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9p21.3 locus is associated in the risk of coronary artery disease in Tanzanian patients

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Background: Coronary Artery Disease (CAD) is a multi-factorial and heterogenic disease, which develops from complex interactions between genetic and enviromental factors. Based on Genome-Wide Association Studies (GWAS), a 58kb region on chromosome 9p21.3 has been confirmed strong association with CAD in different populations. But this association is not documented in Tanzanian populations.

Aim: This study aimed at investigating the common SNPs at the chromosome 9p21.3 region in Tanzanian CAD patients and their associations with biochemical and demographical parameters.

Methods: 135 patients with CAD (age 62.01±10.65) and 140 non-CAD (age 58.21±12.62) patients were enrolled into the study. Further the biochemical analysis,and genomic DNA was isolated by MagnaPure Compact and the genotyping analysis was performed with LightSNiP typing assay using Quantitative Real-Time PCR. The results were examined using Melting Curve analysis program.

Result: The genotypic and allelic distributions of rs1333049, rs2383207, rs2383206, rs10757274, rs10757278, rs10757278 and rs10811656 were significantly different between the groups ($p<0.005$). Subgroup analysis of CAD patients revealed significant interaction of the risk genotypes of rs10757274 and rs10757278 with hypertension in conferring increased risk of CAD ($p<0.05$) but not in diabetic and obese subgroups. The genotype distrubution of rs1333049 and rs10811656 polymorphisms were significantly different among patients with one, two, three stenotic vessels ($p<0.05$). Moreover, glucose, cholesterol, HDL, LDL levels were statistically significantly in rs10811656 CT and TT female carriers ($p<0.05$) and rs10811656 polymorphism was also significantly different among female patients with one, two, three stenotic vessels ($p<0.05$).

Conclusion: Our results suggest that chromosome 9p21.3 region might be associated with CAD in Tanzanian patients.

Biography

Gokce Akan has received the BSc Degree in Molecular Biology from Istanbul University and she has completed her Master's Degree of Medical Genetics at the Istanbul Science University in Turkey. She worked as an Instructor in Istanbul Science University for three years. She has published 10 articles in reputed journals. She is currently pursuing her PhD on Cardiogenetics at MUHAS in Tanzania. She also serves as Head of the Genetic Section in MUHAS Genetics Laboratory voluntarily.

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