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**A comparative study between the effects of
treatment modalities of antihypertensive
medications on the salivary flow rate and
salivary compositions**

A thesis

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Abstract

Background: Hypertension is a common chronic medical condition treated by several classes of medications that causes many oral side effects reflecting their manifestations on the quantity and quality of saliva secreted by the salivary glands and this in turn effect on the oral mucosa and teeth. The effect of different types of antihypertensive medications on the flow rate and composition of saliva has been shown in rats and human, but the effect of commonly and widely prescribed antihypertensives have not been highlighted adequately.

Aim of the study: To investigate the effect of three different types of antihypertensive medications having different mechanisms of action (amlodipine, Lisinopril and valsartan) on the salivary flow rate and salivary composition with their associated oral findings.

Subjects, materials and methods: Eighty subjects of both genders with an age range (41-68) years were enrolled in this study; twenty healthy subjects as a control group and sixty already diagnosed hypertensive patients divided into three groups as twenty patients taking amlodipine, twenty patients taking Lisinopril and twenty patients taking valsartan.

Oral examination, saliva collection, measurement of salivary flow rate and electrolyte analysis was performed for all controlled and patient groups. The salivary magnesium, calcium, sodium and potassium concentrations were measured by atomic absorption spectrophotometry method, whereas the salivary inorganic phosphorus and chloride concentrations were measured by colorimetric method.

Results: The statistical analysis revealed that all the concentrations of studied salivary electrolytes (phosphorus, magnesium, calcium, sodium, potassium and chloride) had significant differences in hypertensive

patients under medication compared to healthy subjects except for those taking lisinopril showed non-significant differences in salivary magnesium and chloride.

The salivary flow rate was significantly lower in patients taking amlodipine and lisinopril compared to healthy control, while the reduction was not significant in patients taking valsartan.

Although the gingival index and DMFT showed slight elevation in hypertensive patients compared to the controls, the difference was statistically non-significant.

Dry mouth was the most common oral manifestation among hypertensives and it was significantly higher in patients taking Lisinopril.

Lichenoid drug reaction, burning mouth sensation and gingival enlargement were found in very low rates among patient groups with no statistical significant difference.

Conclusions: This study demonstrated a more pronounced effect on salivary composition by amlodipine, Lisinopril and valsartan. There is a pronounced reduction in the salivary flow rate by amlodipine and Lisinopril.

There is no correlation between gingival index and DMFT index on one hand with the salivary flow rate and salivary composition on the other hand.

Valsartan is safer than amlodipine and Lisinopril when compared by their effects on oral health.