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OXIDATIVE STRESS IN HYPERTENSION AND OTHER METABOLIC DISORDERS IN NORTH INDIAN PATIENTS

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ABSTRACT

Background: Oxidative stress is enhanced in hypertension and participates in the mechanisms of vascular injury. The study aims to determine oxidative stress status in patients of hypertension and hypertension with diabetes or obesity or both.

Methods: This prospective study was conducted on 34 patients with hypertension and 32 age matched control. The TAS, TOS and OSI were determined by novel automatic colorimetric methods from blood plasma.

Results: The risk factors like obesity, higher BSA and diabetes were found significantly associated with hypertension. Plasma TOS and OSI were significantly higher while level of TAS was lower in hypertension than in normal control subjects. Multivariate and ROC curve analysis suggested, a strong association between hypertension and higher TOS level (>8 μmol H_2O_2/L) [*P= 0.009*, Relative Risk (RR) =6.885, 95% CI=1.939-95.512] & obesity (BMI≥25) [*P= 0.001*, Relative Risk (RR) =10.210, 95% CI=3.815-267.220]. The area under the ROC curve was 0.763 (SE 0.06) with 95% CI=0.642-0.884 and P<0.001. The oxidative stress was found to be greater when hypertension was associated with obesity, diabetes or both.

Conclusion: Hypertension with addition to other metabolic conditions like diabetes, obesity or both implicit an additive effect on oxidative stress. The only remedy apart from early diagnosis is opting for a more natural lifestyle that will affect energy equilibrium and prove to be a viable option for prevention in hypertension.

KEYWORDS: Antioxidants, Diabetes, Hypertension, Obesity, Oxidative Stress

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