

MALONDIALDEHYDE (MDA) - THE OXIDATIVE STRESS MARKER IN TYPE 2 DIABETES MELLITUS

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ABSTRACT : Type 2 Diabetes Mellitus is a state of expanded oxidative stress. This investigation was attempted to analyze Malondialdehyde levels in Type 2 DM. An aggregate of ninety three (93) patients (male 48, female 45) with Type 2 diabetes in the age gathering of 30-50 yrs Diabetic Out Patients of Sri Balaji Medical College and Hospital were enlisted for the investigation and were contrasted and eighty eight (88) age and sex coordinated healthy controls (male 33 and female 55). Malondialdehyde was surveyed by a spectrophotometric examine of Thiobarbituric corrosive responsive substances. The outcomes demonstrated a huge increment in MDA levels among Diabetic patients ($3.61 \pm 0.63 \mu\text{M}$) in contrast with the controls ($1.93 \pm 1.51 \mu\text{M}$) as per our investigation. The watched increment in malondialdehyde discharge may be credited to the expansion in peroxidative harm to lipids from oxidative worry in diabetes.

Key words : Type 2 diabetes mellitus, malondialdehyde, oxidative pressure.

INTRODUCTION

An examination by Ramachandran *et al* (2002) has indicated expanded occurrence of diabetes among Chennai people. This ascent is ascribed to the adjustment in way of life coming about because of 100% urbanization and industrialization prompting less exercise, all the more inexpensive food culture and oxidative stress. Oxidative stress is the value we pay for utilizing oxygen. ROS (Receptive oxygen species) are the sparkles of the oxidative digestion (John). ROS are produced in physiological conditions and are believed to be the signaling atoms for the outflow of ROS explicit scroungers (D'Autréaux, 2007). They are likewise engaged with barrier instruments as found in phagocytosis, neutrophil capacity, and shear-stress instigated vasorelaxation. Abundance age of ROS in oxidative stress has obsessive results including harm to proteins, lipids and DNA (Johansen, 2005). Oxidative stress is characterized when all is said in done as surplus arrangement and additionally lacking expulsion of very receptive particles, for example, responsive oxygen species (ROS) and receptive nitrogen species (RNS) (Turko 2001, Maritim 2003). ROS involve free radicals, for example, superoxide ($\bullet\text{O}_2^-$), hydroxyl ($\bullet\text{OH}$), peroxy ($\bullet\text{RO}_2$), hydroperoxy ($\bullet\text{HRO}_2$) just as non-radical species, for example, hydrogen peroxide (H_2O_2) and hydrochlorous corrosive HOCl (Turko, 2001;

Evans, 2002; Yagi, 1998). Free radicals like nitric oxide ($\bullet\text{NO}$) and nitrogen dioxide ($\bullet\text{NO}_2$), just as non-radicals, for example, peroxy (ONOO^-), nitrous oxide (HNO_2) and alkyl peroxy (RONOO) establish RNS (Turko, 2001; Evans, 2002; Yagi, 1998). Of these receptive atoms, Superoxide, Nitric oxide and peroxy (ONOO^-) are the most broadly examined species and assume significant jobs in the diabetic cardiovascular complexities. ROS and Reactive nitrogen species (RNS), for example, superoxide, peroxide, hydroxyl radical and peroxy (ONOO^-) are responsive and poisonous, in some cases hard to contain, however their generation is significant for digestion, turnover of biomolecules and assurance against microbial disease. (8) The expansion in oxidative stress in Diabetes may be the result of several pathways, including production of advanced glycation end products (AGE), altered polyol activity and imbalance in the redox state (9). Reactive oxygen species degrade polyunsaturated fatty acids leading to malondialdehyde (MDA) formation (10,11). MDA is a profoundly responsive aldehyde and is a receptive electrophile animal types that causes lethal stress in cells and structures propelled glycation finished results. This aldehyde is utilized as a biomarker to quantify the degrees of oxidative stress in the framework. (12,13,14) ROS like Hydroperoxides effectively affect cells both