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Significant genetic association of a functional TFPI variant with circulating fibrinogen levels and coronary artery disease

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The tissue factor pathway inhibitor (TFPI) gene encodes a protease inhibitor with a major role in the regulation of blood coagulation. In this project, we performed a large population-based study with 2,313 study subjects for which blood coagulation data are available, including the Fg level, the PT level, the APTT level, and the TT level. We selected a functional variant in the promoter of TFPI, rs10931292, which was found to reduce the transcription of TFPI and genotype it in the 2,313 study subjects using the TaqMan assay. We carried out the linear regression analysis under three different genetic models, including an additive model, an autosomal dominant model or an autosomal recessive model, for the genotyping data. Our analysis identified a significant association of TFPI variant rs10931292 with increased plasma Fg levels (P=0.017 under a recessive model), but not with PT, APTT or TT (P>0.05). To the best of our knowledge, this is the first time to show that a TFPI variant is significantly associated with plasma Fg levels. These data identify a novel genetic variant for Fg levels and contributes importantly to the elucidation of the genetic basis and biological pathways for plasma Fg levels. An increased plasma Fg level is a well-established risk factor for cardiovascular disease. Therefore, we determined whether TFPI SNP rs10931292 was also associated with the risk of a CAD. Using a large case-control association study population with 4,479 CAD patients and 3,628 controls, we identified significant association between TFPI SNP rs10931292 and CAD under a recessive genetic model (OR=1.23, P=0.005). Individuals with the GG/CC genotype had a significantly increased risk of CAD (OR=1.23, P=0.005). These data identify a new genetic variant that increases the risk of CAD and contributes importantly to the elucidation of the genetic basis and biological pathways for the pathogenesis of CAD.

Biography

Duraid Hamid Naji Al-Midfai considering the cardiovascular major for various reasons. Since he was a child, he has been fascinated by the world around himself. When he traveled to China and the Middle East, the conservation efforts of these two countries interested him and he knew that he wanted to do something related to the CAD disease in Genetics filed. He is currently a member of Fuwai Central China Cardiovascular Hospital As a postdoctoral research in the cardio surgery department-in patient building as well as his work also collaborated with Henan Hospital in the Research Center building, which is a Big and famous hospital in central of China for cardiovascular disease treatment. A long-term goal of him, his goals is to one day manage and discover novel genes associated with various diseases in the human genome. Moreover, he is also curious to learn more about any medical field that is somehow related to genetics research.

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