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Oral Findings and Oxidative Stress Status in Hypertensive Patients on Amlodipine and Captopril Treatments

A thesis

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ABSTRACT

Background:

Oxidative stress is an imbalance between ROS and antioxidant defense mechanisms, causing damage to biological macromolecules and dysregulation of normal metabolism and physiology. Hypertension is a condition in which the blood vessels have persistently raised pressure, putting them under increased stress.

Amlodipine is a long-acting calcium channel blocker that dilates blood vessels and improves blood flow. Captopril is an angiotensin-converting enzyme inhibitor. Which is responsible for the conversion of angiotensin I to angiotensin II.

Oxidative stress is contributes to the etiology of hypertension in humans.

Aim of this study:

Assess the oxidative stress in hypertensive patients on Captopril and Amlodipine treatment through the assessment of salivary Malondialdehyde marker of oxidation process and superoxide dismutase as a marker of anti oxidants.

Subjects, Materials and Methods:

Ninety individuals were included in this study, divided into three groups; two study groups and one control group. The first group composed of 30 hypertensive patients on Captopril antihypertensive agent. The second group include also 30 hypertensive patients on Amlodipine treatment. The third group (control group) composed of 30 healthy subjects without any systemic disorder. Intraoral examination was done for each individual. Saliva samples were collected, the salivary flow rate (**F/R**) was calculated ml per minute. PH of salivary secretion were measured by PH meter. The levels of salivary MDA and SOD were analyzed by using ELISA kit based on the principle of Competitive enzyme immunoassay technique, the concentrations of markers were measured by microplate reader (MR-96A).

Results:

Salivary malondialdehyde was significantly higher in patients groups in relation to control group. Salivary superoxide dismutase was significantly lower in patient groups in relation to control group. Salivary flow rate and PH was significantly lower in patient groups comparing to control group.

Conclusions:

Salivary malondialdehyde and superoxide dismutase can be used as potential marker for hypertensive patients indicating both increase oxidative stress and decrease antioxidant activity.