Cardiovascular disorder (CVD), mainly comprising of Coronary Artery Disease (CAD) and Stroke, are a major cause of death and disability in world today, particularly in Asian Indians living in India and overseas. Factors such as rapid urbanization, sedentary life-style, changing food habits and an abnormal lipid profile are thought to have contributed to this rising epidemic. Genetic predisposition to CAD, mediated by dyslipidemia, markedly magnifies the adverse effects of these traditional risk factors. Several inflammatory molecules have been put forward as biomarkers for plaque vulnerability. Therefore, there is need for continuous search of novel, more powerful biomarkers that will be able to predict the occurrence of future cardiovascular complications. Recent studies have drawn attention towards MPO, one of the enzymes of the innate immune system, as a potential marker of CVD and a potential target for treatment. A functional MPO promoter polymorphism −463G/A, which altered MPO expression levels, is associated with increased incidence of CAD and severity of atherosclerosis. Therefore the investigation of genetic risk factors and their interaction with the lipid levels is useful for predicting and preventing various types of CVD. Present study investigated the role of −463 G/A MPO genetic polymorphism in the occurrence and severity of the disease and concluded that:

- The present study highlights that non-HDL-C, oxidized-LDL and plasma MPO are independent diagnostic predictors of CVD.
- Significantly elevated levels of MDA and diminished levels of Catalase in patient subgroups with respect to control indicate a strong association of these oxidative stress biomarkers with CVD.
- The significance of non-HDL-C has predictive value and it depend upon levels of other lipids except HDL-C.
- Significantly elevated level of ox-LDL in SAP, UAP and AMI subgroups indicates diagnostic importance in CVD when compared with control.
- A scattered deviation of ox-LDL levels in SAP subgroup reflects its poor prognostic reliability.
- Significantly elevated levels of plasma MPO in UAP and AMI subjects justify, MPO as a marker of inflammation and oxidative stress associated with the severity of CVD.
CONCLUSION

- Present study revealed that plasma MPO levels in SAP subgroup are slightly higher, statistically insignificant with respect to control suggestive of prognostic importance of adverse events in healthy individuals and patients with SAP.

- Genotype GG is most predominant in three patient subgroups then that of GA and AA genotype indicates positive correlation of genotype GG with CVD.

- Individuals with GG genotype in UAP and AMI subgroups have subsequently higher levels of plasma MPO with respect to genotype GA and AA indicating the indirect association of MPO gene with CVD.

Thus, in SAP & UAP subgroups the plasma MPO levels predicts an increased risk over non-HDL-C and ox-LDL for subsequent cardiovascular events and extend the prognostic information gained from traditional biochemical markers. We found significant indirect association of -463 G/A MPO genetic polymorphism expressed in the form of elevated plasma MPO levels in GG genotype with different forms of CVD in all the cases suffered with SAP, UAP and AMI. It is possible that the variation of this genetic polymorphism regulates the synthesis of MPO enzyme that modulates the lipid profile by increasing the oxidative stress thereby contributing to the generation of oxidized LDL and dys-functional HDL leading to the manifestation and progression of CVD.