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Genetic Associations of TP53 Codon Pro72 Arg Polymorphism (rs1042522) in Coronary Artery Disease: A Meta-analyses of Candidate Genetic Mutants

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Abstract

Introduction: *The tumor protein p53 is referred as tumor suppressor gene, involved in cell cycle regulation and play an important role in the process of atherosclerosis by affecting smooth muscle cell proliferation of atherogenesis. Coronary artery diseases (CAD) shows a high level of disease burden in terms of mortality and morbidity worldwide and leads to a chronic inflammatory condition that shows major health challenges in developing countries.*

Both genetic and environmental risk factors confer susceptibility to CAD. A functional polymorphism Pro72Arg located on codon 72 (rs1042522) at exon 4 shows functional variance and plays an important role in pathophysiology of CAD.

Methodology*: A meta-analysis of 7 studies was performed to correlate the association of TP53 gene with CAD by increasing various statistical parameters.*

Results*: A significant correlation between Pro72Arg polymorphisms and CAD risk was observed in Caucasian subgroup. Significant CAD risk was found in recessive comparison model in pooled data (PP vs PP+ RP: OR= 0.338, 95% CI=0.238 to 0.47, p-value 0.00*) as well as in Caucasian subgroup (PP vs PP+ RP: OR= 0.296, 95% CI=0.185 to 0.473, p-value 0.00*), PP vs PP+ RP: OR= 0.326, 95% CI=0.193 to 0.552, p-value 0.00*), (PP vs PP+ RP: OR= 0.140, 95% CI=0.076 to 0.258, p-value 0.00*), (PP vs PP+ RP: OR= 0.269, 95% CI=0.138 to 0.525, p-value 0.00*).*

Discussion*: In the current study, a case control based comprehensive systematic overview based on genetic association studies with CAD was performed. Significant evidence for CAD susceptibility SNPs (rs1042522) of Pro72Arg polymorphism was found in this meta-analysis.*

Conclusion*: A significant risk association of the p53 Pro72Arg PP genotype with CAD was found in present meta analysis. Our meta-analysis suggests that PP of the p53 Pro72Arg polymorphism significantly increases CAD risk in Caucasian population.*

Keywords*: p53, Coronary artery disease (CAD), polymorphism, meta-analysis, Pro72Arg.*