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***Khalid Khalaf Alharbi***

King Saud University, KSA

Association between Paraoxonase-1 gene polymorphism studies in the Saudi population with type 2 Diabetes Mellitus

Diabetes has become one of the epidemic diseases producing serious physical damage and economic burden in the global population. However, Type-2 Diabetes Mellitus (T2DM) is a major kind of diabetes defined as non-insulin dependent diabetes mellitus which is more prevalent in occurring the chronic diseases and recognized as one of the multifactorial disease. Several prospective and case-control studies have confirmed the Q192R polymorphisms in Paraoxonase-1 (PON1) gene as disease causing variant in multiple diseases in the global wide. The earlier study from KSA with Q192R polymorphism has confirmed as the positive associations and the present study aims to investigate the possible association between Q192R polymorphism and T2DM in the Saudi population. In this study, we have selected 400 T2DM cases and 400 healthy controls from the Saudi subjects. Serum sample was used for the biochemical analysis and peripheral blood collected in the EDTA tube was used for molecular analysis to carry out the extraction of genomic DNA. Genotyping was performed in all the 800 samples with rs662 (Q192R) polymorphism with polymerase chain reaction-restriction fragment length polymorphism method followed by 2.5% of agarose gel. The clinical characteristics were significantly higher in T2DM cases compared with controls and also with both allele and genotype frequencies [R vs. Q: Odds Ratio (OR), 1.659; 95% confidence interval (95% CI), 1.344-2.048; $P=0.0002$; RR vs. QQ; OR, 2.1; 95% CI, 1.3-3.2; $P=0.001$; QR+RR vs. QQ; OR, 2.101; 95% CI, 1.583-2.788; $P=0.0002$]. Multiple regression analysis showed positive correlation of lipid profile with genotype ($P<0.05$). The present findings provide robust evidence of PON1 Q192R polymorphism being associated with T2DM in a Saudi population.

Biography

Khalid Khalaf Alharbi is an Associate Professor in Medical Molecular Genetics at King Saud University, KSA. He is a Member of various societies including Saudi Society of Clinical Laboratory Sciences, Human Genome Organization, Arab Science and Technology Foundation and Association of Saudi Medical Technologists.

kharbi@ksu.edu.sa**Notes:**