World Academy of Science, Engineering and Technology
International Journal of Biotechnology and Bioengineering
Vol:9, No:06, 2015

Association of AGT (M268T) Gene Polymorphism in Diabetes and Nephropathy in Pakistan

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Abstract : Diabetes mellitus (DM) is a prevalent non-communicable disease worldwide. DM may lead to many vascular complications like hypertension, nephropathy, retinopathy, neuropathy and foot infections. Pathogenesis of diabetic nephropathy (DN) is implicated by the polymorphisms in genes encoding the specific components of renin angiotensin aldosterone system (RAAS) which include angiotensinogen (AGT), angiotensin-II receptor and angiotensin converting enzyme (ACE) genes. This study was designed to explore the possible association of AG (M268T) polymorphism in the patients of diabetes and nephropathy in Pakistan. Study subjects included 100 controls, 260 diabetic patients without renal insufficiency and 190 diabetic nephropathy patients with persistent albuminuria. Fasting blood samples were collected from all the subjects after getting institutional ethical approval and informed consent. The biochemical estimations, PCR amplification and direct sequencing for the specific region of AGT gene was carried out. A significantly high frequency of TT genotype and T allele of AGT (M268T) was observed in the patients of diabetes with nephropathy as compared to controls and diabetic patients without any known renal impairment. The TT genotype and T allele of AGT (M268T) polymorphism may be considered as a genetic risk factor for the development and progression of nephropathy in diabetes. Further cross sectional population studies would be of help to establish and confirm the observed possible association of AGT gene variations with development of nephropathy in diabetes.

Keywords : RAAS, AGT (M268T), diabetes, nephropathy
Conference Title : ICBN 2015 : International Conference on Biotechnology and Nanotechnology
Conference Location : New York, United States
Conference Dates : June 04-05, 2015