

## **Association of Metabolic Syndrome with Serum Oxidizability Potential in Patients with Coronary Artery Disease**

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**Aim**-To assess the impact of metabolic syndrome (MB) in comparison to other coronary artery disease risk factors on serum oxidizability potential in patients with coronary artery disease (CAD).

**Background** – Oxidative stress leading to modification of low-density lipoprotein is a central paradigm of atherogenesis and plaque destabilization. The thermochemoluminescence (TCL) assay measurement is based on heat induced oxidation of any biological fluid that provides a kinetic curve pattern and a ratio which reflects residual oxidative capacity due to prior in vivo molecular oxidation (i.e. lower curve slope, lower oxidative potential, indicating higher oxidative activity before test)

**Methods** – 54 chronic CAD patients, of whom 20 (37 %) MB patients underwent oxidative stress assessment using the TCL method. Correlation of TCL with the various CAD risk factors, age, gender, the MS (according WHO diagnostic criteria), previous myocardial infarction, coronary by-pass surgery (CABG), PCI, and LVEF  $\leq$  45%, has been assessed. MS was categorized as type I (diabetes + hypertension + obesity + hypertriglyceridemia), type II (diabetes + hypertension +hypertriglyceridemia), or type III (diabetes + hypertension +low HDL).

**Results** – The mean TCL ratio was 184% $\pm$  22s.d., 184% $\pm$ 18s.d., and 187% $\pm$ 24s.d. in type I, II, & III MS groups compared to 194% $\pm$ 21s.d. in patients without MS,  $p < 0.05$ ,  $p < 0.05$ , and  $p = ns$  respectively. When the various components of MS were analyzed separately then diabetes was found to be the single variable with the strongest association to oxidative stress ( $R^2 = 0.813$ ,  $p < 0.01$ ). Other risk factors (smoking, hypertension, and hypercholesterolemia) when analyzed separately in the non - MS group had no association with low oxidizability potential of CAD patients serum. Low LVEF%, and previous CABG exerted similar effects on serum oxidizability as type I MB.

**Conclusion** – In coronary disease patients, metabolic syndrome has been found to be associated with high in vivo oxidative stress, thus, with low serum oxidizability potential compared to other risk factors.