450, Family 17, Subfamily A, polypeptide 1 (CYP17A1), Toll-like receptors, Metallothionein-2A (MT2A), Retinal Binding Protein 4 (RBP4), and Matrix metalloproteinase-1 (MMP-1) . Inflammation has been reported to affect the progression of atherosclerosis, and cytokines are involved in the migration of neutrophils, lymphocytes and antigen-presenting cells (dendritic cells and monocyte/macrophage lineages). The polymorphisms of cytokine gene can change the expression and the function of protein, thereby affecting their role in the process of CAD. Specifically, previous studies have shown that genetic variation in the genes of interleukin, such as IL-1β, IL-1α, IL-6, IL-10, IL-16, IL-18 and IL-23A, may affect the development of CAD. As such, genetic variations can help assess and identify the risks of CAD to intervene in the occurrence and development of CAD in advance. The gene variation of IL-1 β plays a very important role in the occurrence and development of CAD.

In this paper, the relationship between IL-1 β gene polymorphism and CAD reported in the past will be collected and briefly summarized. It is expected that these results can provide a reference for the early diagnosis and treatment of CAD. IL-1β-511 and CAD It has been reported that the -511 C/T (rs16944) polymorphism on the IL-1 β promoter is associated with several inflammatory-related diseases, such as chronic hypochlorite reaction induced by H elic o b a c t e r p

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ylo ri , gastric cancer, Alzheimer's disease and Alzheimer's disease meningococcal disease . Other studies have shown that the polymorphism of IL-1β-511 C/T is associated with atherosclerosis in some populations. Zhang et al. reported in 2006 that the polymorphism of -511 C/T

Keywords: Coronary artery disease; Interleukin-1β; Gene polymorphism; Single nucleotide polymorphism