

ABSTRACT

Clinical disparity of oxidative stress with blood pressure

Mathew E^{1*}, Mukkadan JK²

***Corresponding author:**

¹Ms. Elsa Mathew, M.Sc., Research Scholar, Little Flower Medical Research Centre, Angamaly

Email: elsamathewchettoor@gmail.com, [ORCID](#)

¹Research Scholar, Department of Physiology, Little Flower Medical Research Centre, Angamaly, Kerala, India

²Research Director, Little Flower Medical Research Centre, Angamaly, Kerala, India

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ABSTRACT**Background**

Cardiovascular disease is one of the leading causes of mortality and morbidity in India and worldwide. Hypertension is a major public health problem because of its high frequency and concomitant risk of cardiovascular disease, kidney disease, and stroke. World Health Organization named it a Silent killer as hypertension is asymptomatic during its clinical course. Experimental evidence supports a role for oxidative stress in vascular injury and hypertension. This study was undertaken, to compare the serum levels of malondialdehyde (MDA) and super-oxide dismutase (SOD) among normotensive, prehypertensive and hypertensive subjects.

Materials and methods

In this cross-sectional study, 34 normotensives, 44 prehypertensive and 45 hypertensive subjects were included. The participants were subjected to selection protocol consisting of physical examination and biochemical analysis. All subjects underwent blood pressure measurement, total cholesterol, and oxidative stress marker estimation, especially SOD and MDA. The comparison of parameters between the group was carried out using One Way ANOVA. The correlation between the parameter was analyzed by Karl Pearson Correlation Coefficient using SPSS 20.0.

Result

The MDA (nmol/ml) in normotensive, prehypertensive and hypertensive patients was 2.55 ± 0.072 , 3.43 ± 0.44 and 4.01 ± 0.37 respectively. SOD (U/ml) level in normotensive, prehypertensive and hypertensive patients was 13.47 ± 1.96 , 11.57 ± 0.81 , and 8.52 ± 1.78 respectively. Systolic and diastolic blood pressure had a negative correlation with SOD. MDA levels show a positive correlation with systolic blood pressure and diastolic blood pressure. Total cholesterol had no significant with SOD and MDA.

Conclusion

The present study showed a strong association of oxidative stress with systolic and diastolic blood pressure.

Keywords

Blood pressure, MDA, oxidative stress, SOD