

## **NAME OF THE THEME: Life Sciences & Agricultural Sciences**

### **POLYMORPHIC VARIANTS OF CASPASE 9 & CASPASE 3 IN CORONARY ARTERY DISEASE**

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#### **Abstract:**

Coronary artery disease (CAD), a chronic form of cardiac disability occurs due to atherosclerotic plaques. Accumulation of lipids in arterial walls together with infiltration of immunocytes leads to formation of plaques and obstructs the blood supply to the myocardium resulting in heart failure.

Among other classical risk factors apoptosis plays pivotal role in development and progression of coronary artery disease. Apoptosis, a tightly regulated active cell death process involved in development, growth, tissue remodeling etc., and is detectable in all cells of human atherosclerotic plaque and plays a vital role in plaque growth, lipid core development, plaque rupture and thrombosis.

Apoptosis a tightly regulated process mediated by two major pathways called the death receptor pathway and the mitochondrial pathway, which are both propagated by a caspase cascade that ultimately leads to apoptosis induction. It is likely that the efficiency of these apoptotic pathways is genetically determined. Functional single nucleotide polymorphisms (SNPs) in genes involved in apoptotic pathways may modulate cellular response and contributes the inter individual variation. In view of the above, the present study is designed to study the molecular mechanism of apoptosis in the pathogenesis of CAD.

#### **Methods**

300 patients (CAD) were recruited from the Cardiology Unit of Durgabai Deshmukh Hospital and Research Center, Hyderabad along with 300 age and gender matched healthy controls. The blood samples were collected from all subjects after informed consent. DNA was extracted from the blood samples by salting out procedure to carryout PCR-RFLP for Caspase 9 -712 C>T and Caspase 3 -16+517 G>T polymorphisms.

#### **Results:**

Polymorphic analysis revealed that TT genotype of Caspase 9 -712 C>T polymorphism and TT genotype of Caspase 3 -16+517 G>T polymorphisms were significantly high in CAD patients and confers risk for the development of disease in codominant and recessive models.

**Conclusion:** The study reveals the importance of inhibition of apoptosis in CAD patients and suggests the therapeutic intervention to prevent heart failure.

**Keywords:** CAD, APOPTOSIS, CASPASE